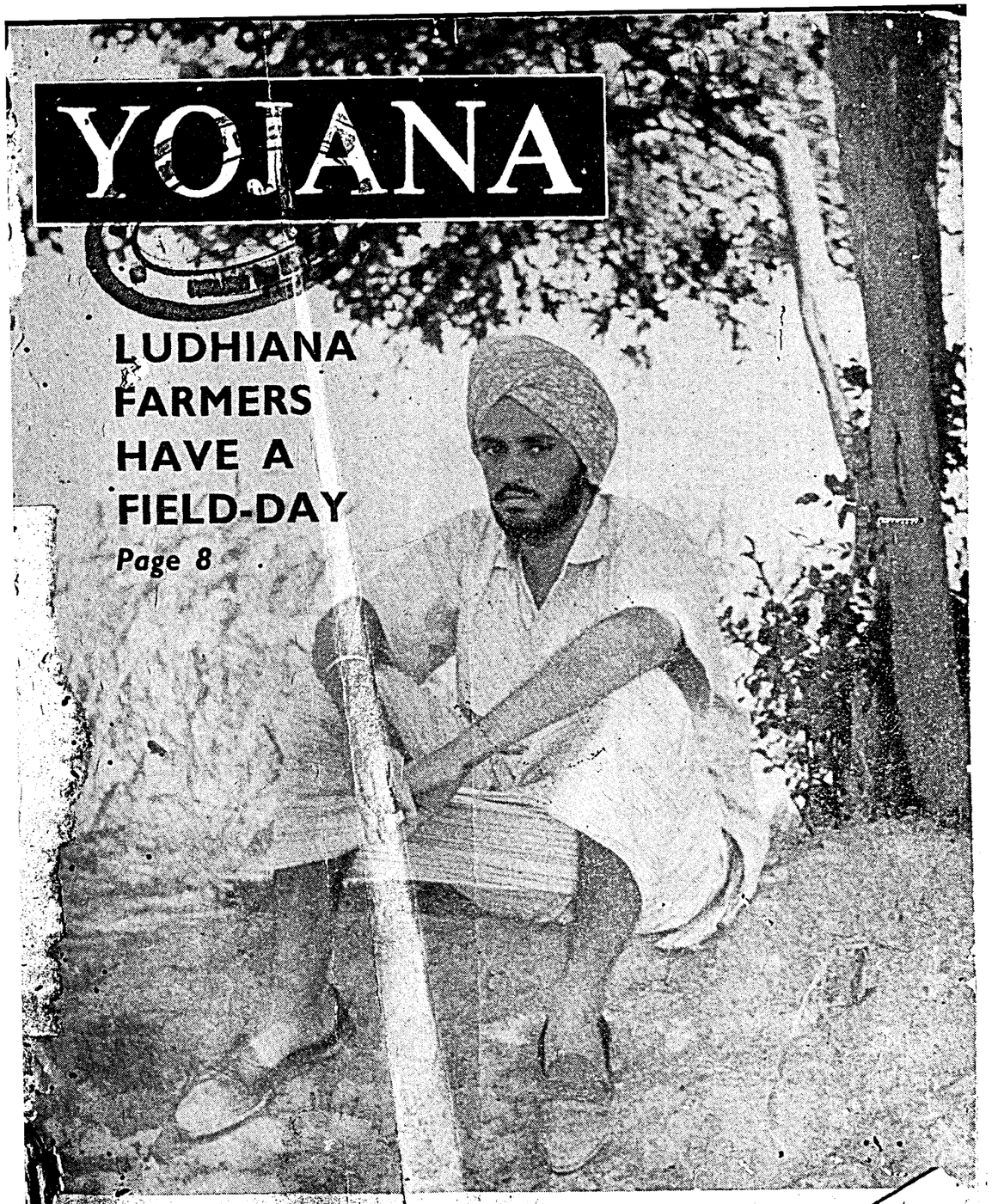
YOJANA



LUDHIANA FARMERS HAVE A FIELD-DAY

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Lala Lajpat Rai Page 2 ★ New Ordnance Factory A... (Scholarsh... on Page 4)

JANUARY 3, 1965 EIGHTH ... R 26

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

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YOJANA

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PRICE OF KNOWLEDGE

INNOVATION in the modern world is not a matter of stumbling upon a bright idea. It is a product of organised effort, and an expensive product at that. But it is not, for that reason, a luxury that developing countries can dispense with. It is they in fact who have to learn to innovate rapidly, so that they can get more out of their productive resources.

Given their hurry, developing countries naturally look for easy ways of acquiring the knowledge that makes innovation possible. In the post-war world, scientific knowledge and technology, research experience and researchers have therefore become articles of international purchase. In part, this spread of knowledge is sponsored by international agencies, for the conscious purpose of affording benefit to the undeveloped and underdeveloped. But, for the greater part, scientific knowledge and the skills associated with it are bought, notwithstanding the expense involved. Not merely is capital equipment purchased for a new industry, but also the know-how connected with setting up that industry and operating it.

Developing countries today are better-off than those who were at a similar stage in the past; they can draw upon the knowledge already tried out somewhere, instead of having to experiment *de novo*. But they also have to reckon the danger of sliding into easy dependence on somebody else every time something new has to be done. While importing know-how may be a convenience in the short period, a conscious effort has to be made in a planned economy to nurture the tree of knowledge locally.

This is not a question of chauvinism but of economic self-interest. Like individuals, societies also have to train themselves to be better organisms. This training is an internal process, which can be added but not wholly substituted by external artifices. Adaptation to the needs and morphology of each society is necessary before know-how in one can be transplanted into another.

What is to be transplanted and how are matters for close analysis. Science and technology have progressed so fast in the past few decades that the developing countries are very much like rustics in a modern departmental store. They are apt to end up with a whole lot of nicely packed gadgets, for using which they might have neither the facility nor the knowledge—unless they have done some research on their own, and have clear ideas of what is needed for which purpose. Developing countries, in other words, have to enlarge their own capabilities for assessing the scientific knowledge and technology that could with advantage be imported—and, indeed, built up internally in subsequent years. Men have to be prepared for this task, as well as the organisations established.

This is the logic that underlies the need for investment in research, technical personnel, design and consultancy organisations and so forth. These are not appendages that add an air of modernity to the development process, but are organic parts of it. Manifestly, enlargement of a country's scientific or technological capabilities makes a heavy draft on the limited supply of skilled personnel available to a poor country. But this supply will itself not be augmented if a proper climate and opportunities are not afforded for the exercise of human faculties within the country.

Fortunately for India, there are trained men in many disciplines who can organise and pioneer scientific progress in the country, given the facilities and the responsibilities. Both in industry and agriculture, we have not only to apply modern techniques but develop new ones that best fit in with our conditions. And even in the short period, investment in building up professional agencies for conducting research and for tendering technical advice can pay rich dividends—by reducing the royalties, consultancy fees and so forth, which we now have to pay in large amounts to other countries.

Not only the scale but the variety of things that we have to do increases with each Plan. Consequently, the burden of the payment for expertise is likely to rise in something like a geometric progression, if local talent is not built up for preparing the technical bases of development quickly. This requires the establishment of numerous research and consultancy agencies, each of which can render specialised service. Quite obviously, it is false economy to invest one agency with the responsibility for designing steel plants and petro-chemical or fertiliser factories requiring the most modern technology, when so much has to be done in the next ten years in each of these areas.

If we are not to depend endlessly on imported equipment and raw materials, we have to learn to produce them domestically. And this is a job that will be ill-done if every new production unit set up has to be designed and engineered by foreign agencies. There is, for instance, no question but that we shall have to build fertiliser factories year after year to support agricultural development. If for each of these we have to seek foreign collaboration, not only is more time involved in pre-investment negotiation but no economies of scale over

(*Continued on Page 4*)

ECONOMIC OUTLOOK OF *LALA LAJPAT RAI*

TARLOK SINGH

Member, Planning Commission

ON several occasions in recent years Shri Jawaharlal Nehru had observed that the movement for national freedom in India was unique because it had developed a marked economic and social content even from its early beginnings. National leaders struggled for political freedom because this was indispensable for dealing with the problems of mass poverty and creating a just social order. This approach perhaps began with Dadabhai Naoroji, whose paper 'The Poverty of India' goes back to 1876, but it continued through all the succeeding decades.

Lala Lajpat Rai belongs to the galaxy of illustrious names in the history of Indian freedom who combined scholarship with political struggle, who looked beyond the moment of liberation to the purposes to which freedom was to be put. It is a sad thought that Lala Lajpat Rai did not live long enough to see the ferment of ideas which swept the world in the thirties after the Great Depression and the commencement of the Soviet Five Year Plans. There is little doubt that, with his well-stored mind and wide range of interests, he would have contributed greatly to enlarging the economic and social dimensions of the movement for independence.

In the period before Gandhiji, leaders of the freedom movement had two main audiences before them. One consisted of the middle classes, specially the newly awakened professional and commercial groups, who had become increasingly sensitive to the wrongs of political subjection. The masses too were being touched, to a limited extent in many parts of the country, but intensely enough only in Bengal and the Deccan. The masses began to emerge as an elemental force only with the coming of Gandhiji. The other audience which Indian leaders had in view specially were the Liberals, the Progressive and the Fabians in Great Britain, and near the period of the First World War, a growing number of friends and sympathisers in America. This external audience in the English-speaking world derived much of its basic philosophy and values from the practice and institutions of Great Britain and was, therefore, disposed to listen to argument and reason. Consequently, much of the writing which Indian leaders undertook was intended to win greater sympathy and friendship for the Indian cause in Great Britain and in America, to establish respect for India as a nation and as a historical entity, and to counter the wrong done by uninformed or unfriendly historians and journalists. This was the kind of motivation which drove Lala Lajpat Rai to write his major works—*Young India, England's Debt to India, The Political Future of India* and *Unhappy India*. His other works, such as those dealing with the Arya Samaj, the story of his deportation and history of India, were addressed primarily to his own people and were intended to arouse their consciousness and pride and give them a sense of direction. But there can be no genuine writing in which the writer, specially when he is a major actor in the sweeping drama of a national movement, does not also express much of his philosophy of life. Because of this, sometimes directly, sometimes by inference, it is possible to trace the economic perceptions and outlook of Lala Lajpat Rai.

The birth centenary of Lala Lajpat Rai is being celebrated on January 28, 1965. On this occasion YOJANA publishes two articles. The other by Mr A.C. Guha, M.P. appears on Page 5.

In the history of any nation the attainment of freedom constitutes a watershed. There is a vast difference between the style and substance of those who laboured before freedom was gained and those who could devote their talents to the consolidation of freedom and its translation into specific economic and social policies and measures. The two tasks are different in nature. The test is whether, in consolidating freedom and striving to realise the economic and social aims which political freedom was designed to achieve, there is the same degree of fervour, sacrifice, courage and sense of identification with the national interest as marked the efforts of leaders and of large numbers of others before freedom was won.

We cannot interpret the thought of any leader or statesman or writer except against the background of the period in which he lived, the perspectives and ideologies which then prevailed and the social assumptions implicit at the time in common thought and behaviour. Much of the economic background of the closing decades of the nineteenth century was associated with large remittances from India to Britain on account of the public debt charged to India, railways investments and payments for armed forces and other services, the so-called 'drain' to which many writers, including Dadabhai Naoroji, Ranade, Dinshaw Wachha, Lajpat Rai and later KT Shah devoted a great deal of attention. This discussion is of less interest now but, to some extent, it persisted into the late twenties when the 'ratio' controversy followed a similar line of thought.

The next phase in Lala Lajpat Rai's economic thinking may be traced to the boycott of foreign goods and the Swadeshi movement which flared up with the partition of Bengal. The boycott of British goods began as a weapon of temporary use designed to inflict immediate damage to British interests, but soon its value as a measure of protection against foreign exploitation and as means for stimulating indigenous industry began to be realised. Lala Lajpat Rai wrote in *Young India* that with the decline of imports of foreign goods, many indigenous industries began to revive. There was a boom in handloom. While provinces outside Bengal did not adopt a polity of active boycott, the cry of Swadeshi was taken up all over the country and gave much impetus to indigenous manufacture. It was part of this attitude to the development of Indian industry, banking and insurance that induced Lala Lajpat Rai to participate actively in the building of the Punjab National Bank, the Lakshmi Insurance Company and a number of cotton mills and presses.

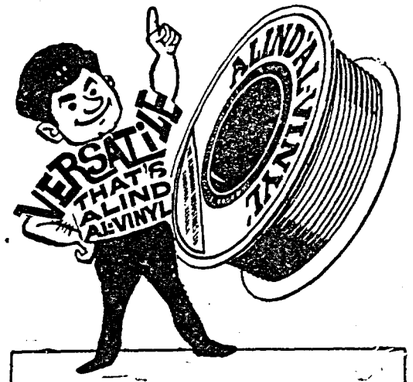
Long before national leaders applied their minds closely to economic problems, they were seized of the urgency and importance of education. Education was the key to national regeneration. Many of the leaders, like Lala Lajpat Rai himself, were pioneers in the field of education. They felt distressed and helpless at the widespread illiteracy of the people of India. In *Unhappy India*, Lala Lajpat Rai describes how repeated attempts to introduce compulsory primary education, beginning with Gokhale's Bill in 1911, came to be frustrated. Private institutions which sprang up throughout the country helped to some extent to increase opportunities for education, specially in the towns. National leaders also felt deeply concerned about lack of facilities for technical and higher education. "In the whole length and breadth of the country", Lala Lajpat Rai wrote in *Young India*, "there is not a single technological institute. The private or aided technological institutes are called by that name only by courtesy." He bemoaned also the lack of facilities for education in the sciences, in engineering and in medicine, and felt that in denying these facilities, the alien government had deep political purpose.

Through the decades, our national leaders were haunted by the poverty of India, specially in the villages. In *Unhappy India*, Lala Lajpat Rai described poverty as the rock bottom physical base of India's ills. The people of India, he said, were the poorest on earth. If such poverty existed in any other country in Europe or in America, the Government would have been turned out of office. While the evidence of poverty was overwhelming, it cannot be said that until the thirties, barring Gandhiji and Shri Jawaharlal Nehru, other national leaders really saw their way to a solution of the problems of mass poverty or had any considered strategy for dealing with it.

It was inevitable that even until the First World War many of the assumptions and attitudes customary in the nineteenth century should continue without basic challenge, equally in Britain and in India. A characteristic and widely accepted notion at the time concerned the role and position of the middle classes. In *Young India* Lala Lajpat Rai observed that the desire for political independence, the sense of shame and humiliation of being born a subject race, must from the nature of things be confined largely to the educated middle classes. Because of their ignorance and the struggle for bare existence, the masses could not be expected to take deep interest in the movement for political independence. Moreover, they were easily led astray by slight acts of kindness and consideration on the part of the Government. But as time passed, there was a shift in Lala Lajpat Rai's approach to the role of different classes. "Nationalism", he wrote, "is no longer confined to the classes. It promises to become a universal cult. It is permeating the masses." Again, he saw clearly that untouchability which, in the north, was associated with prejudice against certain kinds of labour, and was also supported by other religious and social prejudices, could not be allowed to exist, for it would "vitiate our future democracy".

At a time when capitalism was a world-wide creed, which had proven itself over a century or more, it was difficult in the West and even more so in countries still under foreign rule to question its main assumptions. On this aspect, Lala Lajpat Rai was certainly ahead of many of his contemporaries. He emphasised that to allow the power of science and technology to be concentrated in a few hands was the greatest misfortune that could befall mankind. He understood the significance of the October Revolution and observed in 1919 in his book *The Political Future of India* that this Revolution had brought into the affairs of men a new spirit which was going to stay and substantially influence the future of the world. Only radical changes in the existing order would stem its tide. The only way to meet Bolshevism, he said, was to concede rights to the different peoples of the earth now being bled and exploited. Otherwise, the discontented and exploited countries of the world would be the best breeding centres for it. A contented self-governing India might be proof against Bolshevism; a discontented, dissatisfied and oppressed India would be perhaps its most fertile field.

For all his talents and wide range, in the heat of the battle for freedom, one could scarcely expect Lala Lajpat Rai to present a systematic body of ideas for the solution of economic and social problems. Therefore, one's judgement has to be based on such indications of attitudes and beliefs as are reflected in various writings and activities. Lala Lajpat Rai was always explicit in whatever he wished to say. In an address which he delivered in 1907 to the All-India Swadeshi Conference at Surat, he said that the spirit of Swadeshi should prevail in all departments of life, subject to the one condition that whatever they had to learn from the West in order to maintain progress and secure prosperity, they need not be ashamed to learn. There was no use in going back. They must learn to fight out the battle for nationality in modern terms under modern conditions. It was this 'battle for nationality' which the earlier leaders of the freedom movement were always fighting whether they worked for Swadeshi, or for the advancement of education or the development of Indian industry, or raised their voice against the burden of foreign debt and foreign charges.



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Amongst his contemporaries, specially those who preceded Gandhiji, Lala Lajpat Rai frequently appealed to youth and struck a note of confidence in India's ability to solve its problems. He called upon the youth to face the challenge that lay before the country:

> "Young men of India", he said, "Your Motherland is at the present moment lying prostrate; prostrate because of your lack of faith in yourselves, in your people and in your country..Raise up your minds, enthuse yourselves with the electricity of self-confidence and self-reliance..In our common men, in the men who till our fields and produce our food, in those men who do not get to eat twice a day, you have a wealth which no other country on the face of the globe possesses."

This message of self-confidence and self-reliance, applied to economic and social tasks, may be said to be one of the central themes Lala Lajpat Rai pursued through all his life. No problem seemed beyond solution once the burden of foreign rule was lifted. There was no obstacle that could not be overcome if there were a genuine sense of devotion and readiness to subordinate personal interest for the country's good. Thoughts such as these gave Lala Lajpat Rai the strength to wage his life-long struggle. To us, of this generation, they should give the strength to overcome our present difficulties and strive with undimmed faith for the goals which nurtured India's freedom.

Price of Knowledge

(*from Page 1*)

the longer period secured. Each factory will have to pay for designs, equipment or technology, which may be patented, and therefore not capable of duplisation without incurring additional payments abroad. What is more important is the fact that we shall find it exceedingly difficult to plan rationally for the production of the machinery and equipment for fertiliser factories, on a scale large enough to make such production economical.

Much the same is the case with steel, aluminium, chemicals, electrical equipment and so forth. In all of these areas, the time is ripe for developing design and consultancy organisations within the country for facilitating ordered development in both the public and private agencies. There is fortunately a growing realisation of this opportunity, and efficient units like Dasturco, the design organisations of Hindustan Steel and Ferltilizer Corporation of India have shown that things hitherto done by outsiders can be done equally well locally. We should build on this experience, so that economic development is truly based on self-reliance.

HE TOLD THE NATION TO BE SELF-RELIANT

LALA LAJPAT RAI

—A Centenary Homage

A. C. Guha, M.P.



BORN on the 28th January, 1865, Lala Lajpat Rai had the opportunity of breathing the liberal and reformist political and social atmosphere of the nineteenth century and also of getting into the heated political atmosphere of the four decades of this century. Son of a teacher of modest means but of broad outlook, Lala Lajpat Rai grew up in a family atmosphere of liberal ideas and nationalist outlook. Quite early in his age, he had the opportunity of coming in contact with the great religious and social reformer, Swami Dayanand Saraswati. The teachings of Swamiji attracted Lala Lajpat Rai's imaginative mind easily and, along with Lala Hans Raj, he became a devoted follower of the Arya Samajist movement. This may be called the beginning of his career as a public man.

As an ardent Arya Samajist, he took to some social and cultural work including the starting of educational institutions. So long, he was practising as a successful lawyer at Hissar and then at Lahore. But even during these years, all his attention was not devoted to legal profession or even to educational institutions. His nationalist propensities found their first expression through literature. In Urdu he wrote the lives of Mazzini and Garibaldi, who were then almost like idols with the rising young generation. He also wrote a life of Sri Krishna. These books became popular with the readers. He was also taking interest in journalism even at a very early age.

Famine Relief Work

His career as a political and public leader practically started from the Punjab famine. Famine then was a normal feature, almost one in every decade. During these famines, Christian missionaries used to do some humanitarian work but with an eye also to pick up orphans and to put them in missionary-controlled orphanages, to be developed away from their relatives and families. During the 1897 famine in the Punjab, he noticed this aspect and started an orphanage on behalf of the Arya Samaj. Two years later, there was widespread famine covering many parts of northern India. The Punjab famine gave him an idea of human suffering. During the famine years 1899-1900, Lajpat Rai found an opportunity of organising relief and saving the orphans for their relatives and families. Relief organisations were set up in many Provinces of India and there was a sort of collaboration between the workers of different Provinces. Through this calamity came a sense of oneness of India. Soon after this famine relief work, Lajpat Rai engaged in the earthquake relief operations in 1905 at Kangra. These relief works show his eagerness for social services.

The callousness of the Government machinery in the relief operations both of the famine and of the earthquake moved Lajpat Rai's wrath and he poured forth his anger in the columns of *The Punjabi*. The Government took serious notice of his writings in *The Punjabi* which he continued for some years. The editor and the proprietor of *The Punjabi* were convicted. His speeches and writings were causing anxiety to the Government as these were suspected to be creating unrest among the army and adversely affecting recruitment for the Indian army.

In the meantime Lajpat Rai and Gokhale were sent to England as representatives of the Indian National Congress to place before the British public the reasons for the growing political discontent in India. The speeches of both of them were not at all to the liking of the Government. Lajpat Rai was of course an extremist from the very beginning; but Gokhale who was considered a very moderate politician was also then suspected by the Government. In the exchange of correspondence between the Viceroy Lord Minto and the Secretary of State Lord Morley, many angry remarks were made even against Gokhale. Lajpat Rai returned to India by the end of 1905 when Bengal was in great ferment due to the partition of Bengal by Lord Curzon.

Partition of Bengal

The partition of Bengal was an event of great significance for Indian political movement. Gandhiji in his *Hind Swaraj* has stated: "What we call real awakening took place after the partition of Bengal, 1905. For this, we have to be thankful to Lord Curzon..The shock the British power received through the partition has never been equalled by any other act..The demand for the abrogation of the partition is tantamount to a demand for Swaraj". It was the beginning of the aggressive political

movement as distinct from prayer politics of the earlier Congress leaders. As a protest against this partition, Bengal leaders initiated the campaign for Swadeshi and the boycott of British goods.

In the Banaras session of the Congress in December 1905, Lajpat Rai strongly supported the demand of Bengal and advocated boycott and Swadeshi. He said: "For us—a subject race—there was no path but that of struggle" and to him the cult of Swadeshi was equivalent to struggle. By Swadeshi, Lajpat Rai meant Swadeshi with all its political implications. The political movement in Bengal gradually extended its influence in other parts.

Two important leaders—Lokamanya Tilak and Lala Lajpat Rai—accorded full support to Bengal's agitation and demands. Gradually the spirit of unrest was spreading to other Provinces also. In 1907 there was an immediate provocation in the Punjab over the Canal Colonisation Bill and Lajpat Rai was closely associated with the movement against this Bill which was intended to adversely affect the interests of ex-army colonisers in the Doab. The Government interpreted his activity then as tampering with the loyalty of the soldiers. Lala Lajpat Rai and Sardar Ajit Singh were arrested under Regulation III of 1818 and Lalaji was deported to Mandalay, but after six months he was released. Minto, the Viceroy, detained him without consulting Lord Morley, the Secretary of State for India, who did not like the step. Later on, Minto changed his opinion about Lalaji and also about Aswini Kumar Dutta of Bengal. He wrote to Morley: "Both of them perhaps revolutionary in their ideas but still honest according to their lights and probably both of them were amenable to reason".

He was released just on the eve of the Congress session to be held at Surat. Bal Gangadhar Tilak, Lala Lajpat Rai and Bepin Chandra Pal, the famous Trio Bal-Lal-Pal, all went there. The Surat session of the Congress saw the parting of ways between the extremists and the moderates. The Congress machinery was captured by the moderates. This was the period of severe repressive policy of the Government of India. When Morley proposed some reforms for rallying the moderates, Minto suggested that reforms might be introduced but these should be preceded by repressive measures. He said, "We must give the medicine first, and then do all we can to take the taste away." During this period, the Seditious Meetings Act, the Press Act, the Criminal Law Amendment Act, etc., were passed.

Then came a sort of lull in the Indian political atmosphere. Almost all the extremist leaders were away from politics. Aurobindo had gone into recluse; Bepin Chandra Pal was away in Europe, Tilak was in Mandalay for six years. The extremist leaders of Bengal including Aswini Kumar Dutt, Shyam Sundar Chakraverty, Subodh Mallick and others were put under Regulations III of 1818. The Congress organisation was in the full control of the moderates. Lajpat Rai also went away to America in 1914 just before the First World War. There he came in contact with the Ghadr party under Lala Har Dayal and the Bengal revolutionaries like Taraknath Dass, Surendra Nath Bose, Sudhindra Nath Bose and others—all belonging to the Jugantar party. His relations with the revolutionary groups were not always very cordial. He tried to be intimate with them but at the same time could not approve all they were doing or were intending to do. This was the time of the Indo-German conspiracy which aimed at getting German arms for organising a rising in India.

He stayed in the U.S.A. for six years and did much propaganda to educate the U.S. public opinion. His speeches and writings there were bitterly resented by the British. He wrote in a weekly journal: "There has been a general awakening in India and a national party has come into existence—Indians have proved their fitness for self-government".

Emergence of Gandhi

He came to India in February 1920 —about 10 months after the Jallianwala massacre. This was the period of great political fermentation. New leaders were coming up. Mahatma Gandhi was gradually emerging as the supreme leader of the nation. Deshbandhu Chittaranjan Das, Motilal Nehru, Rajendra Prasad and others were also becoming prominent. Older leaders were receding into the background. Even Lokamanya Tilak was not holding the same place as he used to do in the earlier years. There was then a controversy between responsive co-operation and non-co-operation as propagated by Gandhi.

Lalaji became the President of the special session of the Congress to be held at Calcutta in September 1920. This was a crucial period of his life. Lokamanya died on the eve of the Congress session. Madan Mohan Malaviya, Annie Besant, the leader during the First World War, and Bepin Chandra Pal—whom Lajpat Rai knew well—could not agree with Mahatma Gandhi's programme. Lalaji did not openly go against the Congress when it accepted Gandhi as its leader. But he was not feeling very congenial; yet his loyalty to the Congress remained unflinching. This position continued for some years. During this period, he started an organisation called the Servants of the People Society. He was also taking interest in national education and in journalism. The Urdu newspaper *Bande Mataram* was established by him and also the English journal *People*. He was a very powerful writer in Urdu, English and Hindi. His interest in works of social amelioration found its manifestation in his advocacy of national education and in the establishment of the Servants of the People Society. This Society is a legacy he has left for the nation.

Agitation against Reforms

The climax of his life came during the nation-wide agitation against the Reforms scheme. The Congress could not accept the basic principles of the reforms as put in the draft report. The Simon Commission came to India in 1928 to make an on-the-spot assessment of the situation and to suggest necessary modifications. The Congress decided to boycott the Simon Commission and during a demonstration at Lahore on October 30, police made lathi charge. Lalaji also received some lathi blows. The whole nation was burning in anger against this atrocious incident. Lala Lajpat Rai was the one man in India who was respected by all sections of the public. Lalaji took the assault quietly but with a deep wound in his mind. He said: "Every blow hurled at me is a nail driven in the coffin of the British empire", and within a few days after that Lalaji expired.

In Lajpat Rai we found an advocate of aggressive Hindu revivalism and also an apostle of Hindu-Muslim unity. He knew that inspite of high standard of Hindu culture and civilisation, without Hindu-Muslim unity there was hardly any future for India. In him, we found an ardent patriot and a nationalist, at the same time a cosmopolitan with a liberal mind to take the best from the world all over. In him, we found a political leader of the extremist school, yet with a bent for social and constructive work. Politics was not the last word for him. Though his main preoccupation was politics, he could find time for education, journalism, and social work for the service of the depressed. A man of culture, he possessed a strong will to vindicate the honour of the nation.

As a man, he was almost without any blemish; as a patriot he had hardly any one to surpass him in suffering and sacrifice. As a man of culture and liberal ideas, he could rise much above politics, and as educationist, journalist, and a social worker also he shone with great lustre. In his birth centenary, the nation should pay its homage to his memory as one of those towering personalities who brightened the national firmament, not only politically but also culturally, during the twilight years of the nineteenth century and the first quarter of the twentieth century.

AERIAL PHOTO INTERPRETATION

AN Aerial Photo-Interpretation Institute will soon be set up in India under an agreement signed recently between India and the Netherlands. The institute will provide for training of 60 specialists and advanced training of 15 senior specialists every year in the use of aerial photo-interpretation techniques in the disciplines such as geology, forestry, soil survey and hydrology. It will cost Rs 1.36 crore of which Rs 38 lakh will be given by the Netherlands in the form of technical assistance, equipment and expert services.

QUOTATION BOX

Food bomb poses the biggest threat to the country at present and not China's atom bomb.

—Mr. C. Subramaniam

Thousands of Indian friends request us to send them up into outer space in Soviet spaceships.

—Mr. Ponomaryev, Secretary of the Communist Party of Soviet Union, in Bombay

I am still writing, and I hope to write better some day.

—Mr. John Masefield (86)

My "Socalled birthday" I have said, because I really cannot vouch for its accuracy.

—Mr. C. Rajagopalachari

The special attribute of the Minister of External Affairs is that he is unable or reluctant to conceal the inadequacies for which the Cabinet is collectively responsible.

—Editor of "The Times of India"

One can perhaps divine the mind of God, but not "the mind of Marx's children".

—Mr. T. T. Krishnamachari

Bottles of country liquor in Punjab will now carry the sermon "excessive use of alcohol is deleterious to health."

—A news item in The Sunday Standard

Imported wheat for Punjab.

—Newspaper headline

Maharashtra reverts to tonic with alcohol.

—INFA News release

Poets, beatniks and the arty-arty types generally sport a beard, largely because they are too lazy and disorganised to shave. Politicians often use the beard for camouflage, under the delusion that it adds to their personality and makes them look martial.

—Darem in The Sunday Standard

I have also been frustrated on account of our administrators who quote rules and procedures whenever anything new is attempted.

Mr. C. Subramaniam

Barry Goldwater is a very fine eighteenth century mind.

—Victor Reuther, U.S. labour leader

We have different shades of black in Africa. Some are very fair, some are chocolate brown, some are very dark, and some are what you might call graphite grey.

—Mr. Jaja Wachuku, Nigeria's Foreign Minister

Recently discharged from prison. Bachelor aged 28, good education and appearance, skilled shorthand-typist and excellent cook, seeks situation, preferably resident, perhaps as secretary to professional or literary personage, who will not regard him as a social leper.

—Advertisement in New Statesman

Once at a party in Madras, Mr C. Rajagopalachari 'warned' the guests saying, "Beware of this gentleman. He always carries in his pocket President's Rule." I emptied my pocket and said I was not carrying it. But true enough Rajaji's prophecy came correct and President's Rule came in Andhra for four months.

—Mr. C.L. Trivedi

Among the slum dwellers (of Hyderabad) are not only low grade Government servants, scavengers, rickshaw pullers, street hawkers and petty business men, but also a few advocates, artists, magicians, harikathaks, etc.

—From an Andhra Government Survey

Parliament is like a mother-in-law. When Parliament is sitting Ministers cannot make any declaration outside.

—Mr. S.K. Patil

Ministers should avoid going on tours during Parliament sessions.

—Speaker of the Lok Sabha

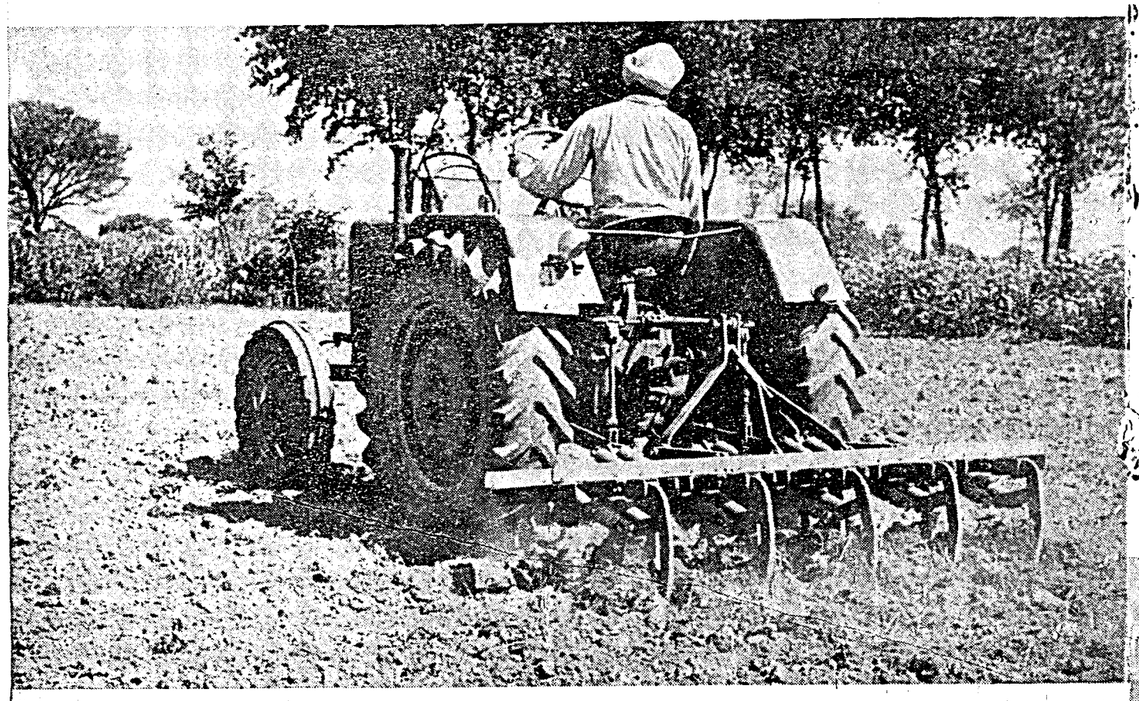
Even the politics of dissent in your State (U.P.) is overloaded with traditionalism or with a radicalism that reeks with irresponsibility.

—Asoka Mehta

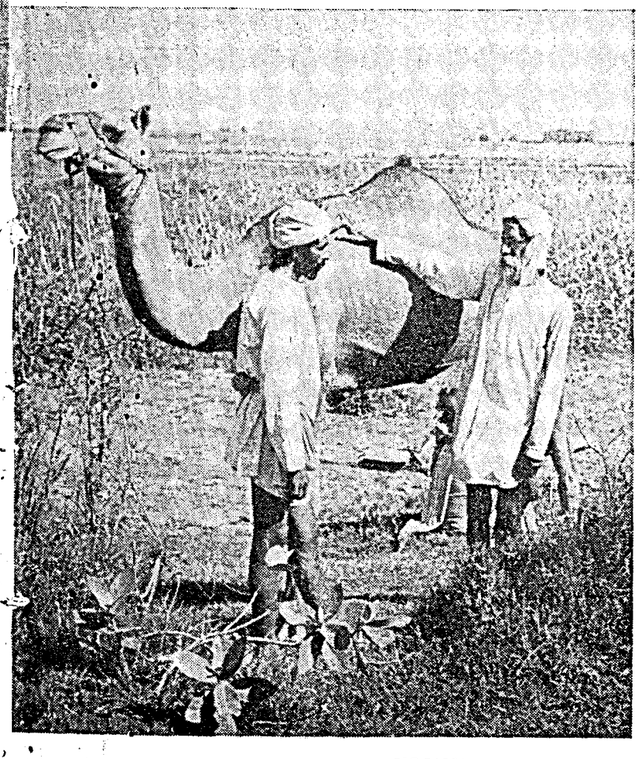
By and large living conditions (in China) are unspeakably primitive: now as ever the vast majority of people in the country and in the cities live crowded together with hordes of children in wooden shacks.

—Lorenz Stulki in Swiss Review of World Affairs

LUDHIANA FARMERS DO IT



Left: A three horse-power tractor being used on one of the fields of Mr Basant Singh, a progressive farmer of Ghungrali. Below : Sixty-year-old Dharam Singh (right) a farmer from Raiyan talking to his nephew on the field. Because of increased profit he has put six more acres under groundnut. The camel serves him as a means of transport.





Mr Santokh Singh, engineer-farmer from Gehlewal, examining a grape plant on the 40-acre plot he has kept for growing a vineyard on scientific lines.

YOJANA STAFF REPORT

Five-Year Wheat Targets Exceeded In Three

PACKAGE PROGRAMME

Report and Pictures by Kali Biswas

BICYCLES and scooters, brakes and bolts, sewing machines and needles, slide rules and precision lathes--a large variety of machine tools manufactured on roadside or industrial estates set apart. My first impression of Ludhiana was of a town producing machine parts only. In fact as I entered the town I saw a number of hoardings displaying the names of firms along with long lists of tools they manufacture. But as I moved into the interior of the district I saw a different landscape: small villages dotted with neat, modest dwellings; men and women working on the fields, sowing potato; applying fertilisers; some examining the standing crops of maize; yet others snatching a morsel of food after a morning's heavy work.

From what I saw it was clear that Ludhiana is one of the few places in the country where small-scale industry and agriculture are marching on equal pace. The striking feature is that industrialisation has not forced the agriculturists to migrate to the town.

I visited Ludhiana three months ago to study the impact of the Package Programme. One of the 17 districts of Punjab, Ludhiana has a population of 1,022,519, with a total area of 6.97 lakh acres under cultivation. The principal crops are wheat, groundnut and maize.

During my three-day tour of the district I met a number of farmers. The first farmer or should I say engineer-farmer I came across, was Mr. Santokh Singh at Gehlewal a village in the Mangat block, six kilometres from Ludhiana. A civil engineer, Mr. Singh comes from Lyallpur. After Partition, he came to Gehlewal and got 140 acres of poor, undeveloped land on exchange. At the age of 55 Mr. Singh retains the energy of a youth. Pointing to his farm and a lovely house built some time ago, he said, "You can now see for yourself how I have changed the landscape." It was a different scene indeed! Around the building, the only one in the place, lay 120 acres of irrigated land for cultivation of maize, wheat and potato on scientific lines. The way Mr. Singh maintains his farm proves that he combines in him the qualities of both engineer and farmer. He makes liberal use of fertilisers and also takes the advice of the extension staff. Recently he got 1¼ acres ready for raising grapes and bought Anabshahi plants from Hyderabad. He has spent about Rs. 1,200 on the cultivation of potato on 40 acres of land. He now expects a yield of 250 maunds. Even if he sells a maund for Rs. 10 he will earn a profit of Rs. 1,300.

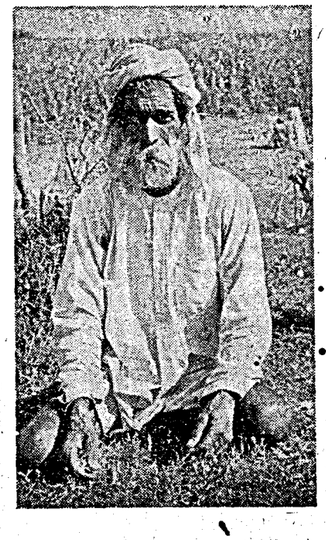
Mr. Basant Singh (50) comes from Ghungrali, a village in the Machhiwara block. A progressive farmer, Basant Singh has 1,300 acres of land on which he grows improved varieties of wheat (C273), maize (Ganga 101), groundnut, cotton and sugarcane. He also believes in modern methods of cultivation and uses a 3 H.P. tractor and fertilisers. For irrigation he has installed three pumps, one run by oil and the other two by electricity. He has a power thrasher and maize planter and an automatic seed and fertiliser drilling machine. In the adjoining orchard I saw the lemon and orange trees he has grown. Besides ten buffaloes, each giving 17 kg. of milk, he has also kept a poultry with more than 100 birds.

For the maintenance of his farm, Mr. Basant Singh depends on the

Wheat, Maize and Groundnut Yield goes up



Basant Singh (left) is happy with groundnut produced on his field. Below, Dharam Singh of Raiyan, a close-up.



help and advice of the extension staff. Before the introduction of the Package Programme he used nitrogenous fertilisers. For the past three years he has been using superphosphate as well, resulting in substantial increase in output. "I now get", he said, "more than 27 maunds of wheat per acre as against 18 maunds I used to get before. As for maize and groundnut the respective yields are 40 and 18 maunds per acre as against 25 and 10 maunds before."

As I went round his farm I was impressed by the latest tools he uses and the scientific way in which he gets the things done.

Didn't he benefit from the Package Programme? I asked. Mr. Basant Singh agreed that the programme had helped him in increasing the food output though he was doubtful if it had helped the farmers economically. "The fact is", he said, "that the cost of production has increased, hardly leaving any margin for them". But statistics told a different tale. He has put seven acres under hybrid maize, spending about Rs. 900 on fertilisers. At the rate of 40 maunds per acre he can expect 280 maunds of maize. Even if he sells at Rs. 15 per maund (according to him, a low price) he can earn more than Rs. 4,000 from maize alone. Taking into consideration irrigation and incidental charges his earning from maize cannot be expected to be less than Rs. 3,500.

Impact of Programme

LUDHIANA is one of the first seven districts selected for the Package Programme in 1960-61. The programme became operative in 1961-62. During the last three years nine out of ten blocks (one more added recently) have been covered resulting in significant increase in the area, yield and total production of wheat, groundnut and maize.

In Ludhiana wheat accounts for 40 per cent of the total cultivated area. In 1963-64 the area under wheat increased to 2.75 lakh acres as against 1.98 lakh acres in the pre-Package year of 1960-61. The yield per acre went up to 23.7 maunds as against 16.9 maunds before. And the total production in the district rose to 76.39 lakh maunds as against 45.40 lakh maunds in 1960-61. In other words, *production of wheat rose by 68 per cent against the contemplated increase of 50 to 60 per cent during the entire five-year period of the operation of the Package Programme.* The gross value of wheat produced in 1963-64 was Rs. 12.60 crore as against Rs. 7.28 crore, in 1960-61, representing an increase of as much as 73 per cent.

For groundnut, the next important crop in terms of the total cultivated area, the result was remarkable. From a mere 66,000 acres in 1960-61 the area increased to 1.06 lakh acres in 1963-64. The yield per acre rose to 14.31 maunds as against 10.1 maunds in 1960-61. As for total production, the figure went up to 15.21 lakh maunds in 1963-64, as against 6.75 lakh maunds or as much as 125 per cent. The gross value of the total groundnut production in 1963-64 was Rs. 1.69 crore more than what the farmers got in 1960-61.

Similarly there has been steady increase in the yield and production of maize. From 15 maunds per acre in 1960-61, the yield rose to 22.7 maunds in 1963-64 and the total production went up to 24.97 lakh maunds giving the farmer an additional income of Rs. 1.46 crore. Thus, *in* 1963-64, *the third year of the Package Programme, the Ludhiana farmers got an additional income of Rs. 8.46 crore from the three crops of wheat, groundnut and maize*—a remarkable achievement indeed!

Causes of Success

WHAT are the causes of the success of the Package Programme in Ludhiana? As in other Package areas, emphasis has been laid on farm production plans. As many as 30,000 production plans were prepared in 1963-64 and 18,000 more are being made for 1964-65. Second cause is the production of two crops. Since the inception of the programme, farmers have been raising two crops on the same field, maize followed by wheat. Thirdly, the proverbial trait of the Punjabi character: to work hard and earn a living. Fourthly, a more liberal use of fertilisers has been made. From a mere 5,600 tons in 1960-61, consumption went up to 24,000 tons in 1963-64 i.e. by more than four times. As in Alleppey in Kerala, farmers have realised the importance of fertilisers in increasing the output.

Said Mr. Atma Singh: "On my field I use 2.6 tons of fertilisers worth Rs. 800 and my gross income is Rs. 5,000." Atma Singh is young and handsome and represents the typical Punjabi farmer, active, gay and healthy. He comes from Ikolaha, a village in Machhiwara block, 46 kilometres from Ludhiana. He has 15 acres of land on which he grows maize, groundnut, cotton and sugarcane.

Did he take fertilisers from a co-operative society?

No, he replied. He did not like the formalities one has to go through to become a member of the co-operative society. He gets his supply from the local agricultural inspector. I learnt from him that the demand for fertilisers is going up, 1,100 tons being sold by the Agricultural Inspector directly. "The Package Programme", said Mr. Atma Singh, "has changed our outlook, no doubt. But what about the fluctuating price? A quintal of groundnut now sells for Rs. 86. At harvesting time the price will fall and I have to sell the same for as low a price as Rs. 54."

From the talks I had with the farmers it was clear that the Package Programme has helped farmers in increasing their output, though some were not inclined to agree. One was 60-year old Dharam Singh. He reminded me of Subramaniam Chettiar, the veteran farmer of Vadekkapadam of Palghat in Kerala. Dharam Singh comes from Raiyan, a village in Mangat block, 19 kilometres from Ludhiana. Of nine acres of land he owns, three are irrigated on which he grows groundnut, maize and fodder. For the past two years he has been using fertilisers and getting 14 to 15 maunds of groundnut per acre. Because of the increased yield he has now put the remaining six acres of unirrigated land under the same crop. When asked how the Package Programme had helped him, he simply replied that he did not know what the programme was. Mahinder Singh (30) who came from Sangeh, another village in the same block,

Potato seed being sown on Mr Santokh Singh's field



Liberal Use of Fertiliser, Two Crops from the Same Field, More Acres under Plough

regretted his inability to use the required quantity of fertiliser. A landless farmer, he grows wheat and maize on two acres of land on a share basis with the owner. He explained how he managed to apply only 15 kg. of nitrogenous fertiliser on 3/4th acre of land in place of the required quantity of 81 kg. The landowner, he complained, was not inclined to spend on fertiliser as that would indirectly benefit the farmer.

Problems to Solve

THE success of the Package Programme depends as much on the efforts of the extension officials as on the response from the farmers. In Ludhiana I noticed a co-ordination between the two agencies. The co-operative sector is strong. Loans amounting to Rs. 2.25 crore were given to the farmers in 1963-64 from 942 co-operative societies in the district. Arrangements for distribution of improved seed and pesticides are good. Village Level Workers are active and helpful. At Sahabana, a village in Mangat block, I saw how a demonstration of hybrid maize given by a Village Level Worker had convinced the farmers to bring as many as 12 acres under the crop. What is more, mechanised agriculture is becoming popular among the big land holders.

At the same time, there are some problems still to be solved: the fluctuating price and the increasing costs of production, particularly that of fertilisers: complaints heard in almost all the Package areas. Steps are being taken to fix a fair price for the produce. But the cost of fertilisers is still high. To raise hybrid maize a farmer has to use 225 kg. of CAN, 75 kg. of superphosphate and 50 kg. of muriate of potash per acre costing Rs. 125; for an acre of groundnut he has to spend Rs. 18 to Rs. 20 (100 kg. superphosphate and 20 kg. of muriate of potash). For wheat he has to apply 100 kg. of CAN, 50 kg. of superphosphate along with 20 kg. of muriate of potash costing to Rs. 40 to 45 per acre. However, it is reassuring to learn that the question of reducing the cost of fertiliser is also under consideration.

Secondly, one heard of anomalies in the rates of interest for loans from co-operative societies. Against loans from a co-operative society, a farmer has to pay interest at the rate of 9.37 per cent per year. On the other hand, an industrial worker has to pay only Rs. 2 or Rs. 3 per year for a loan from an industrial co-operative society. Again, farmers have to pay higher rates of electricity than industrial undertakings.

Besides, there are certain administrative difficulties in Ludhiana. Mr. Gurmel Singh, Pilot Project Officer, complained against frequent transfers of the staff. "Often we get raw and inexperienced people who fail to impress the farmers," he said. Further, the workshop meant for the Package Programme had been transferred to the Agricultural University. Though an agricultural engineer had been appointed the workshop had not yet been completed nor staff appointed for the soil testing laboratory.

As we have seen, the Package Programme in Ludhiana has changed the economic condition of the farmers during the last three years. With the removal of the existing drawbacks and administrative difficulties the programme is expected to show still more spectacular results in the two years to follow.

. . . And Machine Tools Too

THIS is not the first time that *Yojana* paid a visit to Ludhiana. Three years ago *Yojana* spent few days in Ludhiana and published an illustrated report on the range and magnitude of small-scale industry flourishing in the town in its Small Industries Special Number of August 5. I decided to go round the industrial areas and find out what more items were added to the list of production. Time being short at my disposal I managed to pay a hurried visit to R.K. Machine Tools, one of the many factories in Industrial Estate A.

The story of the firm goes back to 1959 when Mr. R.K. Soni, son of late Charan Dass Soni, a hosiery magnate, started a small machine tool factory at Ludhiana. To start with, it produced 12 machines, mostly lathes, per month. After two years the range and production went up. Today the firm produces as many as 30 machines a month, including precision lathes, milling, grinding and shaping machines—all designed and produced by Indians. The machines bear the three letter quality mark PQM (Punjab Quality Marking) and they are also approved by the Director-General of Supplies and Disposals. Because of high quality and competitive prices R.K. machine tools have a demand in domestic as well as foreign markets.

The young manager of the firm took me round the foundry, machine and assembly shops, occupying an area of 75,000 square yards. I was impressed by the people at work and the care taken at every stage to produce a variety of precision tools and instruments.

Were the management-labour relations good, I asked the young manager. He said relations were cordial. "We believe in contented workers", he said. "We give them all facilities, including two sets of uniform, a pair of shoes, steel almirahs, free evening entertainment, free medical aid, bonus and incentives. We distribute Rs. 50,000 a year as rewards to good workers. And mind you, there is no labour union in our factory."

No wonder R.K. Machine Tools now propose to erect five more sheds this year for manufacturing a wider variety of machinery.

R.K. Machine Tools is but one of the thousands of small-scale industries flourishing in the town of Ludhiana. In the villages, as we have seen, farmers are devotedly working on the fields increasing the food output. Are not industry and agriculture marching side by side in Ludhiana ?

For earlier reports on Package Programme published last year see Yojana, *June 7 and November 22.*

Advanced Advice

ONE of our M. Ps narrated an interesting experience recently. He visited Japan as a member of a government delegation. While there he indulged in an early wish—no, not the usual thing that visitors are supposed to do while in Tokyo—but riding in a Chevrolet Impala taxi.

After he got down he paid the fare and added a generous tip. The taxi-driver counted the money and returned the tip saying, "You come from a poor country, sir, and please conserve your foreign exchange!"

Unusual Firsts

GONE are the days when the annual university convocations invariably made front-page news. No body is to blame for this. There are now 64 universities in India as against nearly 20 in 1947. This means at least 64 convocations in an year. No surprise, the convocation news no longer finds so much favour with the newspaper editors.

But the recent annual convocation of the Aligarh Muslim University did provide some front-page fare for the newspapers. The convocation proved to be the confluence of various religions, languages and communities.

A South Indian boy, Mr Gopinathan stood first in M.A. examination in Hindi. In M.A. Sanskrit the first place went to a Muslim. A Muslim girl came to the stage in *purdah* to receive her gold medal. Prime Minister Lal Bahadur Shastri discarded his Gandhi cap and put on the ceremonial red Turkish cap to receive the honorary degree of Doctor of Laws.

Attracting Talent

IT is good news that more of our scientists trained abroad are returning home. According to Dr Husain Zaheer, the annual average now is 600 as against a hundred and fifty some years ago.

Whether it is pay that has done the trick is not yet known, but the Council of Scientific and Industrial Research has streamlined its pay structure with the aim of attracting talent.

The Indian worker is as conscious of 'treatment' as of 'salary'. This would be true of scientific workers and true of mill-hands. In research organisations, work ought to mean the opportunity to discover, to grow, to make a contribution to knowledge, to win the approbation of peers (not necessarily official superiors). Even high pay, if the other conditions are such as to inhibit growth, would not solve the frustrations of our scientists.

A British scientist, Dr Mendelssohn, gave a brilliant analysis on the B.B.C. some time ago of what ails science here. He speaks of the jealousy that elder scientists often feel in regard to the work of their younger colleagues. Scientists, although supposedly objective in their work, are human beings subject to the normal human frailties. But the more troubling part of Prof. Mendelssohn's talk is when he compares scientific work here and in China and says that the very advantage we had over China has become a disadvantage. The challenge of doing things ourselves is strangely lacking among us—in science and in other fields. The late Professor Haldane was a bitter opponent of sending Indian students abroad even for Ph. D. studies, and for anything that did not involve the most abstruse and advanced work. The biggest difficulty of science administration is to find the right balance between Swadeshic and world citizenship in science.

Promising State

FOOD and Kerala together are again in the news but this time in a welcome context. A team of experts from the Food and Agriculture Organisation is in our country at the request of the Government of India. The experts are here to give us advice on achieving a rapid increase in the production of rice.

The first State to benefit from their advice will be Kerala. The choice perhaps has not been made at random. The State is a compact area with excellent irrigation facilities, a good drainage system and a large literate population. It is thus ideally suited for the application of scientific methods of increasing production.

As for the task facing the State, it may not be easy but it is none too difficult. The total area under paddy in the State is about 1.9 million acres (gross). Production of rice from this entire area is only 9 lakh tons. This works out to about half a ton per acre. The State requires about two million tons of rice to be self-sufficient. In other words, every acre in the State should be made to produce a ton of rice in place of half a ton it is producing at present.

Even after that has been done, Kerala would only be equalling the productivity of Turkey or China. Countries like Egypt and Japan would still be producing much more per acre.



IGNORAMAN
Wants to Know
Why it is always
A Public
UNDERTAKING
and
A Private
ENTERPRISE

Land of Gonds

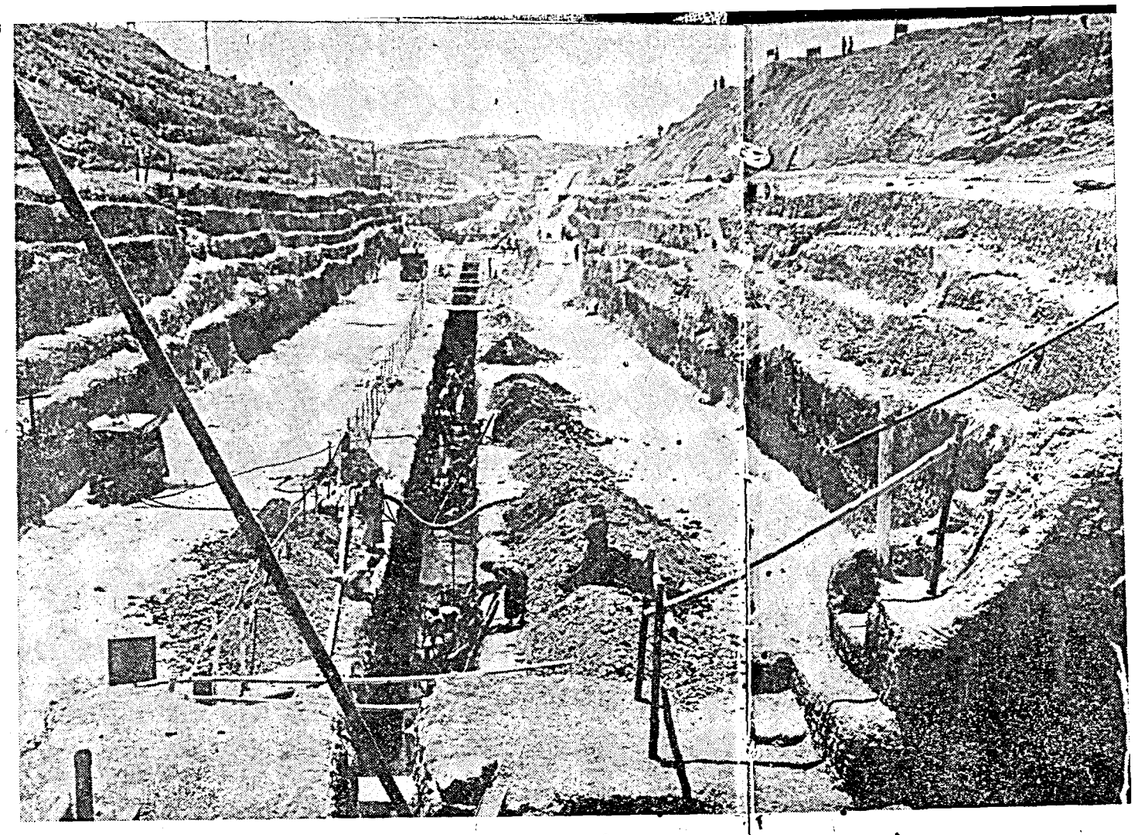
THE continents of Asia, Africa, Australia and South America formed one large continent at one time.

Believe it or not, this one is not from Ripley. This is from a paper read out at the International Geological Congress meeting in New Delhi. According to the paper this large continent which existed nearly 200 million years ago was named the Gondwana land after the Gonds of Madhya Pradesh.

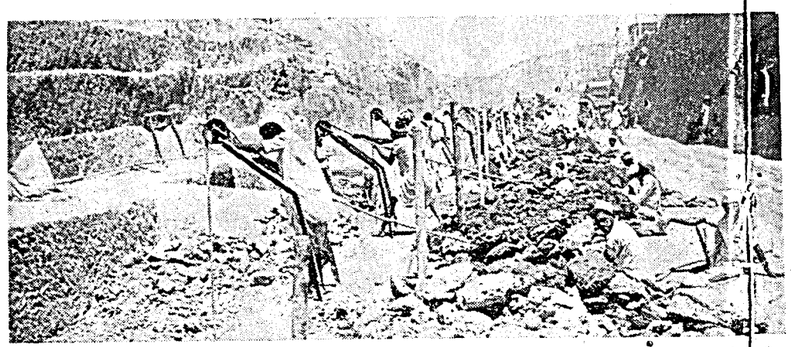
IRRIGATION in Maharashtra INCREASES FOUR TIMES in A Decade

MAHARASHTRA has a peculiar topography. Certain parts of it get rains as heavy as 650 centimetres and some others, not far away from the former, as scanty as 40 centimetres. The State is deficit in food grain production and certain parts suffer from recurring scarcity and near-famine conditions. Rivers are many but only a few have a perennial water supply. Most of them go dry in places during summer. There is little scope for big irrigation projects. The agriculture for its improvement has to depend on rains, small river resources, tanks and wells. Medium and minor irrigation schemes therefore play a major role in the irrigation programme of the State.

It has been observed during the past two decades that large tracts in the scarcity areas can be turned into prosperous granaries if only water could be made available to them. Ahmednagar district is a good example where the canal water has changed the face of the land to yield rich crops of sugarcane and grapes and long-staple cotton. The need for more water is felt as much in the fertile Vidarbha and the Marathwada regions as in the scarcity districts in the central part of the State.



Stress on Medium and Minor Schemes



In 1950-51, irrigation facilities were available for 7.38 lakh acres of land and the area actually irrigated was much less. During the first two Plans, the area under irrigation rose to 29.34 lakh acres, which was hardly 6 per cent of the total cultivated area in the State. The Third Plan envisages to add 21.28 lakh acres to the irrigated area through the schemes continued from the Second Plan and the new ones.

A regionwise progress of the medium irrigation works is given below.

MEDIUM SCHEMES

In the western region nine schemes were taken up in the First Plan. They were Ranand tank, Budhial tank, Mosam river project, Urmodi dam, Pushpavati dam, Tarali dam, Radhanagari hydro-electric and irrigation scheme, the extension of the Krishna canal and the Gangapur stage I. All these schemes have been completed at a cost of Rs 8.44 crore and an irrigation potential of 1,16,580 acres has been created.

In the Second Plan, only one scheme, namely Gangapur stage II, was included at a cost of Rs 94.61 lakh. In the first three years of the Third Plan an expenditure of Rs 34 lakh was incurred on it and an irrigation potential of 11,840 acres added.

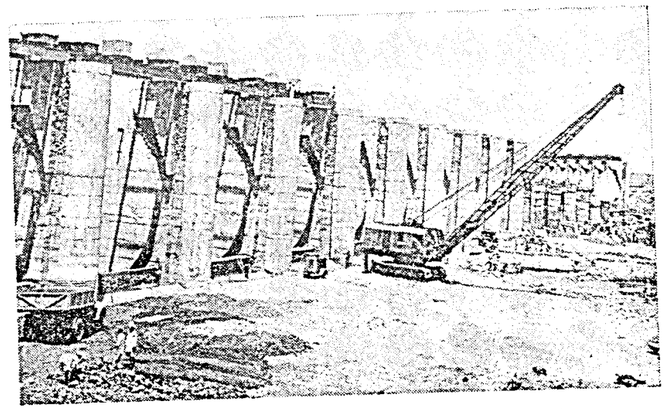
In the Third Plan, another scheme, namely the Malangaon tank, has been taken up. It is expected to cost Rs 61.71 lakh. Work on this scheme began in 1963-64. It will be continued in the Fourth Plan and will create an additional irrigation potential of 5,150 acres.

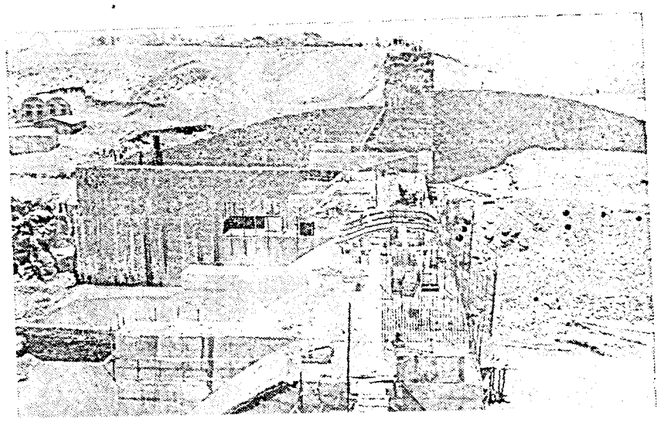
For the Vidarbha region, no medium irrigation scheme was provided for during the First Plan. In the Second Plan, two schemes, namely Pindrabodi tank and Ekburjee project, were taken up. The work is progressing. The dams have been completed and the canals will be built by the end of the Third Plan period. The expenditure incurred in the first three years of the Third Plan is Rs 58.29 lakh. The two schemes will irrigate 9,650 acres, making a small beginning this year.

The Third Plan provided for six new schemes in Vidarbha. They are: Morna river project, Gyanganga river project, Khuni river project, Managarh tank, Sangrampur tank, and Wunna river project. The cost of these projects has been estimated at Rs 497.32 lakh. Out of the six, the Managarh and Sangrampur schemes will be completed in the Third Plan to irrigate 6,600 acres.

In the Marathwada region there were eight medium schemes in the First Plan, namely Bendsura, Khasapur, Talwar, Kamli, Dhekum, Jui, Purna anicut and Shivna anicut. They have all been completed and have started irrigating. Their potential is 33,780 acres.

Out of the 14 Second Plan schemes, headworks of three schemes, Khelna, Thirna and Sindphana, have been completed and the work on canals is in progress. The gorges of dams of the Upper Dudhana, Kada, Gulhati, Chandani, Harni, Mohesangvi and Jivarakha have been filled up. Partial irrigation is likely to begin this year. These works are expected to be completed by the end of the Third





Pictures above and left show work in progress on the Mula project which was taken up in the Second Plan. On completion, it will irrigate 62 lakh acres of land in the scarcity district of Ahmednagar. The Ghod project (picture on the right) is located in Poona district. It will irrigate 61,000 acres of land in the Poona and Ahmedanagar districts. Picture on the right below shows the incomplete dam of the Yeldari project.

Plan and to create an irrigation potential of 53,000 acres. Work on the remaining four schemes, namely, the Wan, the Mahekari, the Sukhana and the Kurnoor, will continue in the Fourth Plan. On completion these schemes will irrigate 41,000 acres.

Only one scheme, namely the Ghirni river project, was provided in the Third Plan for this region at a cost Rs 102.32 lakh. The work has begun. Subsequently, the Kolhi tank project has been taken up at a cost of Rs 23 lakh for irrigating 1,530 acres.

MINOR SCHEMES

The Third Plan allocated Rs 906.25 lakh for minor irrigation schemes.

In September 1962, the Union Government promised an additional help of Rs 275 lakh over the Plan allocation for stepping up agricultural production. It was further raised to Rs 446 lakh in the wake of the Emergency. This allocation is to be spent in the following manner: Ex-malguzari tanks—Rs 300 lakh; new works in the scarcity affected parts of the western region—Rs 58 lakh; new minor irrigation works in Marathwada—Rs 65 lakh, and land drainage schemes—Rs 32 lakh. The total allocation for minor works now stands at Rs 13.61 crore.

Last year an amount of Rs 101 lakh was set apart for works under the zilla parishads (each work irrigating 250 or less acres). The expenditure was expected to be Rs 241.92 lakh.

Before the commencement of the Five Year Plans the irrigation potential created by minor works in the State was 48,700 acres and the area actually irrigated was 44,900 acres in 1950-51. The First Plan added 47,040 acres to the potential and the Second Plan provided for 1,41,270 acres more. Thus at the end of the Second Plan, the minor works had created an irrigation potential of 2,37,018 acres. The area irrigated during 1961-62 was 1,03,431 acres.

During the period April 1961 to June 1962 the potential rose to 2,84,897 acres and 1,26,850 acres in 1962-63 were actually irrigated.

From June 1962 to June 1963, an additional irrigation potential of 17,187 acres was created making the total irrigation potential of 3,02,084 acres.

FORUM EVENTS
Reporting the Activities of College Planning Forums

SURVEY SAYS

Villagers Rarely Discuss Their Common Problems

THE Planning Forum of G.M. College, Sambalpur (Orissa), conducted recently a socio-economic study of Kainsir village. A group of enthusiastic students of the degree classes in economics and commerce took part in the study.

Kainsir is situated three miles to the north of Sambalpur. The Sambalpur-Jamadarpalli road leading to the right dyke of the Hirakud Dam runs through the village which is surrounded on three sides by agricultural fields and to the north by a picturesque hill and a small stretch of forest. It is served by two reservoirs and a branch canal of the Hirakud canal system.

The village has a population of 1,068 and an area of 730.22 acres. Thus it has 935 persons per square mile, four times more than the district average. There are 203 families in the village belonging mostly to backward classes. All the households of the village were covered by the surveyors. The 100 households who responded satisfactorily possess 46 per cent of the cultivated area, 44 per cent of the irrigated area and 72 per cent of the agricultural holdings.

RAPID GROWTH

The village comes under Sambalpur development block and is the headquarters of the Village Level Worker. There is no community house but the temple occasionaly serves as meeting place. Villagers rarely meet to discuss their common problems and one hardly finds a community life in the village. There is an upper primary school with 115 students. There is no co-operative organisation. The villagers rarely take advantage of the veterinary services provided at Sambalpur.

The population of the village has gone up from 749 in 1951 to 1,068 in 1961, an increase of 42.59 per cent over the decade as against 15.89 per cent for the district. This growth is perhaps due to the settlement of a number of displaced families from the villages submerged by the Hirakud reservoir.

An occupation-wise study reveals that 46 families out of the 100 surveyed earned their living from farming and of this 22 families supplemented income from other sources, mostly *bidi*-making. Of the remaining, 52 families were labourers.

Of the total working population, 83.39 per cent were earning members. The proportion of earners in the total population is 48.58 per cent. In other words, in an average family 2.56 members had to support 5.27 members. A community-wise analysis shows that the percentages of dependents are 58.09, 29.68 and 47.45 respectively amongst the caste Hindus, scheduled castes and scheduled tribes.

An analysis of the educational status of the 100 families surveyed shows that 76.5 per cent were illiterate and 23.5 per cent literate.

POOR FARMING

Of the total area of 730.22 acres, 582.03 acres or 79.71 per cent is under the plough. The area under irrigation is 400.80 acres or 68.86 per cent of the cultivated land. Average size of a holding is nine acres. There are only three holdings of more than 25 acres each.

Among the farmers, 63 per cent own their lands, 19.6 per cent have mixed tenancy and 17.4 per cent are pure tenancy holders. The pattern of land-ownership according to the 1951 Census was 67.48 per cent owner-cultivators, 3.34 per cent mixed tenants and 21.18 per cent pure tenants. There has thus been a shift from ownership and pure tenancy to mixed tenancy cultivation. The pure tenancy cultivation is more prevalent among the scheduled tribes indicating thereby a greater demand for land from this class. The percentage of farming population has gone up from 43.93 per cent in 1951 to 52.4 per cent in 1961 and that of land-owners from 70.81 per cent to 82.6 per cent. This indicates a greater fragmentation of holdings lately.

There is a wide disparity in the distribution of land as among communities and the scheduled tribes still continue to be economically backward. More than half (55.26 per cent) of the holdings are less than five acres each. Small holdings constitute 26.21 per cent of the total cultivated area.

About 65.24 per cent of the total cultivated area has irrigation facilities and 23.65 per cent of the total irrigated land is under double cropping. Out of the 46 cultivating households, 15 households were disinclined towards or indifferent to the use of canal water for irrigation.

Of the total cultivated area, 193.5 acres (89.80 per cent) were under paddy. The average yield of paddy was 12.60 maunds per acre. The low yield could be due to inadequate use of manure. The average yield increased with the increase in the size of the holding and social status of the cultivator.

Out of the 46 agricultural families surveyed, 45 own 67 pairs of bullocks and a pair of buffaloes to plough 269 acres of land. Thus on an average every pair of bullock tills about four acres of land. Evidently the proportion of bullocks to land goes down with the increase in the size of the holding. The heavy concentration of bullocks in the hands of the small farmers explains the poor quality of the bullocks.

There are 257 heads of cattle and they yield 37 tons of manure annually. The supply of local manure to the land comes to four maunds per acre. The need for supplementing this source by other means is keenly felt. Chemical fertilisers are rarely used. The milk yield of 31 cows belonging to the families surveyed is very poor. Six families rear 34 goats and 19 families have 44 poultry birds. The location of the village as a suburb of the rapidly growing Sambalpur town in an industrial area highly favours the rearing of goats and poultry on a large scale.

SOCIALLY BACKWARD

The study reveals that 45 families out of the 100 surveyed were under debt to the tune of Rs. 6,616. Friends and relations were the chief source of loans (44.89 per cent). Moneylenders accounted for 34.52 per cent of the total debt and co-operative credit societies supplied 20.59 per cent only. Only two of the 45 indebted families had taken the benefit of co-operative credit facilities.

Of the 100 families surveyed, only three families had the luxury of living in so-called *Pucca* houses, 33 families lived in semi-*pucca* houses and 64 families in *kutcha* houses. On an average each family had 3.6 rooms to live. The cultivator class with an average of four rooms per family has an advantage over the non-cultivating households whose average comes to three rooms.

Only 55 per cent of the heads of families were in favour of having limited families whereas 24 per cent did not favour family planning, and 21 per cent had no definite views. A community-wise study is more interesting. Among the caste Hindus, 72.2 per cent were for family planning. Among the scheduled tribe families, 55.2 per cent were against it.

The conclusion is that the schemes for rural development under the Plans have made little impact on the village. Almost stagnant position of literacy over a decade, the absence of an urge for education in a place very near to a centre of schools and colleges, the non-existence of any co-operative institution and cottage industry, the want of dairy and poultry-farming in a suburb of a rapidly expanding town, the wretched condition of livestock, the scarce use of fertilisers, the insignificant double-cropping in an irrigated area, the lack of a community life and plan-consciousness at the head-quarters of the Village Level Worker—all these speak of the indolence and listless attitude of the people and indifference of the administrative machinery.

Yojana Bhavan Diary

AN outlay of Rs 56.65 crore for Gujarat's annual plan for 1965-66 was approved at a meeting held in Yojana Bhavan on December 16. In addition to this outlay, a sum of Rs 2.05 crore will be available to Gujarat for quick-maturing schemes in the agricultural sector during the current year and in 1965-66.

At a meeting held on December 3, an annual plan outlay of Rs 20.90 crore for 1965-66 for Jammu and Kashmir was approved.

Mr Chang Nyol Lee, an economist from Korea, came to Yojana Bhavan on December 23, 24 and 26. He met Dr K. S. Krishnaswamy, Economic Adviser, Mr M. Butt, Joint Secretary, Mr Pitamber Pant, Chief, Perspective Planning Division, and other senior officials and had discussions on resource mobilisation.

American Peace Corps volunteers in West Bengal, Madhya Pradesh and Andhra Pradesh engaged in the fields of poultry and nursing met in a seminar, held at Gopalapur-on-sea (Orissa) from December 11 to 13.

Dr von dem Bussche, Director-General of German Development Service (DED), accompanied by Mr Dieter Bricke, Director, met Mr M. Butt, Joint Secretary and Mr U. S. Rana, Director, Liaison, on December 12 and 13 and exchanged views on their future projects in India.

Mr K. Vyasulu, Chief in the Industries and Minerals Division, has resigned.

Books

Manures & Fertilisers

Handbook of Manures and Fertilisers. Indian Council of Agricultural Research, New Delhi. 333 pages. Rs 6.50.

S.P. RAYCHAUDHURI

THE publication is a compilation of information available on fertilisers, manures and manuring in relations to soils, for use by extension workers for advising farmers. It has been recognised that the most important way of increasing agricultural production in the country is the application of manures and fertilisers. That is why proposals have been made to increase the production and consumption of fertilisers very considerably during the Fourth Plan. The projected use of a large quantity of fertilisers will necessarily involve the correct technical knowledge of the application of each kind of fertiliser either alone or in conjunction with bulky organic manures, including green manure, in respect of various crops. The Handbook deals with these problems in a clear and objective manner. It explains lucidly the role of plant nutrients in crop production and the deficiency symptoms of the individual major and micro nutrients for specific crops.

Useful information has also been given on the most suitable green manure crops for the various States; the technique of green manuring and enrichment of soil by this practice have been dealt with and indications have been given of the economics of green mauring in some specific cases. The composition and use of farmyard manure, artificial or synthetic farmyard manure, compost, nightsoil and sewage, biological fuel gas, oil-cakes, bones and bone-meal, fish manure, guano, nightsoil compost and other organic manures like dried blood, slaughter-house waste, hoof and horn-meal, press-mud and miscellaneous wastes have been lucidly described. The composition and characteristics of different nitrogenous, phosphatic and potassic fertilisers, fertiliser mixtures, quality control, marketing, distribution, techniques of fertiliser application and the economics of fertiliser use have been systematically dealt with.

In an intensive programme of agricultural production, the application of lime to acid soils and gypsum to alkali soils as amendments will go a long way towards bringing back into use such problem areas as are at present lying waste or giving poor yield of crops. It is good to find, therefore, that soil amendment has been exhaustively dealt with in the treatise. Similarly, soil testing which plays an important role in assessing the manurial schedules of different soils with respect to specific crops, has been objectively described. The Handbook also deals with the distribution and physio-chemical characteristics of the main soil groups in relation to the climate and with soil inoculants, bacterial and algal, which have been found useful in increasing the soil productivity in some countries.

The appendix gives a number of useful tables such as the average analysis of important fertilisers, suitable composition of fertiliser mixtures, location and quality of limestone available in the country, neutralising values of different liming materials, equivalent acidity of some of the commonly used fertilisers, uptake of nutrients by plants, optimum pH range of crops, conversion table of pure nutrients to quantity of fertilisers and the average composition of the important Indian soils.

The publication of a handbook on manures and fertilisers based on Indian data was long overdue. There is no doubt that the present handbook, which gives an integrated and comprehensive account of all aspects of the subject, will be very welcome not only to extension workers but also to students and teachers of agricultural colleges and research workers on soils, fertilisers and manures.

HOW TO MAKE BEST USE OF THEM ?

PROBLEM OF NUMBERS

Population Problem by J. S. Apte. Published by Samaj Prabodhan Sanstha, Poona-2. 70 pages. Rs. 2.

P. D. A.

THIS Marathi book is the eleventh publication of the Samaj Probodhan Sanstha, the Institute which aims at objective discussion of important socio-economic and other problems with a view to widening the scientific and humanitarian outlook on life. The booklet under review discusses the population problem of the country and throws light on various solutions of the same. The emphasis is, of course, on the family planning. The booklet is intended for the guidance of the social and political workers in villages and at taluka places, primary and secondary teachers, village level workers and officials of Gram panchayats and other local bodies.

The booklet contains chapters on the human society and economic life, nature and characteristics of Indian population and its problems, need for family planning, history of family planning movement in India and its place in the present context. A few questions and answers are also added at the end. The author has made use of a lot of statistics available on the subject and has tried to bring out the gravity of the problem, but at places he has not discussed these figures in the proper perspective and, as a result, has failed to drive the point home. For example on Page 23 the author merely gives figures on sex ratio, expectation of life, growth rate, birth rate and death rate. Mere figures do not tell anything unless their implications are brought out. At places the figures given are incorrect. For instance, the figures relating to percentage increase in the population (Page 16) do not agree with the official figures released by the Registrar General. Again, while discussing the poor health condition in the country the author merely gives the figures of the per capita diet requirements (Page 25). This should have been contrasted with the actual availability of the balanced diet.

The latter part of the booklet dealing with family planning methods, though neatly presented, cannot be said to have touched all the aspects of the problem. While discussing various factors which stand in the way of family planning, the booklet dwells upon factors such as early marriage, status of woman and desire for children, but leaves out other equally important personal, attitudinal, organisational and economic factors such as housing facilities, social support, literacy, lack of distribution facilities and costs. Again, while discussing family planning methods it does not refer to abortion nor to reversion of vasectomy operations successfully done by the late Dr Phadke in Bombay. Information about the setup of the family planning organisation and schemes introduced by the Government such as availability of contraceptives at cheap rates and free operation facilities could have been included with advantage.

However, the booklet has been written in simple language and rightly stresses that it is not only necessary to control the population but it is equally important to improve the quality of the population and the efficiency of the economically active population. It points out that the imbalance between the population and the production has to be corrected by different measures, and population control is one of them.

City Dwellers and Savings

Attitudes Towards and Motivations for Saving. Published by the National Council of Applied Economic Research, New Delhi. 146 pages. Rs 10.50.

M.K.R.

AN inquiry conducted in urban areas by the National Council of Applied Economic Research about motives for saving is relevant for planning. The sample survey of households conducted in 1960 revealed that the public attitude to saving is traditional and the forms of saving are also traditional. Since many who were asked about their income and outgo said they were worse off, the scope for saving was limited. It is plain that the man in the black coat with the white seams (the middle class family man) retains the saving habit but the depreciation of money over a decade may curtail saving or influence attitude.

The revolution of rising expectations is not yet reflected in savings and only a minority can afford to save willingly and regularly. Education influences the habit but it is the managerial class which has fared better and is obviously disposed to save though its propensity for conspicuous consumption is not in doubt. The tendency to invest in one's own business is still pronounced. Only the rich disdain investment in gold. Not many think of stocks and shares as the better medium. There seems to be a field for the Unit Trust to cultivate, though it has come into being only in 1964.

The statistics from which the inferences are drawn make up the greater part of this small book. The optimists who look for higher incomes and can continue to save (voluntarily) are in a minority. The aged and the underprivileged do not look forward to a future of contentment and ease. The relation between caste and saving is not indicated, though it is clear that social origins and stratification govern the habit of saving, in India particularly. Higher education stimulates the desire to save more but the cost of living and taxes reduce the surplus available for saving. What is implicit is that the Welfare State or the Opportunity State has not shaped the course or volume of savings. Thrift is yet not a virtue that is esteemed widely. The NCAER suggests also that savings certificates are not yet familiar to those who save from a sense of duty without thinking about the Plans.

Office Management in Japan

Office Management in Japan, U.S.A. and Great Britain. The National Productivity Council, New Delhi. 120 Pages. Rs. 3.50.

This report presents a general study of office management as it prevails in U.K., U.S.A. and Japan. It sets out material familiar to every student of office management and work study.

As in all countries, the larger establishments in India are aware of the need for cost reduction through better office management. But there is a difference as the scale of operations determines the demand for specialised management services, and medium and small units, as distinct from large-scale organisations, dominate an under-developed economy. Whether these small and medium units which need not necessarily have the paraphernalia of an "office" can afford the cost of reducing over heads is an open question. In this context, the recommendation on organising common house-keeping services on a co-operative basis is timely. The other recommendations of the report have limited validity to the Indian setting.

The report is useful more on the academic level as a text-book on office management. —S.

PUBLICATIONS RECEIVED

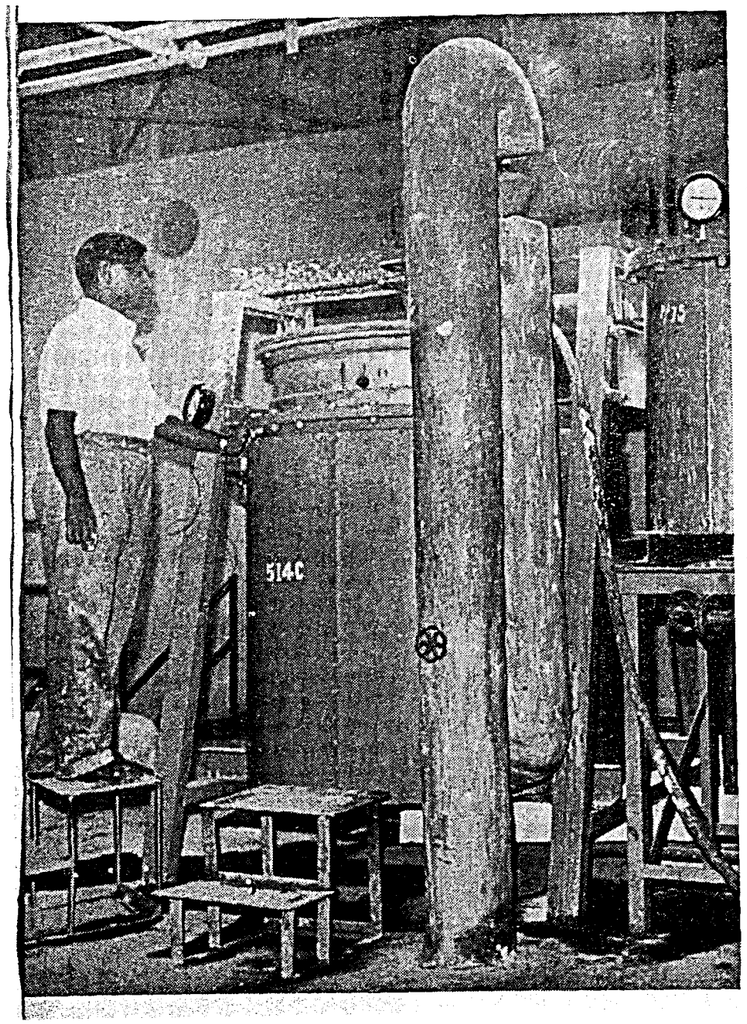
Agriculture and Livestock in Rajasthan. 101 Pages. Rs. 7.50, $ 2, Sh. 13. *All India Rural Household Saving Survey 1962 Vol. 1. Methodology.* 258 pages. Rs. 21, $ 5.25, Sh. 36. *Transport Requirements of the Iron & Steel Belt.* 222 pages. Rs. 18, $ 5, Sh. 35. All Published by the National Council of Applied Economic Research, New Delhi.

Community Development, Co-operation & Panchayati Raj in Alipur—A Pilot Survey by Ranjit Gupta. 30 pages. Rs. 2. *Co-operative Law in India*—A Disquisition. 124 pages. Rs. 6. *Retailing in Metropolitan India* by Ranjit Gupta. 90 pages. Rs. 10. All published by the Indian Co-operative Union, New Delhi.

BUILT IN JUST TWELVE MONTHS

ORDNANCE FACTORY AT BHANDARA

PRODUCES PROPELLANTS AND NEW EXPLOSIVES



THE Ordnance Factory at Bhandara which was inaugurated last month (December 16) is the third in the country to start production since the Chinese aggression two years ago. The Small Arms Ammunition Factory at Varangaon was inaugurated by the Minister of Defence, in October last. It was set up in a record time of eight months for manufacturing the much-needed 7.62 mm. rimless ammunition required for the Ishapore semi-automatic rifles (see *Yojna* December 20, 1964). Earlier, the Ordnance Cable Factory was formally opened at Chandigarh in February.

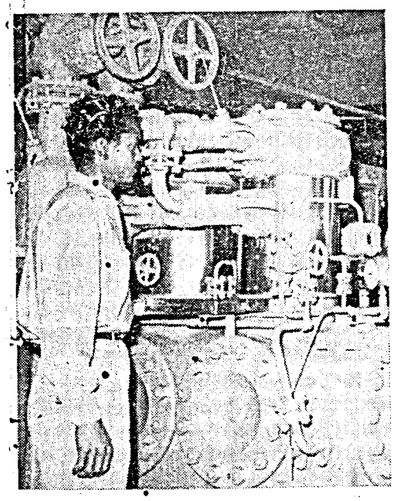
The Bhandara factory will manufacture propellants and newer types of explosives, not produced in India before in the existing chain of ammunition, explosives and propellant factories.

The factory site covers an area of some 5,000 acres with the Nandora hills of Vindhya range forming the backdrop. The site situated near the confluence of the rivers Vainganga and Kanhan will ensure an abundant supply of water for the manufacturing processes. The factory will consume about 80 million gallons of water per day which is as much as required by an entire medium-size city.

The estimated cost of the project is about Rs. 16 crore with a foreign exchange element of Rs. 4 crore. When in full production the factory will save about Rs. 4 crore every year for the country.

The factory has the capacity for producing explosives as well as basic acids and other chemicals. It will also undertake manufacture of propellants not only for the Army but also for the Navy and the Air Force. It will meet the entire requirement for propellants of the newly-established Small Arms Ammunition Factory at Varangaon and a number of other filling factories.

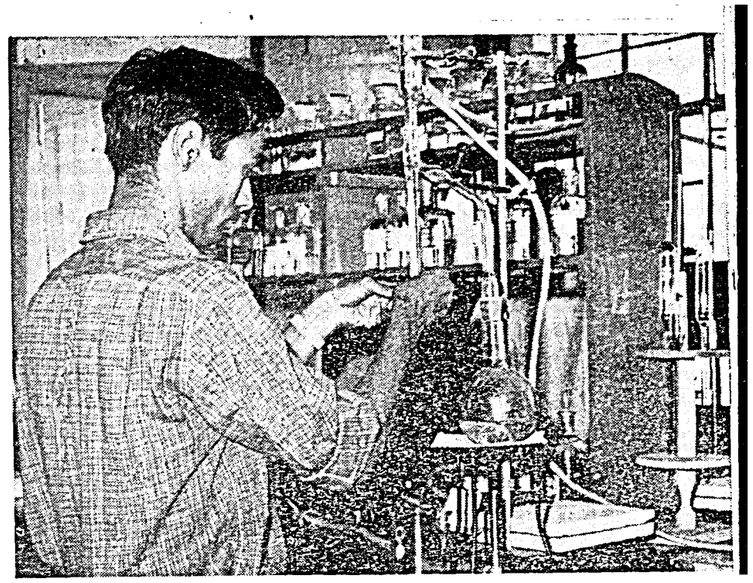
The plant and equipment for the factory have been bought from the United Kingdom, West Germany, Sweden, Belgium and France on the basis of global tenders. The plant and equipment weigh 6,000 tons, more than half of which was moved over roads and fields from the Bhandara railway station to the site by



trucks and special type of articulate self-propelled trailers and "tank-transporters". The rest of the equipment was transported by the newly laid 18-kilometre railway line.

This complex project was executed by the Directorate-General of Ordnance Factories in a short period of 12 months since the delivery of machinery at site. Some 300 buildings have come up to house the various machinery and men.

About 11,000 trees of some 65 varieties have been planted around the factory. These will provide the much-needed relief from the scorching heat of summer, and will change the entire vista of the site.



The ordnance factory at Bhandara is the third since Emergency to be commissioned. Built at a cost of Rs. 16 crore, the factory has the most modern equipment. (Above) A section of the laboratory attached to the factory. The two other pictures are of different sections of the factory.

Two of the proposed six ordnance factories have now been dropped. These two were to manufacture explosives and propellants. A part of those items would now be manufactured at the Bhandara factory and the rest would be stockpiled so that defence preparedness is not adversely affected and at the same time the foreign exchange saved by dropping the two factories can be used for augmenting defence production in other spheres.

CEMENT FACTORY FOR ORISSA

THE foundation stone has been laid of the stateowned cement factory at Khaliapalli in Orissa. Expected to begin production early in 1966, the factory will have a capacity of 3,000 tons per day. It will cost Rs 7 crore.

There is also a proposal to set up 200 co-operative rice mills in Orissa.

BRIGHT SPOT

600 KM OF ELECTRIC TRAIN TRACK

UNDER the electric traction programme of the Railways, 600 kilometres of railway routes are expected to be electrified in the current year—the highest in a year so far. By the end of 1966, electric trains will run on 3,200 route kilometres with 8,300 kilometres of track.

MAHARASHTRA: FIRST IN FAMILY PLANNING

BETWEEN 1957 and September last, Maharashtra recorded 1.61 lakh sterilisation operations (excluding those by private practitioners). Of them 1.10 lakh were on men and 51,000 on women. The total of sterilisation operations, recorded in the country since the inception of family planning programme up to October last, was 6.95 lakh.

Maithili Sharan Gupta

—*A Tribute*

J. P. CHATURVEDI

MAITHILI Sharan Gupta who passed away on December 12 will be remembered as the father of modern Hindi poetry. In his successful and rewarding career of 78 years, he epitomised the entire strength and character of Hindi renaissance. It was he who made Hindi the vehicle of revolutionary struggle by his immortal book, *Bharat Bharati* or the voice of India, published in 1912. His muse remained ever fresh and he enriched Hindi by 40 volumes of poetry in original and six translations.

Maithili Sharan Gupta was born on August 3, 1886 in a village, Chirgaon, a few miles from Jhansi. It was the famous festival of Hariali Teej, a festival of gaiety and abandon in western U.P. Born on such a day, he continued to extend the rays of hope, mirth and laughter till the end of his life. Those who knew Maithili Sharan Gupta liked his pleasant company and knew him as a person of abundant sympathy and great humility. Few persons could beat him in this. He was so humble that nobody who came in contact with him realised any weight or oppression of such a towering personality.

Maithili Sharan encouraged thousands of poets in this country and in his immediate neighbourhood at Chirgaon, Jhansi and Bundelkhand grew forth an unending stream of Hindi writers. His younger brother, Siaram Sharan, was a great novelist and a great lyricist. Great journalists and public workers like the late Ganesh Shankar Vidyarthi, novelists like Vrindavan Lal Verma and many others found his company pleasant and inspiring. For 12 years in Delhi, where he lived as a member of the Rajya Sabha, his home became the rendezvous of the literary circles and a place of encouragement for Hindi litterateurs.

Maithili Sharan was a revolutionary both in matter as well as in form. Before he took on to writing in Khari Boli, that is the language of the Hindi prose, Braj Bhasha had been the standard language of Hindi poetry for over six hundred years. From Narasi Mehta of Gujarat to Braj Buli poets of Bengal, from Kangra to Hyderabad and Maharashtra, Braj Bhasha had been recognised as the standard language for Hindi poetry. Poets like Surdas and Tulsidas, Keshavdev and Bhushan, kings like Akbar and Kuli Kutub Shah of Golkunda, warriors like Chhatrasal and Guru Gobind Singh adopted Braj Bhasha as the language of their poetry. Maharaja Ranjit Singh, a Sikh ruler of Lahore, and Abdur Rahim Khankhanan, Prime Minister of Emperor Akbar, used to award lakhs of rupees for a single articulate poem in Braj Bhasha.

When Maithili Sharan Gupta decided under the inspiring lead of his *guru*, Mahavir Prasad Dwivedi, editor of *Saraswati*, to cease writing in Braj Bhasha and adopt Keatri Boli for his writings, he was treading an unbeaten path. There was a great resistance in the Hindi world to this experiment and it was ultimately the success of Maithili Sharan Gupta that paved the way for modern Hindi poetry. The adoption of Khari Boli had tremendous potentialities. Khari Boli was not the mother-tongue of any section of Hindi-speaking population except that of a small area near Meerut and Moradabad, an area which has not been known very much as a seat of Hindi erudition or literature. There were great traditions of poetic literature in Braj Bhasha, Avadhi, Maithili and Rajasthani and of rich folk literature in Bhojpuri, Bundelkhandi, Nimari, Chhatisgarhi and Garhwali. But these dialects were confined to the people who resided in particular geographical areas. Khari Boli was a language that had been encouraged by people who crossed local barriers: reformers like Dayanand and Raja Ram Mohan Roy, one a Gujarati and the other a Bengali. Journalists from Bengal, Kashmir and Maharashtra published newspapers in Calcutta, Benaras, Lahore and Poona to express themselves to the large number of Hindi-speaking people through the medium of Khari Boli. Sadhus of India adopted Khari Boli as their language when they roamed over all parts of the country. It was given to Pandit Shridhar Pathak and Shri Maithili Sharan Gupta to provide poetry to Khari Boli and thus pave the way for the development of Hindi poetry that could be understood and enjoyed throughout the length and breadth of the country.

Change in Content

But the change in the medium also entailed a much bigger change in the content of Hindi poetry. Before Maithili Sharan Gupta the Braj Bhasha poetry was following the old beaten track of Rasa and Alankara. Amorous poetry under the traditions of Nayakabhed held its sway. Bharatendu Harishchandra was the first poet who made the Braj Bhasha poetry a vehicle of resentment against the British rule. It was Shridhar Pathak who translated poems of Goldsmith and other English poets into Hindi and also wrote on natural beauty. But it was given to Maithili Sharan Gupta to introduce poetry eulogizing valour and greatness of Indian people. It was in 1910 that he wrote a poem in *Saraswati* on Veer Ratna Baji Prabhu Deshpande as also on Vyas. In 1912 he produced his immortal work *Bharat Bharati*. The frontispiece of *Bharat Bharati* said :

Ham kaun they kya ho gaye aur
kya honge abhi,

Aao vicharen aaj milkar ye samas-
yayen sabhi.

Bharat Bharati is a saga of Indian culture, Indian history and a running commentary on our degradation. It gave a call to the people to rise up against cowardice, ignorance, poverty, disunity and other ills that tormented them. *Bharat Bharati* sent a sudden thrill and sensation among the entire Hindi-knowing people and overnight Maithili Sharan Gupta became Rashtrakavi or Poet of the Nation. He followed it up by his Khand Kavya, *Jayadrath Vadh*, which has run into 50 editions or more and is one of the inspiring pieces from the great Mahabharata.

Maithili Sharan Gupta was a Mahakavi or great poet in the real sense of the term. He not only produced two Mahakavyas, *Saket* in 1932 and *Jaibharat* in 1952 containing the epics, *Ramayana* and *Mahabharata*, but enriched Hindi poetry by 40 volumes on different aspects of life. *Saket* is also known not for the great characterisation of Rama or Sita but for having presented Urmila, a neglected character by Indian authors. Maithili Sharan Gupta had a very soft corner for such characters and it was in pathos that he excelled. Urmila, wife of Lakshmana, Yashodhara, wife of



Maithili Sharan Gupta reciting his poems

Buddha, and Vishnupriya, wife of Chaitanya Mahaprabhu, waited for him to give them expression. They were great women who suffered in silence because their husbands decided to leave the pleasures of the world and they struck a sympathetic chord in Maithili Sharan. He did it even for Hidimba, wife of Bhim, and, of course, he produced a book on Shakuntala as well as a translation of Michael Madhusudan Dutt's *Virahini Vrajangana*.

Cosmopolitan Outlook

It was not only in the subject-matter that Maithili Sharan Gupta transcended the geographical limits of his surroundings or his reading public, but he had a respect for people belonging to different faiths and different regions. Although he was educated only up to the seventh standard, he read Sanskrit, Bengali, Marathi, Gujarati, Urdu and English. He translated not only from Bengali but also produced a translation of Rubaiyats of Umar-Khayam and, of course, he did try to reproduce Vyas and Valmiki into Hindi. He was a great admirer of Indian culture and yet he produced a book on Kaba and Karbala praising Mohammed and Hasan, two great Muslim leaders. Not only Buddha but Christ also became a hero to Maithili Sharan. Thus in his own person Maithili Sharan symbolised the generosity, catholicity and cosmopolitan outlook that was appreciated in Hindi. For each one of these he became increasingly popular and he contined to write great works till the end. Only ten years before his epic on Vishnupriya was published, Maithili Sharan was hailed as Rashtrakavi by Mahatma Gandhi at a ceremony held in Benaras under the auspices of the Nagari Pracharini Sabha in 1936.

In 1954 the President of India honoured him with the award of Padma Vibhushan. In 1952, he was nominated a member of the Rajya Sabha and he continued to occupy that seat for two terms up to March 1964. Maithili Sharan Gupta added to the dignity and colour of the Rajya Sabha. Although a nominated member, he freely criticised the policies of the Government in his short poems which he read at the time of discussion on the address by the President, budget session or similar occasions. When Mr. C.D. Deshmukh was the Finance Minister, his poems evoked equally good response in Sanskrit or Hindi from Mr. Deshmukh and it was a treat to hear the discussion. He attended Parliament regularly and amused a large circle of friends with a sense of humour, his full-throated laughter and his concern for them.

Son of the Soil

Maithili Sharan Gupta was in a true sense the son of the soil. He was born in Chirgaon, a village which heralds its characteristics and announces that it will ever remain so. He grew up on the banks of Betwa, the mighty river of Bundelkhand which has seen the glory of Ashoka at Vidisha, Bhoj at Bhojpur and Keshavdas at Orcha. Kalidasa, Bhavabhuti, Rajashekhar, Mitramishra and a host of other poets had enjoyed and praised the mighty land which was the valley of Betwa. Just under the shadow of the Vindhyas, the oldest mountain on earth, Maithili Sharan Gupta lived to the last as a simple son of the soil. But while his feet were on the ground, no barriers surrounded his mind. I remember that we had demanded a separate province for Bundelkhand in order to maintain the culture of the Vindhyas and encourage Bundelkhandi, the local dialect. The movement had the support of the bulk of the Hindi poets, writers and cultural workers of Bundelkhand from Jhansi to Jubbulpore, but it had a strong opponent in the house of Guptas at Chirgaon who said that it would weaken the national sense of integration.

Maithili Sharan Gupta was a poet of national integration. He gave the picture of India as a whole to the Hindi-speaking people. He was a great lover of Hindi because he thought through Hindi he could reach the large number of people in this country and Hindi as he had made developed as a vehicle of national renaissance and reformation. He was an ardent nationalist and he had suffered imprisonment in the national movement in 1941-42 when he was confined in Agra Central jail.

HAMARA HINDUSTAN

LACHMANIAH'S CUTLETS

IF only I had known earlier the effect Lachmaniah would have on this little town!

Trying to set up house, I was going around wild-eyed and dishevelled. Soon the word went round that I was in search of a cook. Then the colonel's wife whom I cheerfully partnered at tennis, (others looked rather disturbed at the prospect), finally took pity and sent me Lachmaniah.

He had chits from Subalterns of earlier Regimental days ('A jolly good cook'), Memsahibs with prim sparse handwriting thought he was 'useful and quiet' and he was apparently just about the answer to a bachelor's prayer. For the first meal I was alone with the bleak walls and gaping windows, for the curtains had yet to come. Lachmaniah produced a soup and then there were the cutlets—a deluge of brown, gimlet eyed pieces that descended on the table from some dubious, unknown cornucopia.

Neela, who was an old friend and who had just come to town, was promptly sent some. Enough for her husband and two children too. When I next met her, she was distinctly wary. 'Very delicious, but next time, er it *could* be something different, couldn't it?'

Lachmaniah, even at this stage, went out of control. The Frankenstein couldn't be tethered. Cutlets kept descending with every meal—mashed chillies with mince, chopped maize with carrots, prawns mixed with vegetables, this time each shred stoutly maintaining its individuality by refusing to merge with the rest. When the wife of a colleague was siphoned a part of all this, she promptly got indigestion. The Civil Surgeon soon began to look upon me as a dear friend, since his private practice now gave him a new carpet. This he proudly displayed while fondly stroking the back of my neck.

Sayeeda, I thought, is made of sterner stuff. She was the local long jump whiz and it would certainly take more than Lachmaniah's offering to faze her. So she was sent some cutlets *ara avis*. Potato and brain, garnished with green leaves and topped off with brown bits of wood which Anatole insisted were cloves. On the whole it looked enough to startle the most devoted anthropologist.

This was sent for dinner. When I woke up next morning, Sayeeda had come and gone—leaving a bottle of perfume on the table: said it was excellent after-shave lotion. I still haven't worked it out.

All hope, however, has not been lost. Neela, I suspect, did like the cutlets after all. Realising one morning that I owed over a dozen newly married friends wedding presents, I dashed off a letter to her (she was away for a few days) asking for advice. Back came the prompt reply. Bed-sheets, table-linen, why not 'a horror as a wall-decoration, an undying reminder of a beautiful friendship?' There was then the postscript —'Best of all would be a week's supply of Lachmaniah's cutlets!'

Which should be a splendid epitaph for Lachmaniah—the rate at which he's going, someone should murder him soon.

—S. Shankar Menon

LETTER

MINOR IRRIGATION AND FOOD PRODUCTION

If food production is to increase, irrigation has to be developed. While major irrigation projects take decades to complete and require enormous money, minor irrigation schemes have a distinct advantage of producing quick results at lesser cost. The two main sources of minor irrigation in India are tanks and wells. It is not so much the excavation of new tanks as the expansion of old ones that is more important. They are now filled with silt. Without much expense, the silt can be used to increase the height and length of the bunds. It will enhance the water-holding capacity and help in raising of a double crop at places where at present reaping even a single harvest is uncertain.

Wells have a pride of place in minor irrigation as 70 per cent of the total irrigated land depends on them for water supply. The problem is the lifting of water. Peasants are anxious to have pump sets but they don't have money, and the loans given by the Government are a drop in the ocean. A new policy can be formulated under which the state can provide capital in the form of a well, electric current, oil pump sets, tractors, etc., and collect a levy along with land revenue from the farmers according to the investment made on their lands. This can be called estate farming, where the peasant enjoys the ownership but pays a special levy for the capital provided by the state. Estate farming can be first started with holdings of not less than five acres on the application of the landowner who is willing to enjoy the benefit by paying the extra money.

When the Government is spending huge amounts of money on major irrigation, minor irrigation by wells should be given a due place. Its importance in stepping up food production can be proved statistically. For instance, the Nagarjunasagar Project in Andhra Pradesh, when completed by 1975 at a cost of more than Rs 100 crore, is expected to irrigate three million acres. A well with a pump set to irrigate five acres of land requires only an investment of Rs 10,000. With Rs 100 crore (needed to complete a major irrigation project in not less than 20 years) 100,000 wells can be sunk with complete water-lifting equipment providing assured water supply for five million acres. This is not to decry the major irrigation projects but only to emphasise the role well irrigation can play in solving our food problem.

Cuddapah R. SREERAMA RAJU

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With this issue Yojana *completes its eighth year of publication. As in previous years, a selected index of material published during the year is printed in this issue. Some of our regular features like 'You Ask Us', 'As The Plan Moves' have not been included. The books reviewed during the period have, however, been taken.*

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Useful Things from RICE STRAW

C. P. AGARWAL

STRAW is used in our country as fodder, fuel, manure and packing material. It is also used for making mats and baskets and thatching houses. In Japan they use machines for producing a variety of articles from straw : sandals and shoes, capes, rope, bags, and mats. We too can do these.

Before any article is made, the straw has to be properly selected, cleaned and processed. It should be thick, long and insect-free. It should be harvested at proper time, dried well and have good fibre and lustre. The moisture content, which depends on climatic conditions at the time of harvest, is usually reduced to 20 per cent in the week after harvest. For storage, however, it should be reduced by 14-15 per cent more.

The raw straw is to be cleaned first and beaten and made ready for use. If the quantity is large, straw is first beaten and then cleaned. The sheath collected after cleaning has low fertiliser value and is used for cushions and for packing china. Straw can be cleaned either by hand or by appliances having teeth. It may be cleaned by hand when the quantity is small. The bundles are taken one by one and cleaned three or four times. They are opened and the tips removed by a jerk and tied in bundles again.

The top segment of straw and the sheath have to be removed at the same time, and the culm put in order. The process of removing the sheath differs according to the use to which straw is to be put. Ordinarily, the portion from the middle up to the lower portion is removed for making strong and finer articles, such as rope, bags, etc. The process is not suitable for weaving, making mats etc. Cleaning straw by hand usually affects the fingers. To avoid this, simple tools fixed with nails are used. Bigger tools having as many as 1,000 nails are also available which can be used with convenience.

Straw is then beaten either by hand with a hammer or by a beating machine. Another method employed is to pass the straw through rollers. This helps in separating the strong fibrous portion, which is retained for use.

Beating is a strenuous job and it should be preferably done by a machine. About 80-120 kg of straw can be beaten a day by a machine as against only 8-12 kg by hand. Beating is required for making strong articles like fishing nets. It is not required for making ropes. Again, straw has to be soaked in water before it is beaten, the proportion being one litre of water for every 10 kg of straw.

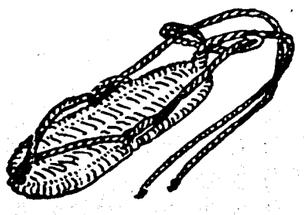
There are two types of beating machines in use at present. One is the direct beating type, driven by a small diesel motor. The other is a roller machine with two or three rotating rollers.

The selected, cleaned and processed straw is now ready for making various articles, such as ropes, mats and bags.

One of the oldest methods of putting straw to use is the straw rope made by our countrymen throughout the ages. Apart from its common use, straw rope is ideal for packing fragile goods. It also acts as shock absorber. Again, fishermen make nets of straw rope which is cheap. A simpler device has now been evolved and a rope can be made by a simple machine. Straw is fed through one end and the rope comes out through the other. Mats and bags are knit or woven on machines or by hand. Besides these things, as already mentioned, they make baskets, *chappals*, sandals, shoes, snow shoes, raincoats (cape) etc. in Japan from rice straw.

Ours is an agricultural country. Large quantities of straw are available in villages. There is thus vast scope for developing rope, mat and basket-making industries in villages. A systematic study of these industries in other countries, particularly in Japan, and import of machinery and expert training to our people will create a new avenue of employment.

Straw *chappals* and shoes and raincoats, as made in Japan, could be used in India by the labourers working on various construction and development projects in the Himalayas and other hilly areas. They are poor and can hardly afford leather shoes. They work barefoot and often suffer from frost bites. The straw shoes would remove a long-felt want. They can be made available at very low price only if the necessary techniques are developed and adopted.



Sandals and shoes made from straw



INDIA TO EXPLORE OIL IN IRAN

INDIA has won a tender for exploring oil off shore in the Persian Gulf of Iran. The exploration will be done in collaboration with two foreign firms—AGIP, a subsidiary of the ENI of Italy, and the Philips Petroleum of the U.S.A.

Under the collaboration agreement, India (Oil and Natural Gas Commission) will be an equal partner and share equally in the cost of exploration and development. India's share in the cost is estimated at 20 million dollars (Rs. 9.5 crore).

FIRST PIPELINE COMMISSIONED

INDIA's first long-distance pipeline linking the Gauhati refinery with Siliguri (West Bengal) has been formally commissioned. The pipeline, 415 kilometres in length, will carry 4.81 lakh tonnes of oil products every year, relieving the railways of a big burden.

The pipeline cost Rs 6.8 crore. Its designing, engineering and construction management were entrusted to the Bechtel Corporation of U.S.A. The construction was done by the SNAM, a subsidiary of the ENI of Italy, under the agreement of 1961.

The pipeline will increase and enable the better use of the storage capacity of the refinery.

The two longer pipelines totalling 1,210 kilometres connecting the Barauni refinery with Calcutta and Kanpur are nearing completion at a cost of Rs 26 crore.

In the eastern sector, 2,782 kilometres of pipelines are expected to be in operation by the end of the Third Plan. Pipelines totalling 3,151 kilometres are to be laid in the country during the Third Plan period and the Fourth Plan is expected to add 2,500 kilometres to the total.

Sharavati Power

THE first generator of the Sharavati power project has been commissioned. It produces 90 MW of power which is being supplied to Bangalore. Another generator of 90 MW capacity will be switched on six months later.

As The PLAN Moves

SNIPPETS

National awards have been instituted by the All India Handicrafts Board from this year for craftsmanship and designing in the various handicrafts in the country. Fourteen craftsmen in different handicrafts have been honoured this year.

The Heavy Electricals, Bhopal, has further raised a share capital of Rs 3.45 crore in shares of Rs 1,000 each. The Handicrafts and Handlooms Export Corporation also has issued equity shares of Rs 100 each to raise a capital of Rs 28 lakh.

A sum of Rs 45 crore has been allocated from the Life Insurance Corporation Fund for advancing loans under the various housing schemes during the first four years of the Third Plan. The largest amount—Rs 6.71 crore—went to Maharashtra and Rs 5.38 crore to Madras.

A separate railway zone is to be formed for the region comprising Andhra Pradesh, Mysore and parts of Maharashtra, with headquarters at Secunderabad. At present there are eight zones for railway administration in the country.

The Bharat Earth Movers Limited will establish its factory to manufacture earth moving machinery in the Kolar gold field area in Mysore State

The Ashoka Hotel, Delhi, earned a net profit of Rs 36 lakh last year—a record so far.

Coal seams having 700 million tonnes of coal have been proved over an area of 31 square kilometres near Nagpur in Maharashtra.

Newsprint Mills

A large factory for producing 60,000 tonnes of newsprint annually is to be set up in the public sector. Besides, four units with a total annual capacity of 155,000 tonnes will be set up in the private sector. The capacity of the Nepa mills in Madhya Pradesh is to be increased to 45,000 tonnes from the existing 30,000 tonnes. All these units have been included in the programme drawn recently for increasing the production of newsprint substantially.

EXPANSION OF KOYALI

THE Oil and Natural Gas Commission recently signed an agreement with Tiajpromexport, the Soviet export organisation, for the delivery of equipment and material for expanding the capacity of the Koyali refinery in Gujarat to 3 million tonnes from 2 million tonnes of crude oil. The total cost of expansion will be Rs 2.91 crore. The Soviet Union has given a credit of Rs 59.53 crore for setting up the refinery and other industrial projects.

First Survey Ship

THE Hindustan Shipyard, Visakhapatnam, has built a hydrographic ship for the Indian Navy. It is the first of its kind to have been built in India. Named Darshak, it is equipped with the latest instruments for hydrographic survey work. It will also have a reconnaissance helicopter for which a special flight deck and hangar have been provided. It is fully airconditioned. With a displacement of 2,700 tons, it accommodates 22 officers and 270 sailors with a separate bunk for every man on board.

New Steel Units

A STEEL foundry is proposed to be set up in the public sector with an annual capacity for 10,000 tonnes of castings for the railways. The Soviet Union is expected to collaborate.

The U.P. Government proposes to set up, in collaboration with the Oil and Natural Gas Commission, a cast steel furnace at Roorkee at a cost of Rs 50 lakh. The furnace will have a capacity of 5 tons at a time.

A plant will shortly be set up at Bhopal to manufacture various types of steel forgings. It will produce 5,000 tons of alloy steel forgings every year. The Kropp Forge Company of Chicago is collaborating in this private enterprise costing one crore of rupees.

REG. NO. D-876

BAMBOO Queen of Tripura

PRIDE OF PLACE 108



THE photograph printed alongside is of a specimen of tribal art of Tripura. As with tribal people elsewhere, the skill of the Tripura tribesmen often expresses itself through the media of raw materials locally available. Bamboo grows in abundance in Tripura and the tribal people produce a number of attractive articles from it.

The tribesmen cut a bamboo to small pieces and take out vertically the thin layer from the body. Then they go on carefully peeling the layer of the remaining portion leaving a solid portion on top. With a comb-like indigenous tool they scratch the skin. The combed portion thus flows like a bunch of hair. With bright indigenous colours they paint the carved vertical portion.

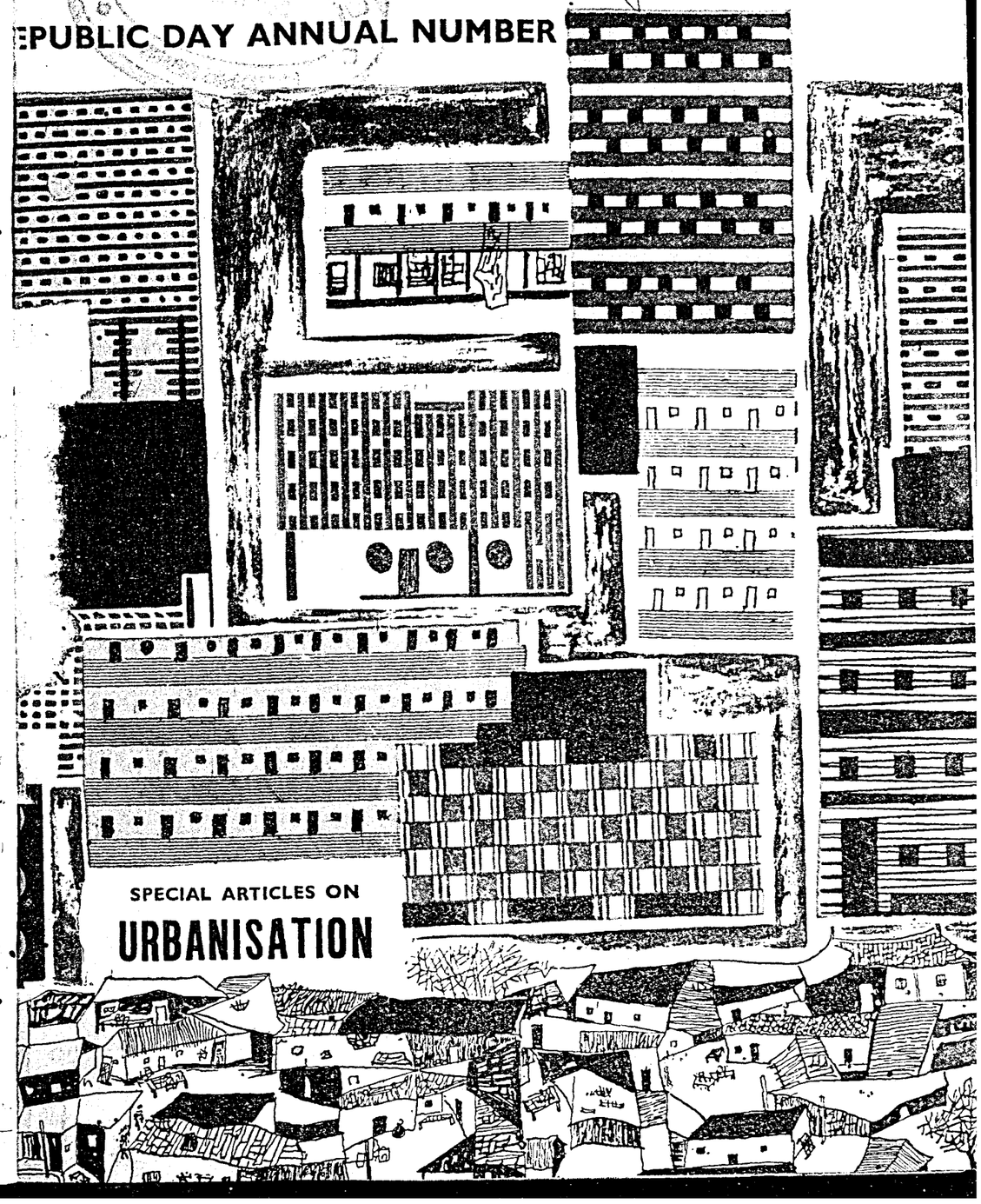
The distinctive feature of Tripura tribal art is the primitive look and utter simplicity. Meant for interior decoration, specimens of this tribal art are now available only in Tripura. This bamboo queen was bought in Agartala.

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SPECIAL ARTICLES ON

URBANISATION

YOJANA

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CITIES ARE FOR PEOPLE

WHEN a city fans out into suburbia, it not only acquires people and space but also a new status; it becomes a metropolis. And when a metropolis develops, centripetal forces which promote concentration of more people, more economic activity, more political power—it becomes what demographers and social scientists call a "megalopolis". It is an ugly word, with undertones quite different from those associated with a metropolis. However, a city running amok is an ugly phenomenon; it mars the landscape, disturbs regional balance, and creates new *mores* in the community which are as prone to heighten instability as to promote social change.

It is easy to give the dog a bad name, but not so easy to hang it. Likewise, it is extraordinarily difficult in the modern age to prevent cities from coming into existence or halt their progression towards megalopolitan concentrations. Nearly everywhere on earth, the bigger cities are growing faster than urban population, and urban population faster than total population. India is no exception. Over the decade 1951-61, India's urban population grew at over 4 per cent a year; and cities like Calcutta, Bombay, Delhi and so forth grew even faster. This is in comparison with a 2.3 to 2.4 per cent growth rate in population as a whole.

There is nothing unnatural or unexpected in this trend. Cities grow fast because people move in from the countryside constantly. They come in search of employment, profit, adventure or just a different way of living. They come because there are big factories or big colleges or larger markets. And they come because others tell them of exciting things in the city which their native environment shows little chance of providing.

True enough, not all of them find in the growing city what they dreamed of. And yet, having come, they stay on—hoping to make good. In their wake follow a multitude of problems for the individual as for the community. There is less of water, electricity, housing, public transport and so forth for everybody. And for reasons of public welfare or private profit, more investment is undertaken for the provision of these facilities, which in their turn attract more industries, more banks and trading houses—and, inevitably, more people.

One cannot stop this tide altogether and indeed should not, in a developing country like India. When we are planning for a major shift in the production and occupational patterns, we have to accept an increase in population concentrations. In the initial stages, there will be stray economic forces drawing new industries and new investments into areas in which power and transport facilities, skilled labour supply, financial and marketing institutions are already available. It would be unrealistic to expect the contrary to happen merely because one has a nostalgia for gracious living or dispersed settlements. The sensible thing to do is to plan for controlled urbanisation, which enables many cities rather than a few megalopoli to come into existence.

Unweildy cities are already with us—in Calcutta, Bombay, Delhi, if not in Madras and elsewhere—and metropolitan planning organisations have been set up to introduce some ordering of their further growth. But the problems thrown up by urbanisation are not confined to these cities alone. In the past few years, most State capitals have reached a size at which further influx of population gives rise to social and economic stresses. There has in recent years been a tremendous increase in urban land values, and acute shortage of civic amenities in practically all of these cities. These problems do not solve themselves through market processes. And increasingly, urban life in India is becoming a mixture of public squalor and private affluence.

This is not a matter of aesthetic dissatisfaction alone. As in many other things, there comes a point in the growth of cities at which the economic advantages of size are more than counterbalanced by the social and economic costs of population concentration. Exactly where this point is in any particular case is a matter for judgement. But long before that point is reached, three types of action will have to be initiated if things are not to get out of hand. First, foci of counter-attraction have to be built up, to change the direction of population inflow. Secondly, further expansions of existing concentrations have to be properly planned—physically and over time—to take in those that immigrate from the immediate vicinity. And finally, the countryside itself has to be developed in such a way that the urge to emigrate becomes less intense.

None of these is easy, but none of them is dispensable either. Establishing alternate foci implies that new cities are deliberately built up around major industrial or other productive units envisaged in our development plans. They will call for large investments in construction, public utilities, educational institutions, hospitals and so forth. And the returns from such investments will not all be immediate or measurable. Similarly, the growth of existing cities cannot be prevented by legislative fiat.

But even the best of these efforts will not be of much avail if no means are found for reducing the urge of the people to move towards cities. There is a great danger here of yielding to the romantic picture of villages remaining villages. This just cannot be, especially with the spread of communications and education. The villages have to take on a new look and open up new opportunities if the rural population is, in space, to remain where it is. Paradoxical as it may seem, urbanisation can be prevented from turning ugly not by keeping people away from the cities but by taking cities to where people already live.

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NEXT ISSUE JAN. 31

Planning for Urban Development
by Prof. M. S. Thacker

Our Natural Resources by A. K. Dey, Uttar Pradesh's Fourth Plan Outline, What Is Wrong with Our Panchayats, and B.D.O.s Deserve a New Deal

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In this article, which is based on a paper presented by him at a recent seminar held in New Delhi, Prof. D.R. Gadgil analyses the working of our Five Year Plans and comes to the conclusion that unless we change our policies and methods of work, the Fourth Plan would fail to bring about a balanced development of our economy

THE FOURTH PLAN DEMANDS NEW ATTITUDES AND METHODS OF WORK

D. R. GADGIL

IT is generally acknowledged that the most important problem facing us today is the relative stagnancy of our rural economy. Obviously the problem is complex. However, a clear view has to be taken of the various factors involved in the current situation and particularly of those responsible for failure.

The failure to stabilise prices of agricultural commodities and the relatively low level of harvest prices of cereals at the end of the fifties and beginning of the sixties may be held to have contributed largely to stagnant agricultural production. The failure of co-operative marketing to make progress is closely related to absence of stable prices. Also, many States are yet far behind even in the older programme of the setting up a net-work of regulated markets. In relation to credit, progress has been very uneven. In some States co-operatives provide the main stream of agricultural production credit; in others, the grip of the moneylender is almost as strong as ever. Here also the unwillingness or inability of States to implement certain basic policy decisions appears to lead to uneven developments.

The connection of land reforms and its implementation with progress in agricultural production is unclear. The same may be said of the legislation on ceiling. In studying both these problems the wide disparity as between the States in the maintenance of their land records and village administrative machinery is widely noted. This has relevance to the planning and implementation of any programme of widespread action. The size of the production unit in agriculture and its organisation remain central and little effective action has been taken in relation to them. Legislation relating to subdivision is chiefly a holding operation and has little corrective effect. Consolidation progresses very slowly. Experiments with co-operative farming have yet to yield results which promise rapid progress on any front. Consequently, the handicap of a small, ill-organised holding continues to limit operations of a large proportion of cultivators. This proportion may be 40

per cent or more of all cultivators in different districts, holding about 15 to 20 per cent of cultivated land.

In relation to all types of programmes of agricultural improvement a valid generalisation would be that programmes involving uniform action over a wide area have had much better success than those involving close study of a particular complex problem. The reasons for this are two-fold. In the first instance, the administrative machinery is geared to uniform operations over a wide area and not to specialised local work. Secondly, no arrangements are available through which complex, particular problems could be studied closely on the spot. The 'target approach' in our type of centralised planning accentuates these basic tendencies.

The above propositions may be supported by a reference to an analysis of the relative successes and failures of the latest intensive district programmes in agriculture. Where, as in the districts of Punjab, the conditions of agricultural operation were fairly uniform and the overheads and the organisational structure were already available, the progress was striking; where similar conditions did not obtain, the progress has been unimpressive. In like manner, major schemes of irrigation and power are completed fairly successfully, but schemes of minor irrigation have made little progress.

Campaigns should be related to local needs

Apart from the structure of administrative arrangements and the discouragement of local initiative, the attitude of Government towards programmes of agricultural improvement is also responsible for the low rate of progress. Campaigns are still the most important features of these programmes. Inevitably the items in a camapaign can only be generalised prescriptions which ignore local variations. There is no problem orientation and no inclination towards evolving a long-term programme based on close study of particular problems. Constant campaigning inhibits the attitudes and dissipates the energy needed for study and long-term action. It also leads to ignoring the total complex of conditions related to improvement of agriculture. A single programme like the utilisation of fertilisers is pushed with no consideration to relevant technical or financial factors.

In an old country with a relatively intelligent peasantry it may be assumed that the scope for obvious improvements capable of being brought about easily in existing circumstances is small. Therefore, campaigns or crash programmes like the I.D.P. inevitably give diminishing returns and the next stage requires a changed outlook and altered administrative arrangements.

This is closely related to arrangements for the formulation and implementation of plans. Indian planning, as it has evolved during the last fourteen years, is perhaps the most centralised system of planning in the world. It is also, perhaps, the most highly officialised. These descriptions hold good even after the 'panchayati raj' legislation being in farce for the last five years. Non-official experts or leaders are consulted to some extent by the Planning Commission at the Centre. No mechanism through which this may be done exists in the States, at least in most of them..... Planning at the State level is also highly officialised and is essentially a secretariat affair. Moreover, the evolution of financial arrangements in relation to plan schemes and projects during the last decade have induced a bias in all secretariats to build up State plans in terms of standard Central schemes.

Plan consultation with district committees was obviously of little significance when these were *ad hoc* nominated bodies. Things have not improved greatly even with the setting up of Zilla Parishads....*

Need to commercialise agriculture

The foregoing also explains the non-integrated character of plans and schemes and their consequent ineffectiveness. One of the lessons that is or should be obvious from the experience of the last decade is the need for the provision of socio-economic overheads before planned economic development of an area can begin. No systematic efforts in this direction are being currently undertaken. The extreme case is that of the tribal areas. As long as these are cut off from the rest of the economy and have no adequate services, all the special schemes thought of for them can prove of no avail. For these and other backward areas the preliminary requirement is commercialisation of agriculture. And this holds true of the many pockets and villages in even 'advanced' districts, cut off from the main markets, for any length of time. The extent to which each scheme is looked at, divorced from the background of total development of facilities, is indicated by the special schemes of rural industrialisation. These usually pay no attention to the development of communications or of supply of water or power without which industrial activity cannot develop.

Neglect of our land resources

Another general aspect requiring immediate attention in connection with the problem of rural stagnation is that of the conservation and development of natural resources. The most neglected land resource in India is the non-arable area. The so-called pastures, the uncultivated and waste lands and all types of forest and, excepting the commercially valuable forests, are currently undergoing a steady process of deterioration. And yet in many ways these lands represent a potentially valuable resource. About the only natural resource we possess in reserve is the possibility of developing these neglected lands. Through largely increased supplies of pastures, grass, bamboo, wood and timber and other products from these lands, we can strengthen the rural economy and provide a broader base for industrial activity. However, this would require vastly increased investments in these areas including investigations and research. Moreover, it would also necessitate an entirely changed outlook on the part of the administration and an effort to evoke the interest and co-operation of local communities.

While the emphasis on agricultural production is important, activisation of the rural economy requires much greater expansion of the subsidiary, primary and industrial activity. Intensification of agricultural production activity will meet the employment and development needs of only the middling and substantial cultivators forming everywhere less than half of the rural families. For the small, effectively part-time cultivators, the landless labourers, rural artisans and others, supplementary and new activities must be found. In part, these would arise from planned programmes of the provisions of socio-economic overheads and of the conservation and development of natural resources. In part, they must be found in the expansion of non-agricultural primary production, e.g. animal husbandry, fishery, etc.

The importance of this has been recently recognised, but no appropriate developments are yet being planned. In this matter, as in the plans for industrialisation, the technical view dominates the field without reference to the needs of the economic situation. There appears to bevery little awareness that the situation demands the development, for example, of dairy and poultry activities in units and at levels which will be within the competence of at least the average small farmer, if not the landless labourer; and, if necessary, the individual small units must be supported by the requisite network of services and supplies. Finally, the rural economy will begin to move only if industrialisation of the countryside is no longer regarded as only a side issue but as a main objective of our programme of development.

Importance of price stabilisation and social services

To summarise, an essential requirement for activisation of the rural economy is the stabilisation of the prices of agricultural commodities at a proper relative level and, in particular, the assurance of reasonable prices to the producer of cereals. In planning, it must be accepted that the development of the countryside requires the initial provision of a proper administrative and institutional framework and of adequate socio-economic overheads. Starting with such recognised needs as properly maintained land records or legislative provision of regulated markets, effective action has to be taken regarding implementation of land reforms or providing a proper framework for the growth of self-reliant co-operatives. These as well as the full and systematic development of communications and of well-spread nuclei of supplies of services, technical assistance and education and medical aid are conditions precedent to development and must be given appropriate priority. In agricultural improvement, the emphasis must shift to local investigation and research and to problem-oriented programmes of long-term action. Agricultural production programmes must be related to and powerfully reinforced by development of other land resources, of other primary activities, particularly animal husbandry, and by programmes of industrialisation. Proper formulation of integrated plans of development for each area on these lines would be impossible without the active association of the panchayati raj authorities, particularly the district authorities, and the active co-operation of local communities. Though a lot of this is theoretically agreed to, its effective acceptance could follow only a revolutionary change in approach and in administrative arrangements.

Faulty approach to the problem of consumer industries

At the time of the formulation of the Second Five Year Plan it was assumed that the main investments in the field of industry would be on basic and heavy industries and that the needed increased supply of consumer goods would be forthcoming through a full utilisation of the existing capacity of modern industrial units producing consumer goods together with the development of traditional industry. It was further laid down that traditional industry would also undergo a rapid technical transformation compatible with the need to avoid technological unemployment and that the widening field of new consumer goods industry would be occupied by modern small-scale industrial units dispersed widely over the country.This approach required detailed planning and vigorous implementation. No attempt was made in either of these directions and the approach fell through. Today there are no guide lines of policy indicating any overall concept of the strategy or the route of industrialisation....

Today, in the absence of any deliberate direction, technicians, each operating in his field, seem to rule. The uninhibited technical point of view appears not to take into account any economic factors....

Apart from the economics of each industry there is the much larger question of the totality of capital and technical resources available during any period for a given programme of industrialisation. When this crucial question is tackled it is obvious that judgements which go beyond monetary or other calculations would have to be made. What goods do we want to produce and of what quality, especially in relation to consumer goods, must be decided in relation to social values and our image of the future. Ideas about luxury and austerity and about allowable inequalities in distribution would inevitably play an important part in this determination. Apart from these long-term decisions a number of immediate steps also involve or should involve such deliberate non-monetary judgements....

The entire problem of the strategy of industrialisation must be tackled as an integrated whole and the main difficulty at present is that there is almost no—at least explicit—thinking in relation to it.

Problems related to imports

The route of industrialisation will determine, in the main, the volume and composition of our future import requirements. It will also indicate, in part, export possibilities. The latter will, however, depend chiefly on domestic production effort as well as rationalisation of use and restraint of domestic consumption of exportable products. Given the import requirements, the major problem in the field of foreign trade is the mode of regulation of imports. The generally preferred mode, viz. tariff duties, is, in our context, considered unsuitable because (i) it is not flexible enough and (ii) because the necessarily high tariff will affect domestic levels of costs of production. In the light of the experience in the last decade I have great doubts regarding the validity of the second argument.

*The abridged portions of the paper are indicated by dots....

A system of import quotas combined with low tariff duties will not affect costs appreciably provided there are some arrangements to ensure that the importers are prevented from exploiting to the full the advantages accruing to them through quota imports. That this is not so is clear not only from the reported brisk market for import licenses but also from the use made of import quotas by Government itself in its scheme of export incentives. The chief valid argument against the use of tariffs to restrict imports is thus the flexibility argument. This cannot be of universal application. It holds good only when, for purposes of, say, protecting the domestic producer, the import of only one class of goods in a category of imports is sought to be banned. Of course, high import duties may also be avoided for reasons of international trade and customs agreements. To the extent a regime of quotas is unavoidable it raises the question of price regulation of products into which the restricted imports enter.

Problems in relation to exports

The fundamental question in relation to exports is that of the rate of exchange. Is the rupee definitely overvalued today? If it is, what are the burdens and distortions that result from the effort to maintain the existing rate and what are its supposed advantages? These questions will have to be squarely faced and answered, at least to our own satisfaction. A second question relates to the present *ad hoc*, confused system of export incentives. It is possible to argue that a proper regulatory policy should make export incentives unnecessary. However, if they are necessary they should at least operate in an impersonal, objective manner. In this context, the Pakistan parallel has some obvious advantages and *prima facie*, the adoption of some such scheme is called for by us.

From the social point of view the high importance of administrative arrangements in relation to exports and imports lies in the fact that these are today the largest source of corruption in the country. Therefore, it is urgently necessary to eliminate from the existing administrative arrangements all elements of discretion and personal judgement. It should be realised that if this cannot be done the one ultimate remedy would be, under pressure of circumstances, wholly to nationalise foreign trade.

Foreign aid and collaboration

The main problems connected with foreign aid are: (i) the possibility of its firm continuance, (ii) the ability of our economy to bear the burden of repayment and (iii) in particular in relation to PL 480, the large extent to which domestic rupee resources are put into the hands of a foreign government.

The problems arising out of foreign collaboration are more complex. The chief of these are (i) the real capital costs to the economy of setting up collaborative enterprises, (ii) the real continuous costs of maintaining these arrangements, (iii) the volume of future foreign exchange payments in relation to the total effects of collaborative arrangements, (iv) the discouraging effect of foreign collaboration on our scientists and technicians, and (v) the possible long-term effects on our economic policy which provides for a large foreign equity capital in our development programmes.

State control over economy not effective

In considering the total effects of planning in India on the economy and on such aspects of it as distribution of incomes, one special feature of the situation has to be borne in mind. While planning in India involves a much wider and proportionately larger activity on the part of the State than in, say, countries of West Europe, the overall control exercised over the economy and on the effects of its operations is, in India, relatively negligible. In Indian plans direct action by the State covers public works such as river valley schemes, public utilities such as railways and roads, public sector enterprises such as steel, and a variety of production of capital goods, welfare activities including education and medical aid. The programme of expenditure on all these accounts has progressively become larger and larger and this has inevitably had some influence on the direction and tempo of economic activity.

In some other directions also the State exercises full control over the setting up of establishments and their progress. This is most evident in areas affected by import control. However, outside of these, the effectiveness of State action is seen to be little. As a matter of fact, it does not appear that the State has even cared to create instruments through which control over the economy as a whole can be exercised. Only a small part of the national income, less than 15 per cent, passes through the public exchequer, and the area affected by monetary and credit control is limited in extent. Moreover, no planning in the sense of purposive co-ordination for attaining long-term objectives, is attempted even within the field of State activity. Various schemes of the different Ministries move independently of each other; not even the demand for and the recruitment, training and conditions of employment of trained manpower in the Government or in the public sector or in any important part of them are planned and co-ordinated.

Therefore, in considering trends in the distribution of national income during the last fifteen years, it is the many acts of commission and omission on the part of Governments in India and their joint effects rather than the avowed aims of official social policy that have to be taken into account....

Absence of effective social security measures

All those features which provide a meaningful frame to the system of distribution of incomes between classes and occupations in West European societies are entirely absent in India. In relation to prices of agricultural commodities there is a deliberate refusal to accept any programme of stabilisation and consciously and unconsciously the dominance of the moneylender-trader economy in the countryside is bolstered up by State policy. There is, for all practical purposes, an absence of social security measures that can have an impact on the condition of the really depressed and disadvantaged classes. The problem of unemployment is deliberately dodged as being too large to be tackled in the near future. The minimum wage prescriptions and collective bargaining, which played such a large part in giving a

floor to labouring class incomes in Europe, do not affect the most disadvantaged in India. In this country, wage policies take into account chiefly the relatively better organised and the relatively better paid employees in industry. The casual labour in cities or rural agricultural labour is entirely outside these protective devices. Land reform has powerfully influenced the market for land; and the ceiling legislation has to a large extent limited the possibilities of economic betterment of individual operators in agriculture.

At the other end, in relation to modern business and capitalist entrepreneurs, plan implementation has led to a number of steps being taken in their favour. There is a large scale preferred allocation of capital resources in favour of particular concerns or activities. There are special quotas and licences for imports and special incentives given for exports. The rate of exchange together with the import quotas make for special subsidisation or transfer of incomes to the preferred class of capitalists. The foreign collaboration arrangements which again specially benefit a selected few are encouraged and favourably treated. The rates of interest charged on capital and resources placed in the hands of the preferred capitalists are relatively low. The administration of import and export quotas leads to a concentration of business and leave the resulting surpluses from it in the hands of a select, relatively small number of firms. These firms are further concentrated within a limited number of communities in the country. No attempt is made to control effectively the price advantages that those in whose favour special allocations are made will derive out of them.

Development of metropolitan areas

The industrial plan and its implementation lead to certain locational decisions leading to a high rate of growth of metropolitan areas. This rate of growth in its turn attracts or necessitates a high rate of investment on socio-economic overheads for these areas. As the rest of the country is starved of resources for its development, a continuous increase in disparities is thereby brought about. The savings and taxation policy further increases the surplus retained by those in whose favour special allocations of capital and other benefits have been made. The control of individual prices where it exists is in no way related to either efficiency of operation or to exploitation of monopoly advantage.

The action of the planners in relation to the employment market is also peculiar. At one extreme, because of no concern with employment, the surplus of unskilled labour continues to grow, depressing the level of wages. At the other extreme, great demand is created by planned activity, in both private and public sectors, for services of the highly educated and trained; yet no action is taken to regulate or rationalise the resulting situation and the private sector is progressively enabled, in a large number of cases through explicit sanctions given by official agencies, to pay higher and higher salaries until they reach international scales.

As a corollary, the production structure is distorted because effective demand can stem only from the relatively small number of persons earning high incomes. Consequently the production structure is geared progressively to satisfying their needs. This distortion takes place in every sphere such as that of socio-economic overheads, exemplified by government encouragement to investment in luxury hotels, and in producer goods and consumer goods. All this leads inevitably to problems connected with the operation of economic organisations or the running of administration which have been highlighted in the Vivian Bose Commission on the Dalmia-Jain group and the Das Commission on Sardar Kairon.

Dangerous possibilities in the existing situation

The existing situation in India is unsatisfactory in most ways and is full of dangerous possibilities. India has enjoyed a longer period of political stability after winning independence than any other country in Asia or Africa. During this time it has not been able to make sufficiently rapid economic progress and its Government has not acquired adequate control over operations of the economy. As a result of these failures political stability itself is beginning to be impaired....

Given the poverty of its resources and the size of its area and population, any large effort to force the pace of economic development in India must be based on a system of regulation, at least as comprehensive as in a war-time European economy, which takes into account the possibility of rationing of food grains and other essential goods and the physical allocation of strategic materials. The least that the system must always accomplish is the regulation of all crucial prices. The main failure in India has been non-recognition of the indispensability of such an overall frame of regulation and of the need for a well-co-ordinated, positive economic policy. Because of this failure, the working of the plan and of the separate *ad hoc* schemes leads, in spite of avowed intentions to the contrary, not only to accentuations of previous inequalities and highly unsatisfactory conditions in cities and in the countryside but also, logically and inevitably, to such disasters as that of the food crisis of the last few months....

What should be our attitude to the Fourth Plan?

Planning in a mixed economy must ensure that the operations of the private sector are properly subordinated to social and public ends and that the resources allotted or used under the plan are used efficiently and with minimum social cost. This is essentially the negative aspect.

In redefining the approach to Indian Planning in a positive manner the basic requirements are seen to be: (i) vitalisation of the rural economy, (ii) provision of a national minimum standard of living, and (iii) spelling out the route and strategy of industrialisation. Concentrating effort in a few areas and selected sectors has not resulted in appreciable spillover effects and has not activised large surrounding areas or related activities. On the contrary, it has led to accentuation of inequalities and to aggravation of dualistic features within the economy. Therefore, all the basic requirements could be satisfied only by embracing within our developmental activity all areas and persons. Our inability to provide an effective widespread system of social security emphasises the needs to provide for universal employment. The Fourth

(*Continued on Page 45*)

REFUGEES' CHALLENGE TO OUR PLANS



By

KHUSHWANT SINGH

Photographs :

T. S. NAGARAJAN

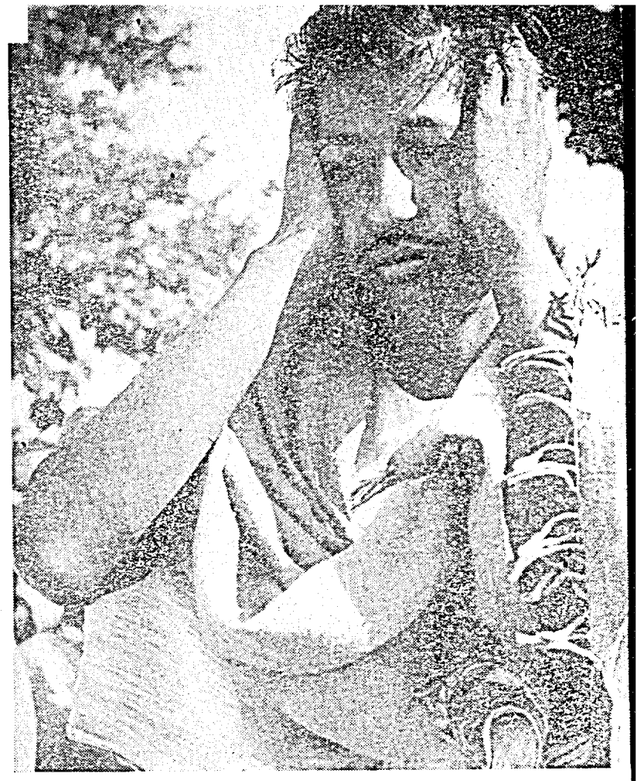
NO COUNTRY HAS EVER FACED A BIGGER TASK IN REHABILITATION

SINCE its independence India has received and rehabilitated more refugees than any other country at any time in the history of the world. The exodus of Jews from anti-Semitic Europe, of Armenians from Turkey, of Arabs from Israel, of Koreans and others from the menace of communist China—are but a trickle compared to the flood that has flown from Pakistan into India. Hitherto we have had 9 million refugees; and the tide has not ebbed. Last year alone the figure was over a million. On some days the number was nearly 5,000; it was never under 300 in twenty-four hours. Anyone with even a superficial acquaintance with the course of Indo-Pakistan relations will agree that the tide will continue to flow for at least a decade or more.

Speed is what counts in rehabilitation

In the last 18 years of independence we have had to spend over Rs. 700 crore on the rehabilitation of refugees

Overleaf





PICTURE ON OPPOSITE PAGE : One thousand and six hundred kilometres away from where his children Niranjan and Geeta Rani were born, is Manoranjan Das, at the camp at Hastinapur, famous city of the Pandavas. He does not know yet where his home ultimately will be. TOP : His name? He would not answer. It required much coaxing to learn that he was Srikanta Das. His last home can never be wiped out from his mind and memory. Srikanta Das and his like need to know that things will be better not some day but soon. RIGHT : In one of the camps a thousand people gathered round the author. But from a little beyond a cluster came a steady moaning of uncontrollable sorrow. It was from Totadasi Rai who has suffered as no woman should suffer.









PICTURES AT TOP: Hemlata Das and her daughter Lakshmi Rani (left). At 14 she has known things that no girl should know. Their only consolation is that Hemlata's son and Lakshmi's brother, who was left behind, is alive somewhere. LEFT: Premada Mandal and her daughter Priyabala. Help of friends and medical aid on this side of the border saved Priyabala.

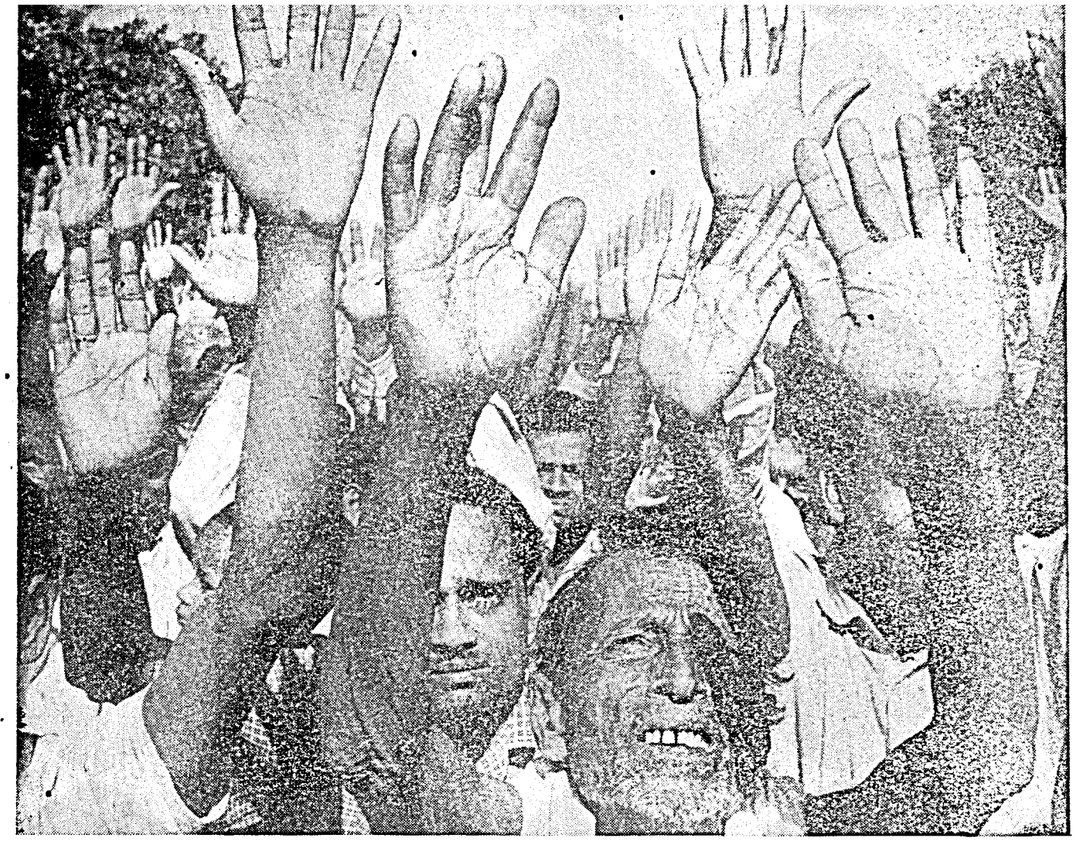
from Pakistan. We have 300,000 refugees in transit camps today. Their rehabilitation will cost us over 66 crore rupees. Relief and Rehabilitation has become a permanent department of the Central and many State Governments. The annual budget of the Central Ministry is Rs. 27 crore. If we had not had to spend all this money on refugee rehabilitation, how many Bhakras, Sindris and Bokaros could we have built? Could we not have diverted more funds and enthusiasm into community projects and 'grow more food' campaigns?

There is little doubt we could. But the unfortunate refugee is not to blame and it is our duty to give his rehabilitation top priority. If possible we should canalise the flood to increasing our agriculture and industrial output.

Twelve States of the Union have offered to give land for the resettlement of 71,600 families of refugees now in transit camps. The largest number (25,000) will be in Madhya Pradesh followed by Assam (15,000) and Maharashtra (10,000). The problem is complicated by the fact that the vast majority of the incoming refugees (70 to 80 per cent) are agriculturists and we simply have not enough agricultural land to give away. The States between them have agreed to put 165,000 acres at the disposal of the Rehabilitation Department. These acres will only absorb 17,000 families. The rest will have to be employed on State farms or employed as farm labourers. A majority of the agriculturists will have to be taught ancillary occupations such as poultry, fishery, bee-keeping and canning of food.

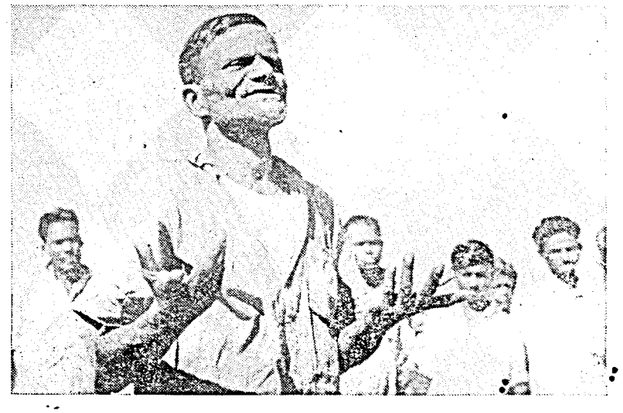
And all this will have to be done with speed because nothing can be more demoralising to the refugee and politically dangerous for the country than keeping large numbers of able-bodied men without an occupation.

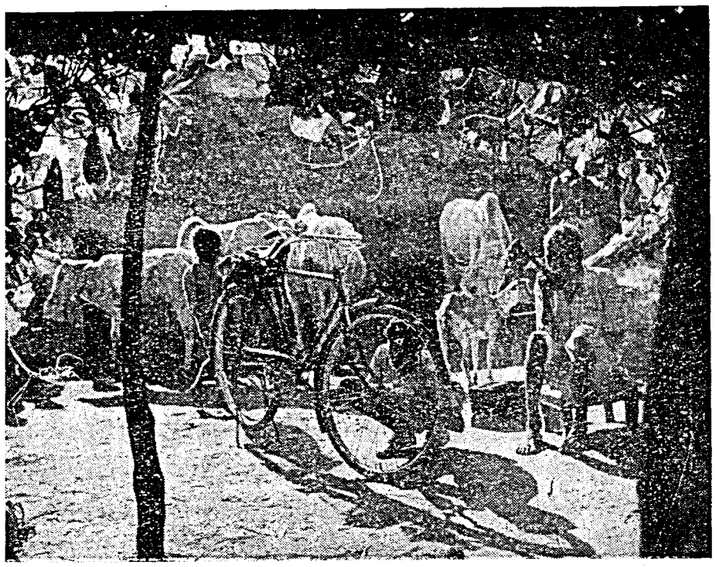
THE re-education and rebuilding of morale has to be done in transit camps. This aspect is far too often overlooked by camp-commanders. It has been noticed that



To the author's question "With all that you have gone through, are you happy in India ?" a thousand hands went up. BELOW: With characteristic gestures Haripal Das says: "What could we do !"

wherever camp-commanders spoke Bengali and were sympathetic to the refugees, they got more work out of them—the homes were cleaner, kitchen-gardens more fruitful and the refugees happier. Where there was little communication and absence of sympathy, the commandants complained of Bengalis being lazy and indifferent. The refugees gave no co-operation; their huts were dirty and they did not bother to plant anything. The Bengali is no lazier than any other Indian. He has to rehabilitate himself in utterly different surroundings—from rice-growing areas of heavy rainfall to wheat-growing dry lands—and amongst a people who neither speak Bengali nor appreciate the misery he has gone through. Under the circum-





Displaced persons who came four years ago to Rudrapur, U.P., have settled down and have their own cattle and even bicycles and grow their own gourds.



She has been given a well-built home and warm clothes and vessels enough to run a good kitchen. But it will take many days before she can adjust herself to change.

stances, he is doing remarkably well.

Refugees need gentle handling

THE refugee poses as great a challenge to our political ideals as he does to our plans of welfare. People who have suffered physical violence, seen their kith and kin murdered, ravished or abducted in front of their eyes, their cattle slaughtered and their homes burnt or looted and then been expelled brutally—such people need very gentle handling. They are highly inflammable human material and can be easily provoked to violence. The security services of the States which first receive these refugees, West Bengal, Assam and Tripura and others where they are later settled, have to be very vigilant. Hitherto we have been able to restrain them and exercise the false and venomous notion of "retaliation". (The word retaliation should be *outlawed*: how can violence to people who have done nothing to deserve it be described as retaliation?) But the strain on our security services has at times proved too heavy. Riots of Jabalpur, Aligarh, Jamshedpur and Calcutta have shown that the police cannot always cope with the *goonda*. It is up to us, the ordinary citizens, to lend a hand to the police and see that not one of our fellow citizens suffers because of his race or religious belief, or, because of violence done by one community to another in Pakistan. We must demand exemplary punishment for malefactors and if they cannot be found, penalise the locality which gives them shelter with deterrent fines. Otherwise our cherished ideal of secularism will become a shame and a mockery.

THE VIRTUE OF GIVING

SANTHA RUNGACHARY

IT was said by Schiller that "the genuine history of mankind is the history of ideas." One idea which has primarily shaped Indian thought and action and which has proved a fountainhead for a host of other ideas is the idea of *dharma*. *Dharma* is a word which defies exact interpretation. But it may be defined, most simply, as right conduct. It implies, in a sense, disciplined behaviour in a situation or a set of circumstances. In an yet another sense, it means right conduct unrelated to time, space, contemporary human conditions and current values.

Daan, which is part of Hindu *dharma*, also has two aspects to it. One is the aspect of simple charity which benefits the receiver and which, when practised by a large number of persons in a society, ensures distribution of wealth. The other aspect concerns only the giver of it. But, if in this second sense a man considers himself the giver, what he gives is not *daan* but only charity. Real *daan* is far more than charity; it implies the ethical concept of giving up, of relinquishing, of surrendering without expectation of material reward, including public recognition. To do *daan* in this sense a man must first have reached a certain stage in his spiritual evolution. He is giving up what he never possessed in the first place, to a man who will never own it. This is the ultimate in detachment.

Motive in Giving

From Vedic times a distinction has been made between *yaga*, *homa* and *daan*. All of them involve giving. In *yaga* and *homa* it is abandoning something that belongs to one in favour of a deity while in *daan* there is cessation of ownership over the thing given away and creation of the ownership of another over it.

Daan is an integral part of the whole complex of behaviour patterns and paths of righteousness laid down for the good Hindu from the earliest times. It is part of *ashrama dharma*. It is the second strategy (*upaya*) in the art of diplomacy formulated by no less a person than Kautilya. It is the blood and bone of the ascetical movements in Hinduism. There are whole chapters devoted to the subject of *daan* in the earliest religious literature of India.

There are hymns in the *Rig-veda* devoted to the praise of *daan* (*daana-stutis*). There are several verses in *Brihaspati Smriti* in which Brihaspati is represented as instructing Indra about the giving of gifts. There are copious references in the whole comprehensive collection of treatises on Hindu *dharma* which goes by the name of the *Dharma Shastras*. The *Anushasana parva* of the *Mahabharata* deals elaborately with the idea of *daan*. The *Agni*, *Matsya* and *Varaha Puranas* deal exhaustively with it. Scores of digests devoted to the topic have been produced in the last thousand years.

While *Varna-dharma* (the caste system) had a tendency to divide and fragment early Hindu society, *ashrama dharma* (the schematic division of life into four stages) united the people and offered a way of life by which every man, whatever his caste or profession, could work out his own individual salvation.

Daan, in its charity aspect, was a part of the first two *ashramas*—*brahmacharya* and *grihastha*. In *brahmacharya*, the *guru* or preceptor gave *vidya daan*. Knowledge was freely imparted by the teacher to his students. Whether it was the teaching of the Vedas or the art of archery, it was free. And because knowledge was held in high regard, the students bound themselves in reverence and gratitude to do the slightest bidding of their *gurus* all their lives. What demoralised Arjuna before the battle of Kurukshetra was the sight of his teachers ranged in battle against him. And the only way Arjuna could protect himself from committing the great sin of killing a teacher was by putting Krishna in the place of a superteacher and following his advice. *Daan*—as the performing of sacrifices and the giving of gifts—was an important part of the life of the householder in the *grihasthashrama*.

In *vanaprasthashrama* (which means retirement into the forests) the charity aspect of *daan* gives place to the idea of relinquishment. The householder gives up his material wealth and retires to the forest with his wife to live like a hermit, in self-restraint and austerity. The fourth and final stage comes with *sanyasa*, in which the life of charity culminates in total renunciation.

Giving as Duty

Even the charity aspect of *daan* had two connotations in early times. It meant charity to benefit the poor in the shape of wells, roads, rest houses etc.; it also meant gifts to brahmins and men of learning and piety. There were a number of rules attendant upon this act of *daan*. *Daan* was irrevocable and the man who took back something he had given away was considered the worst kind of sinner. There were rules regarding what objects could be given as gifts and what could not, when and how they should be given and accepted, to whom they should be given and to whom not, the proper occasions at which *daan* could be given, circumstances under which *daan* was wrong, sinful, futile or invalid. There were many types of *daan* based on circumstance and motivation.

The conduct of *bhoodaan* in ancient times should prove interesting in the

ontext of the contemporary experiment along those lines. Yajnavalkya Upanishads) prescribes that "when king makes a gift of land or bestows a *nibandha* he should commit it in writing for the information of future good kings. He (the king) should issue a permanent edict bearing his signature and the date on a piece of cloth or on a copper plate marked at the top with his seal and write down thereon the names of his ancestors and of himself, the extent of what is gifted, and set out the passages (from the *Smritis*) that condemn the resumption of gifts". There are inscriptions and copper plate grants extant to this day to prove that these instructions were followed to the letter, at least from the fifth century onwards.

The Gita divides *daan* into three kinds-*saattvika*, *raajasa* and *taamasa*. When a gift is made because one feels it one's duty to make it and it is made at a proper time and place to a worthy person who will not return it, it is *saattvika*. When it is made with an expectation of the receiver doing a good turn in return or with a view to securing some reward therefrom and is given grudgingly, it is *raajasa*. When a gift is made at an improper time or place and to an unworthy person and without showing honour to the recipient and with disrespect or contempt, it is *taamasa*.

From the lists of gifts mentioned in early religious texts, there appear to have existed an affluent society in ancient times. Not uniformly affluent, however. The classification of society into rich and poor had already begun. The Kshatriyas and the Brahmins were rich; the Vaishyas and the Shudras, the producers of wealth, were probably self-sufficient but socially inferior. This situation lasted obviously some hundreds of years. For in an inscription found at Nasik of a king of the first century A.D. we learn that he gave three lakh cows and 6 villages to gods and Brahmins, and one lakh Brahmins every year, got eight Brahmins married at his own expense, built flights of steps in a river, constructed quadrangles, houses and rest rooms at various places, dug wells and tanks and kept ferry boats going over six rivers, established shelters for distribution of water and gave 32,000 coconut trees to Brahmins. Often a king added his own daughter for good measure to the gifts. There was even a monarch who tried to give the earth away to his priest, Kashyapa, as fees.

Taking Is Spiritual Poverty

All this may give the impression that the milk of human kindness flowed rich and free throughout the land in those early times. Not at all. Kshatriya kings gave munificent gifts to Brahmins, it is true, but ordinary men were no better than they are today. The *Smritis* note that it is a rare sight to see a man giving away in charity wealth earned by him. Veda Vyasa says "amongst a hundred men one may be found to be brave, among a thousand a learned man, among hundreds of thousands an orator, but a donor may or may not be found." He himself tried to inculcate the doctrine that charity began at home. And regarding the receiving of gifts, Manu later warned that "though one is entitled to receive gifts, one must avoid the occasions for them; for, quickly is one's spiritual effulgence quenched by receiving gifts".

The idea of *daan* may have helped, to some extent, the distribution of wealth in the community in the ancient times, but it probably led to stagnation in community development and physical inactivity and a tendency to look to the king for largesse and for other kinds of assistance. Something like this is happening today. So side by side with the idea of *daan* a whole school of thought in favour of conservation of wealth, in favour of active production, also grew. The *Rig-veda* speaks of the desirability of wealth of all kinds—livestock, children, immovable property and food-grains. The *Mahabharata* extols the condition of wealth. Kautilya firmly upholds the necessity to create and possess wealth. He speaks against indiscriminate renunciation since it interfered with economic production. He would not allow ascetics to enter villages for fear that they might interfere with the productive activities of the villagers. The *Panchatantra* roundly declares that lack of money is the root of evil and beggary is the "shrine of wretchedness, an abode of tears, the thief of mind, the soil of doubts, the treasury of fears, concerted meanness, home of woe, honour's knell, a form of death to self-esteem, and no different from hell."

The present situation where we as a nation are at the receiving end of *daan* from foreign benefactors, is unprecedented—that is, until some inquiring genius discovers that one of the strategems by which Rama ensured the support of the Deccan was by sending cows and horses and elephants and jewellery and maidens as gifts to the people south of the Narmada.

BARAUNI REFINERY FORMALLY COMMISSIONED

THE Rs 40 crore oil refinery at Barauni (in Bihar) was formally commissioned on January 15. It has a processing capacity of two million tonnes per year, but in the present stage it will refine only one million tonnes of crude oil. It will attain its full refining capacity when the second stage of erection is completed. It is being built with Soviet aid.

The capacity of the refinery will be eventually expanded to 3 million tonnes. The Indian Oil Corporation has signed an agreement with the Neftekhimpromexport, a Soviet organisation, for the supply of 1,540 tonnes of Soviet equipment required for the expansion programme which will cost Rs 2.76 crore.

The Barauni refinery is being connected with the Nahorkatiya oil fields and the Noonmati refinery in Assam and also with Calcutta and Kanpur through pipelines. A 432-km long pipeline between Nahorkatiya and Noonmati started operating in 1962 and the next 720-km long section up to Barauni went into operation recently. The other sections of the pipeline are being laid.

An oil refinery with an annual capacity of 2.5 million tonnes is to be set up in the public sector in the region of Haldia port near Calcutta. It is expected to start functioning in 1968.

PLANNING AND PLAN IMPLEMENTATION

LESSONS FROM THE FIVE YEAR PLANS

THE preparation of every Five Year Plan involves, in some degree, an appraisal of past experience. Planned development has taken the country forward in many directions and, on the whole, the record will bear scrutiny. Although there is much continuity, there has also been considerable variation from one period to another in the problems which have claimed special attention and in the emphasis given to different aims and policies. Changes in methods and machinery have also occurred. While there has been at no time a sense of complacency, there has also been not that sense of conviction widely shared and that degree of concern with speed and attainment of results which are essential to the accomplishment of great tasks. An attempt is made in this paper to list some of the lessons which could be learnt from our experience in development over the past thirteen or fourteen years.

Gaps between declared social objectives and means and instruments envisaged in the Plan

Our Plans have presented the *social* objectives of development in broad terms without setting time-limits, without specifying in detail the means to be employed and without establishing sufficiently effective machinery and instruments for achieving or moving rapidly enough towards the declared objectives. Thus, between the statement of social objectives and the practical ability to achieve them, there has been a gap, whose very continuance now throws increasing doubt on the very process of planned development. This statement is true, for instance, of such objectives as establishment of greater equality of opportunity, bringing about reduction in disparities in income and wealth and a more even distribution of economic power, ensuring adequate expansion of employment opportunities, utilising the country's manpower resources and meeting the minimum needs of the bulk of the population. During any given period, there is a conflict between measures and policies for attaining economic growth and for enlarging social justice. We have been keen that the promise of freedom should take a concrete form as soon as possible. Since this will take a great deal of effort on the part of the country, we have been anxious that the goal should be constantly kept in view. In our thinking, therefore, there has been a certain amount of vagueness at this point and we have not been able to place the problem before the country in bold relief, pointing out clearly what might or might not be possible.

We should try now to state the essential problem in a precise and realistic manner in relation to the Fourth and Fifth Plans. It will not be enough merely to state the problem. The measures and policies to be implemented will also have to be stated and accepted. Here there are two difficulties. The first is that the savings of the community and the external resources that may be available will not be sufficient to achieve all the objec-

This article is based on a paper prepared by Mr. Tarlok Singh, Member, Planning Commission, for the Planning Commission and circulated among the members of the National Development Council when they met in New Delhi on October 27-28, 1964.

tives we have. Even with correct social and economic policies, the period needed will be somewhat longer than the next two Plans. How much longer, it is at present difficult to say. There are heavy odds to be met, not the least being the rate of growth of population and the demands of current consumption against accumulation of capital. Ultimately, this is a point where there has to be political judgement and political choice. This is true not merely of India but of every society that functions within the framework of democracy.

The second difficulty is that, within the limits of political judgement and deliberate choice, in our setting, the spectrum of political views described under a common label has been rather wide. This has made for unity in approach in a general sense, but not in terms of specific action. Much that is agreed by way of principle and approach loses in effect in the course of action and implementation. The degree of discipline in policy, so essential for effective and continuous administrative action, has not been available in many key areas. This has been the position over the years, both at the national and State levels and, despite the existence of the National Development Council and several favourable political factors, as between the Centre and the States.

These problems influence the formulation of the Plan to a limited extent, but their shadow over Plan implementation is larger and more persistent. There is no easy way out. At the same time, if we formulate our Plans with greater care and thoroughness and give much more attention to means and instruments through which the objectives are to be attained, the gaps may be progressively reduced.

Contradictions between current economic and social policies and Plan objectives and policies

At best a plan of development is an outline, a framework of policy and action. It cannot be too rigid, for new situations and new facts have to be reckoned from time to time. In retrospect, a Plan, even if correctly conceived, can only be as good as the implementation in detail of the policies and measures embodied in it. Even if there were no contradictions between Plan objectives and policies and those adopted currently, success would be far from assured. In many directions the administration has to make its own mistakes and learn from its own experience. It is true that with the experience that has been gained since Independence, there are many errors which we can avoid—errors of optimism and pessimism, errors of policy as well as errors of administration. Nevertheless, there has been hitherto a wide gap between Plan objectives and policies and current policies. This has reduced the effectiveness of our Plans without giving corresponding advantage in managing the current problems of the economy. This observation is true, for instance, in the manner in which we have dealt for several years with such problems as food distribution, fixation of relative prices of agricultural commodities and industrial commodities, control of inflationary pressures, implementation of land reform, and growth of corporate enterprise in the private sector. In fairness, it should be said that these are problems which have been found difficult in other countries as well. Yet, the more closely current policies and Plan objectives are integrated with one another, the larger will be the measure of success in achieving the Plans. The implication is not merely that current policies have to conform to the Plan but also that in formulating Plan objectives and policies, short-term requirements and problems should be anticipated and provided for.

Difficulties arising from the nature of the federal structure and from weaknesses in State administration

The distribution of subjects under our Constitution between the Union and the States does not give to the Central Government sufficient power to ensure economic and social development for the country as a whole either on an adequate scale or on uniform lines. Our Plans have sought to overcome this limitation to some extent. Through various forums the Central Government is able to initiate consultations over a wide field and thus exert a certain advisory influence with the States. Through the resources for development which the Centre makes available, a measure of direction can be given to the scheme of development in the States. Rigid procedures for the administration of Central assistance inhibit action in the States. On the other hand, if agreed priorities are not observed and Central assistance meant for given purposes is not well applied or is diverted to other purposes, planning breaks down. There have been indications of this during the Third Plan. In particular, in States whose financial situation was not satisfactory, in several aspects planning has suffered and priorities have been affected. An important lesson for the Fourth Plan, therefore, is that procedures relating to Central assistance, while permitting a reasonable measure of change and flexibility, should have built into them certain sanctions which will ensure that Plan programmes and priorities are not disregarded in any State simply because, for the moment, this seems to be the easier way. This is a matter which merits consideration as much from the point of view of individual Ministries and State Governments as in the larger national perspective.

While financial and regulatory procedures, if well administered, can secure implementation of Plan programmes and projects along approved lines, unless State Governments and those who hold responsible political office are so motivated and determined, the social objectives and the policy approaches implicit in the Plans may not be fulfilled. Several examples could be cited. For instance, failures in implementing programmes of land reform in an efficient and timely manner, which react equally on social stability and on agricultural progress, need not have occurred. Progress in building up co-operatives could be greater in several parts of the country. There could be more integrated development between rural and urban areas and between the more developed and the less developed parts of a State. Much more could have been done by State Governments to strengthen their administrative machinery.

The question of raising standards of administration in the States is of extreme importance. States administer not only for themselves but also on behalf of the Central Government. Theirs is the only administration at levels closest to the people. The Centre depends on them and has few agencies of its own which operate over the country as a whole. The problem of administrative efficiency and of integrity in administration at the Centre and in the States is, in the final analysis, an indivisible one. In the past, weaknesses in State administration were less apparent and mattered less, because of the limited scale of the effort envisaged in the Plans. Now the dimensions of the effort to be undertaken are so vast that, unless the administrative assumptions of planning are fulfilled, it is not possible to succeed. In the field of administration, a common approach to the problems of reform, not only in a general way but in considerable detail, should be regarded as an essential national interest.

Inadequate emphasis on the management function in relation to planning

The tasks of management lie at the core of the planning process. Earlier, the critical importance of management in relation to projects and in relation to various development programmes was perhaps not fully realised and was not stressed enough. It was assumed that the authorities concerned would do whatever was necessary and there was no need to pursue this aspect otherwise than in a broad way. This assumption has proved false. During the past three or four years, the nature of the problem has been seen more clearly, but the administrative Ministries and Departments and technical and other organisations working under them, have on the whole been inadequate in relation to the tasks to be undertaken. The frequency with which projects exceed their cost and time estimates and fail on their targets reflects both on the quality of planning and the quality of implementation. The problem, therefore, is one of strengthening these organisations, proposing to them improved methods of management and organisation, and endeavouring to secure their implementation in detail. This is true of many large projects. In these, inadequacies at the stage of project preparation have led to great difficulties, first in completing the construction phase, and later in operating the new plants economically. Similarly, failure to provide the necessary material, technical and personnel support to many developing projects has been both a fault in planning and in implementation. Deficiencies in management, taking the expression in its wider meaning, are capable of being largely removed. From now on, the utmost concentration should be on the proper working out of projects and ensuring that each project has an adequate organisation and sound methods of work.

Setting of inappropriate targets

In several fields of development, targets have not been proposed after sufficiently critical and detailed study. This is a fault in their technical preparation which tends to be slurred over at the stage of planning, but becomes only too obvious later on.

The failure on targets in many projects often comes to light after the event. With better project preparation, even if certain factors should turn adverse, some measure of re-planning would be possible, not arbitrarily, but as a part of an integrated scheme of development. Frequently, this aspect of integration is lost sight of. The adjustments are, as it were, merely forced upon the project authorities, as if they did not have much control on their own.

Failure on targets may occur for reasons other than those connected with the given project. For instance, adequate resources may not be made available because of other claims. Such failures have to be distinguished from those inherent in the preparation and implementation of the project itself.

One error which has often occurred is to propose targets and judge achievements in terms of expenditure incurred. Wherever they are fixed, the targets should be related to physical tasks and achievements. Against these, certain estimates of expenditures have to be set. Any expenditure is intended to represent a certain performance in a physical sense. Therefore, it is of the utmost importance that performance budgeting should be developed as a tool of planning and plan implementation.

There has also been excessive fixing of targets in fields in which they may not be wholly appropriate. Where large numbers of persons are involved, for instance, in agriculture, co-operation, or small industries or in social services, it is important that only a limited number of targets, each justifiable in itself, should be proposed. For the rest, the main attention should be given to ensuring that the processes of development are thought of on the right lines, the necessary institutions and incentives are being built up, and a process of growth from within is being stimulated.

Balance between projects and schemes requiring long periods of gestation and those requiring shorter periods of gestation, and lengthening out of gestation periods

If the gestation period of a project is longer than has been planned, ordinarily this should be regarded as a failure in the management function. As suggested earlier, the failure constitutes a blot both on planning and on implementation. In the past, frequently, the lengthening out of gestation periods has been ascribed to foreign exchange difficulties. That there have been foreign exchange problems is not denied. However, it is also true that in many instances, there have been other and more serious factors. Delays, for example, in making steel or cement available during the construction phase or in organising procurement of raw materials and components, both from within the country and from abroad, indicate that materials planning and management have not been given that central place in planning and plan implementation which is due to them. This has been realised for the past two years, but the steps taken to correct this known deficiency have been quite inadequate. As an important preparatory step for the Fourth Plan, a programme of action designed to secure the regular flow of key materials to projects under construction and procurement of raw materials

and components for projects in operation should be taken in hand from now on.

Even if gestation periods were not to lengthen out beyond the planned schedules, a central problem in planning is the extent to which projects and schemes requiring long periods of gestation are balanced with those requiring shorter periods of gestation. The problem arises in all sectors. It has drawn repeated attention in the fields of irrigation and industry. It exists also to an extent in agriculture and social services. In their policy formulations, our Plans have emphasised the need for a continuous flow of benefits, for phasing, for securing at each stage a composite programme in which results will be forthcoming over the short period and, at the same time, basic development requiring longer periods of gestation is not neglected. Unfortunately, in the actual choice of projects, these suggestions are often ignored, both at the Centre and in the States.

The main reason why it is possible to neglect what is accepted in theory as the correct approach, is that in our planning so far there has been very little insistence on the appraisal of costs and benefits and on comparisons between returns on alternative investments. This is a key area for action in the Fourth Plan. Working practices for the preparation of Plans in different sectors have to be considerably improved. If project appraisal and evaluation and assessment of returns were to become a normal ingredient of all planning decisions, as they should, the element of political preference and judgement, in itself appropiate, can be a positive aid in planning. If the Central Ministries set the right example, the States could be induced to follow. Action in this direction is urgent because, unless the new practices come into sufficient vogue in the next few months, selection of projects for the Fourth Plan will be marked by the same kind of deficiency as in the Third Plan.

It is true that, at the stage of formulating a Five Year Plan, all the projects may not be fully worked out. Yet some decisions have to be taken. The answer lies in introducing greater continuity in the process of considering and approving projects. Every project to be considered for a Five Year Plan should be presented by the appropriate agency with a careful 'project definition', supported by sufficient data for this stage of the project. Projects, which have been fully worked out or for which feasibility studies have been prepared, could be approved specifically for implementation. The allocation of resources in the Five Year Plan should take into account the estimates of requirements for these projects as well as for projects for which only preliminary statements are available. But specific approval leading to action should be given only after the feasibility study for a project has been considered. Within the scheme of resources allocations, approvals to projects should be given, as each project is presented in sufficient detail.

Continuity in planning on the lines suggested above, specially for projects, has to be built into the practice of planning and Plan implementation right through each plan period. This has two important implications. First, the sharpness with which plan periods have tended to be divided from one another marking, as it were, quite distinctive phases of development, is now unnecessary. There should be greater emphasis on sound technical and economic investigation, on taking correct decisions on the basis of requisite information and data, and on implementation and smooth flow of benefits. Secondly, each year every large enterprise should undertake forward planning, both in physical and in financial terms, for a further period of four or five years. This would ensure that their estimates of cost and time and of physical benefits were reviewed systematically and, whatever changes or re-planning were needed, could be undertaken as a matter of normal practice and incorporated into the plan. Current economic policies could then be more closely related to Plan objectives and targets. This does not mean that for many vital reasons Five Year Plans as such will not be required. These must continue, but, at every stage, a Five Year Plan should be up-to-date in its estimates of costs, time schedules and physical targets and further, at each point, at least in respect of major projects and the aggregate projections for the economy, those concerned with planning and financial and economic policies should have a fairly clear view of the future.

Dispersal of resources in place of concentrated development

The comments offered above have a bearing on investment policy and on allocation of resources. Another aspect of the same subject is the extent to which in our Plans resources should be spread out or deployed in a concentrated manner. Ten years ago, when the approach of community development and national extension was being worked out, it seemed hard to contemplate that, for years on end, only a proportion of the villages of India should receive the benefits of the proposed development. It was then thought that there would be no contradiction between extension of community development so as to cover the entire countryside and the growth of agricultural production, provided (a) the necessary priority which the Plans contemplated was always given to agriculture and (b) extension services were established by each State Government first in areas which already had irrigation or assured rainfall or which were likely to come under irrigation in accordance with Plan programmes. Neither of the two assumptions were fulfilled to the extent our Plans and policies had postulated. Be that as it may, the fact that growth in agricultural production, after attaining a certain level, seems to have come to a halt, has led us to stress the strategy of intensive area development. This has special application for agricultural and rural development. In other fields, areas selected for intensive development have a more limited purpose, such as testing of improved methods, training of personnel, etc. A common danger in planning is that certain labels may be used, but the content may be quite different. This aspect has to be watched in applying the idea of intensive development in every field and specially in agriculture.

The choice between dispersed and concentrated development of resources arises in other fields as well, for instance, in determining locations for industrial development, in considering how speedily the less developed areas are to be brought to a level with the more advanced areas, or in considering how the rural industrialisation programme should be implemented. In

practice, it is not possible to pursue either course completely at the cost of the other. Where the Fourth Five Year Plan should differ from earlier Plans is in posing the issues in each case, working out its implications with the tools of economic and statistical analysis, and in formulating a precise programme in which there would be proper time phasing and assessment of costs and benefits. Admittedly, economic criteria alone will not be decisive, but they should be applied and political and administrative decisions taken after considering the results of the economic appraisal. This is another direction in which, unless the lessons of earlier Plans are applied in the course of the next few months, it will be too late to take advantage of them at least in the formulation of the Fourth Five Year Plan.

Achieving effective administrative and technical co-ordination at area level

In any area, the main investments in a Plan, whether public or private, help establish certain potentials for development. These potentials can be realised and progressively enlarged in practice if the human resources and the leadership and administrative set-up in an area can be harnessed for achieving integrated development. This would mean that various development programmes and activities are seen as an inter-dependent structure in which each part stimulates and supports the other. These concepts lie behind our planning, but they have not been so far realised in any adequate measure. They do not become wrong for this reason. They need more studied application. The notion of integrated area development may apply to a resource region, to a district, and, within a district, to individual blocks and villages, or to a city or metropolitan region. The most important application is in terms of districts and blocks and villages for which a new system of institutions is being built up under Panchayati Raj. These institutions are conceived of primarily as means for achieving integrated area development based on participation of the people and co-ordination between various agencies. Working with these institutions, various agencies of Government are expected to co-ordinate and dovetail their efforts. Failure to achieve effective co-ordination, for instance, between the Agriculture and Irrigation Departments, has led to shortfalls in irrigation. Similarly there is inter-dependence between Agriculture and Co-operation, between these and Education and between Health and Family Planning and other aspects of development. In this sphere, there are a number of detailed lessons to be drawn from past experience.

Insufficient attention to costs, productivity and returns

Cost, productivity and returns are aspects, firstly, of the criteria of investment which are followed and, secondly, of management at each stage of a project or scheme, but something more is also involved. Technological improvement and raising of levels of productivity are basic to economic progress. They have to be built not only into the general design of a Plan but into each of the activities included in it. In other words, productivity has to be a matter of continuing concern. In the search for higher productivity, the entire apparatus of scientific and technological knowledge and research has to be involved fully at every stage. Costs and returns are in themselves both tests of productivity and instruments for achieving higher productivity. In the past these aspects have received only casual consideration. It is necessary that, both in the formulation of the Fourth Plan and in its implementation, measurement of productivity and setting of productivity standards and norms should be given a key place.

Role and functioning of the organised private sector in relation to planned development

At the beginning of the First Plan, a general view was taken of the place of the private sector in the national economy. This led to the passing of the Industries (Development and Regulation) Act of 1951. The Industrial Policy Resolution of 1956 carried the matter a little further, specially by way of demarcating fields of industrial development in which the public sector or the private sector would play a major part. In the light of experience over the past several years, it is necessary to review the 1956 Resolution and bring it in line with present-day needs. It is also necessary to review the 1951 legislation because, apart from the provisions made for licensing of industries, provisions concerning the machinery of development in the private sector (Development Councils and the Central Advisory Council of Industries) have not fulfilled their purpose. In an economy which is to develop according to a Plan and at the same time assigns a considerable role to the private sector, it has now become necessary to give fresh thought to the structure of industrial organisation, to the role of the newly emerging managerial and technical cadres and to the part which labour should play in responsible decisions affecting industrial development and economic policy. Our recent experience of difficulties in ensuring development of priority industries in the private sector, in obtaining resources, in promoting the application of scientific and technological research and attaining higher levels of productivity, in negotiating collaboration agreements and, finally, in working with Development Councils and Industrial Associations, deserves close and critical attention.

Inadequacies in reporting, evaluation and appraisal of progress and shortcomings in implementation

This is a field in which responsibility lies with the Planning Commission and with the Ministries for improving the existing system of reporting on progress and shortcomings in implementation. Three aspects are of special importance. First, in relation to projects, reports should enable the authorities concerned to anticipate problems and to judge progress at each stage in relation to pre-determined programmes and objectives. Secondly, over the past two or three years, reporting from the States to the Centre, which was never

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Primary education should be designed to serve the needs of the countryside; secondary education should fulfil the dual role of preparing young men for vocations or university, and university education should be available for all those who possess the fitness for it.

EDUCATION MUST BE RELATED TO ECONOMIC GROWTH

V.K.R.V. RAO

I THINK it is important for everyone in the country to ask himself the question as to what is the relation of education to economic growth. I have an uneasy feeling that many people occupying positions of authority in this country might be thinking that education is just a welfare activity, something which is desirable and which is good, but which is not quite as useful as digging a well or putting fertilisers into the soil or setting up a steel plant or building a dam. There is perhaps still a feeling that education is after all really intended to make gentlemen out of people and that it is not vitally linked up with the hard problems of economic growth with which the country is so much concerned.

I fully share the impatience of many people in our country with the inadequate impact of education on economic growth particularly when expenditure on education has been growing. It was one thing when expenditure on education was only a few crores or a few tens of crores. In the First Plan period we spent something like Rs. 140 crore or of that order on education. In the Second Plan we spent Rs. 273 crore. In the Third Plan, we propose to spend to Rs. 560 crore excluding spendings on medical education, agricultural education, education of the backward classes, and so on. If we take all these into account, perhaps the Third Plan expenditure might come to something like Rs. 720 or Rs. 730 crore. Now, the Planning Commission has proposed an expenditure of Rs. 1,400 crore on education in the Fourth Plan period in contrast to Rs. 560 crore provided in the Third Plan. If we add to this figure of Rs. 1,400 crore the outlay on agricultural education, medical education, education for backward classes, social welfare etc., it might add up to a total of Rs. 1,700 or Rs. 1,750 crore. It is natural therefore for people to say : "We are spending a terrific amount of money on education. What is its value for the country's economic development?"

Role of education in the economic growth of the country

It is high time that members of the teaching profession in secondary schools and universities and also those who are responsibile for training them, ask themselves the question why there is impatience among those who are responsible for decision-making, with education as an instrument for economic development. Why is there the feeling that education is largely academic, that it is merely a welfare activity and, therefore, something which can be given a lower priority than irrigation, power and industry ? We cannot ignore the feeling that education involves increasing expenditure without adequate economic returns unlike irrigation or power that yield dividends and create resources that could be used for reinvestment. I think this subject should be discussed and answers found for the questions which are being raised. If we do not find the answers, then we may not get all the resources we need for the purpose of both expansion of education and improvement in its quality.

The first thing that one finds is a feeling that education in India is somewhat literary in character almost right from the primary stage to the university stage, and that it is unrelated to economic factors such as increase in production or conquest of the environment. If one were to question a teacher on this, his answer is most likely to be somewhat as follows : "I am not concerned with these things. I am here to teach Mathematics or Economics or Physics or Chemistry or Literature. as the case may be, and my job is done if I teach it well." If he is questioned further, he might say: "My job is to try and provide opportunities for the discovery and fulfilment of the personality of my pupil, commensurate with his age and abilities." But at no stage is he likely to show an awareness of the relationship between education and economic development. Therefore, if we find people in authority asking "What is the relationship between education and economic development?" we cannot blame them because educationists themselves , by and large, have not bothered to define the relationship between education and economic development. If one were to read the Convocation addresses of the Vice-Chancellors of Indian Universities over the last 30 years, he will find that most Vice-Chancellors have not taken cognisance of the relationship between education and economic development. Their opinion could perhaps be summarised in the words : "it is not our job to bother about the economic value of education or employment opportunities; that is somebody else's business. Our job is to provide education." Such an attitude assumes that education is something isolated from employment or from economic development. Unfortunately, the fault lies with all of us who form part of the world of education.

Gandhiji's ideas on education

Take, for instance, the system of primary education in this country. We all know that the man who first talked of education in economic terms was Gandhiji who was not an educationist himself. I do not think he studied at any university, or took a degree in education. Unfortunately, the way his ideas were presented —he mixed up education with its financing rather than with its impact on economic development—was such that many of us who are educationists or were budding educationists at the time, were not prepared to accept his ideas. When I was a lecturer in Bombay I remember having written an article in an Educational Supplement of the Times of India. We were unhappy at Gandhiji's suggestion that the sale proceeds of the goods which students produced should go to finance a good portion of the expenditure on schools. We said : "What do you want to do? Do you want to turn the school into a factory? Do you want the children to labour and earn?" Many of us who were educationists were not prepared to accept his idea, but there is no doubt that Gandhiji brought to focus a very important truth when he said that education should be linked with economic activity. In this he found support in Dr. Zakir Hussain, a very eminent educationist. Dr. Zakir Hussain gave a shape to these ideas in his writings and reports. Thus there came into being what is known as 'basic education'. I have also been told that in other countries they have what they call fundamental education which is perhaps akin to basic education. Somehow, basic eduction has not made significant impact on our educational system. It is not my purpose here to go into the merits of basic education. But I do know that it is very important to link up education with economic activity.

Primary education should be related to the economic needs of the countryside

When we look at primary education, we cannot say that children who attend primary schools become more interested in agriculture. Out of the 50 million or so children who are in our primary schools, a vast majority are going to reside in the villages and earn their living from the land. How will primary education get them interested in agriculture, or help them to improve their enrvironment and their way of life? The people are getting frightened at the results of primary education, when they view them from this angle. The village boy who goes to school does not want to touch the plough or tend the cattle. He develops a contempt for the life in the village and his ancestral profession. He wants to do something different. He would like to settle down in a town. Primary education seems only to create a discontent in him without providing a positive purpose or ideal. We cannot afford to have all our children, of whom 80 per cent come from the villages, to develop a contempt for agriculture. We have all been pleading that the highest priority should be accorded to agriculture, but we do not seem to have realised the intimate relationship between primary education and agricultural production. Agricultural production cannot be carried on by university graduates in agriculture. It has to be done by millions of small farmers. Therefore, we have to think of education in terms of the role it can play in the economic growth of the countryside. Such an education has to start from the primary stage.

Secondary education in relation to economic development

We shall now examine the secondary stage of education. I attach the highest priority to secondary education because the bulk of the educated people in this country would only have gone up to the secondary stage. It is difficult for the university graduates, some of whom have several degrees, to realise the full significance of this well known fact. It is worthwhile looking into statistics to see how many in India matriculate and how many go to universities. The bulk of the people in this country do not go beyond the secondary stage. As far as the people in our countryside are concerned, the vast majority of children are likely to stop after completing the primary or elementary stage of education. Under these circumstances, our ideal should be to increase the proportion of those who go in for secondary education which is also what may people want.

How is secondary education to be linked up with economic development? The educational administration of the country has provided an answer to this by starting "multipurpose" schools which train our young men and women for particular vocations at the secondary stage. If secondary education has to be linked up with economic development, a large number of those who complete their secondary education would have to stop there and take up occupations. Therefore, secondary education has to be a terminal point for a majority of young men and women. But it has also to fulfil another important function. Those who want to go in for still higher education have to be trained for it at the secondary stage. Therefore secondary education is not only a terminal point but also becomes a junction for changing.

The tragedy of Indian education in India has been that we have not been able to solve the problem of secondary education which will function both as the terminal point and the point of entry into higher education. It should prepare young people for entry into employment or some economic activity and also into the university. But all the time we seem to think that the person who has been trained in a secondary school for entry into life should also have a chance to enter the university if he so likes, and vice versa. This attitude has given rise to a major problem which is bedevilling our education system. I am sorry that the Laxmanaswamy Mudaliar Commission has not solved this problem and it is high time we started thinking afresh about it.

All the secondary schools are, if I may put it that way, dominated by the universities. The teachers and the headmasters encourage their pupils to think in terms of university education. The result is that the present system has failed to provide a truly terminal point at the secondary stage.

Our employment practices are defective

An explanation to this lies partly also in our employment practices. We go in for graduates when, for instance, we want to recruit despatch clerks, though their work can be done as efficiently by a matriculate or a non-graduate. This is something like saying that if we can get a much sharper knife than is necessary to cut butter, we should prefer the one which is sharper to the one which is not so sharp. Naturally, the boy who completes his secondary education desires to enter the university so that he can compete with others more effectively as a graduate even for jobs that may not fetch much more than Rs. 100 a month. It does not matter how dull a student he has been at his college. There is also the fact that enough vocational opportunities are not available to bright and ambitious matriculates. All this has resulted in our secondary education receiving a strong university bias.

The multi-purpose school was an attempt to answer this problem. It is too early to give a firm opinion about the efficacy of this institution. There has been considerable difficulty in getting teachers of the right quality for the multi-purpose schools. Regional Colleges of Education have been established for dealing with this problem. But the fact remains that these schools have not so far succeeded in providing an answer to the problem of terminalisation. I cannot help feeling that so long as we mix up the terminal and continuation aspects of secondary education, and continue to show preference for university degrees, it would be difficult to free our secondary schools from university domination. The only way is to provide for an intermediate stage between the high school and the university, with the specific prupose of training students, selected on merits, who enter the university. Whether this intermediate stage should take the form of a junior college, a pre-university or post-high school course is a matter which needs expert examination.

Craze for higher education has lowered university standards

We want a secondary education that can function as a terminal point at the tenth class. For those who want to proceed further on the educational ladder and possess the qualifications for it, independent training courses in technical or vocational subjects should be provided. Similarly, those who want to branch off and enter the university would join pre-university courses. The craze for university education among our young men and women irrespective of their fitness for it has led to a lowering of the value of university graduates, and of academic standards.

University education is not, and cannot be, self-financing. It is said that every year about one to one and a half lakh more students seek admission in colleges. Where is the money to come from for so many new colleges? All the same, many colleges are opened every year without adequate teaching staff and library facilities. Some students pass the examinations and some do not. This is not a healthy sign. University education must have quality. Without adequate equipment, a properly trained teaching staff and library facilities, students cannot be expected to derive the full advantages of university education. This would mean that admissions would have to be restricted, however

unpleasant this may appear to some people. At the same time alternative educational avenues for those graduating from high schools should be created to enable them to enter productive economic activity.

We should not create a caste system based on academic qualifications

This does not mean that we should create an educational caste system in the country. I would also like that a person, who has had secondary education and been denied direct entry into the university, will have a chance to get higher education after he has put in some years of productive work and gained in maturity and judgement. He should be able to get this through correspondence courses, sandwich courses, part-time courses, evening courses, morning colleges and the like. We should not bar people for ever from the benefits of higher education for, otherwise, we would be creating a caste-system based on diplomas, degrees, Ph. D.s etc. We cannot afford to create a new caste system based on educational qualifications in a democratic society. A person who has passed through the secondary stage should always have an opportunity to derive the benefits of higher education. A Sudra must always have an opportunity to become a Brahmin. Looking at our educational system as an economist, I want that education should be a good investment, resulting in accelerated economic growth. At the same time, speaking as a democratic socialist, I want scope for promotion of talent, equalisation of opportunity, and a built-in flexibility in the educational system which will enable those who want to climb up the educational ladder to do so by honest effort and intellectual fitness. There must be some gap between the education which prepares people for immediate employment or entry into economic activity, and that which leads them into the universities. The latter must insist on high qualifications and special aptitudes.

Let us not forget that university education, if it is to be worthwhile, is an expensive affair; and it is heavily subsidised by the community, the bulk of whom do not enter the university. If we do not insist on this, a time will come when the vast majority of peasants and workers who are paying for this and who are not likely to enter the university and who are in want of the essential things of life like food, clothing, shelter etc. will revolt against a system that involves a subsidy of Rs. 50 to Rs. 60 crore a year to produce mediocre graduates who are no better than those who fail in university examinations. Only thus can we solve the problem of linking up education with both economic development and social justice.

Education should be treated as investment in economic progress

Meanwhile, we must emphasise the fact that education is not a luxury or a welfare activity. Education is not merely intended to make this country safe for democracy. This is no doubt an important function; but it is equally important that education should make ours a more decent society. Above all, I wish to point out that education shares, to some extent, the qualities and the economic purpose of such things as irrigation, power, or industry. While industry, irrigation, power, transport and other material investments are no doubt necessary for economic development, they cannot by themselves achieve the cherished objective of increased production and consumption. Labour, using the phrase in its widest sense to include all skills, has to be trained for undertaking economic activity with efficiency. This is a crucial requirement. Labour has also to be motivated and organised for making the most of the economic opportunities arising from material investment. If I am asked as an economist and as a student of planning as to what is the major defect in our planning, I would point to the inability of the powers that be, including the Planning Commission of which I am now a part, to create that kind of response among people which would enable them to take full advantage of the facilities for development created by economic planning. I would assert therefore that it is this response ratio of the human factor to the facilities created for economic development that determines the rate of economic growth. Hence the importance of investment in human resources. The most important form of such an investment is education.

I hope, therefore, that everything would be done to give to education the role it deserves as an investment in economic development. Alongside with increasing investment of resources on education there must also be a complete reorientation of our educational system in the direction of economic growth. The content of education, namely, the syllabus, curriculla, methods of teaching, the extent of diversification, the reality of terminalisation, the place given to scientific subjects and productive activity, the emphasis on quality, opportunity for talent and the climate of dignity of labour and work-orientation built into the system—these and other relevant factors have to be carefully worked out and implemented if our education is to play its part in the promotion of our economic growth.

In undertaking this re-examination with a view to making our education more development-oriented, however, let us not decry the role of education as an instrument of growth. In our annoyance with the colour of the water or the size or shape of the bath tub, let us not throw out the baby as well. Let us not think that education is just a consumption or welfare activity, something that can be postponed in preference to investment on irrigation, power, steel mills, pesticides or more salaries for Government officers who will administer these programmes. The sooner this is recognised by influential persons in this country, the better would be India's chances to achieve the high rate of economic growth, which we all desire.

The article is based on the Foundation Day Address delivered at the Regional College of Education, Ajmer, on October 31, 1964.

MISPLACED PROFUNDITY

"CREATING in Glass is quite different from creating in any other way because the artist can't work in the medium itself. One has to work against time with hot glass. Therefore success of the execution is totally dependent upon the craftsman's skill in executing his creation".

Guess where this profundity comes from—from an explanatory note hung up in the National Gallery of Modern Art in New Delhi next to some examples of crystal work.

An artist needn't be a writer. It is enough that he is master of one medium. But that does not mean that the dumb can write on art. The gallery can certainly afford to show such efforts at writing to high school teachers of composition before putting them up on the wall for all to see.

We came across an even more striking effort at verbal bathos. At the entrance to the Gandhi Sangrahalaya at Sabarmati, Ahmedabad, a set of photographs showing the Mahatma's life are prefaced with: "Bapujee giving poses to the camera".

The excellent impression made by the building of the Sangrahalaya, an example of really imaginative architecture, is spoilt by such a crude signboard.

Nobody's Business

THE city which has the most unreasonable railway porters and insolent auto-rickshaw drivers in India is easily Bangalore. Pay a porter exactly what he asks, even if he demands a rupee for carrying a suit case, he will ask for more. The auto-rickshaw men want to earn three fares for every drive.

A Bangalorean who fights daily battles with the auto-rickshaw drivers told us a story. It was evening, and he waited for almost an hour at the auto-rickshaw stand at one of the busiest of the city's numerous circles. But of the 30 or 40 rickshaw drivers who drove past, none cared to stop at the stand.

Our friend noticed that a policeman had been standing there all through. After an exasperating hour he went up to him and asked if he could not do something about it. The policeman was evidently a believer in the philosophy of non-interference by the State. "It is their machine. If they don't want passengers what business is it of mine?"

A Poet Passes

THE passing of T.S. Eliot is an event which has saddened not only his many admirers in the western world but also a remarkable number in the east. This is especially true of India. Ever since his first poems appeared in the early twenties, the public and the academic world have followed his literary career with appreciation and sympathy; not always understanding him, not always agreeing with him, often baffled by his obscurities and prejudices—yet in some significant fashion acknowledging his greatness. Why is this so?

Trying to suggest some reason for this allegiance, we need to look to Eliot's own background, to his literary and cultural attitudes. First of all, we find his cosmopolitanism. Born an American, educated at Harvard, the Sorbonne and Oxford, he set up no artificial national barriers in his literary studies. Like his friend and guide, Ezra Pound, he took the whole magnificent heritage of western literature for his province, with occasional and fruitful excursions into that of the East as well. Of course he did not confine his studies to literature. As the hapless student of his poetry well knows, his interest in anthropology, history, religion and mysticism, finds its place in his work.

Secondly, T.S. Eliot was one of the most successful amongst a bewildered and disillusioned generation to voice his frustration in challenging and appropriate ways. His disgust with the much vaunted culture of the west, with its lack of spiritual content and its inability, on the one hand, to prevent wars and, on the other, to provide a meaningful existence for the affluent, found an echo in the restlessness of our own educated young people striving to effect a reconciliation between native outworn modes of thinking and living and the foreign standards and values imbibed along with British rule. Thus while we enjoyed his eclecticism, the fact that there was no British insularity in his themes, his expression and his values, his impressionistic style, 'mixing memory and desire', the disjointed freedom of his verse interspersed with haunting lyrical interludes, his ragbag of obscure literary and scholarly allusion, appealed to us who were seeking desperately for a way to present the inchoate and irreconcilable elements of our own cultural condition. It is significant that T.S. Eliot had a direct influence on modern Bengali literature which was among the first of the vernaculars to present the contemporary dilemma in its own terms. Perhaps even the fact that his political and sartorial conformism added to his religious solution for the cultural impasse, constitutes another attraction to the Indian mind.

One therefore feels that along with all these debts of gratitude shared with western readers which have been so eloquently expressed elsewhere, India has her own tribute to pay to the memory of T.S. Eliot.



IGNORAMAN
Wants to Know
Why
GOING SLOW
in factories
is called
SOLDIERING.

Problems of

URBANISATION

IN recent years industrialisation has been accelerating at a pace unknown in our country's history. We have for long treated cities as something apart from and superior to the countryside. The *nagarik*, a citizen of culture, was a class apart from the *grameen*, the rustic folk. This traditional outlook is now yielding place to new attitudes.

Our democratic society is seeking to evolve itself into a welfare state. We can no longer permit the cities to continue as mere oases of industry and affluence. India lives in its villages. They supply the labour and resources that sustain our towns and cities. As dozens of new industrial townships are being brought into existence by our five year plans the problems of urbanisation have assumed new social dimensions. These problems call for solutions which are not only urgent but also imaginative.

Urbanisation is merely an umbrella term for a complex of socio-economic changes that are brought about by the growth of industries and commerce. If these changes are to have any meaning for millions of men and women in the countryside, we shall have to plan the growth of our cities as integral parts of the regions to which they belong.

***Yojana* has pleasure in presenting, in this annual number, special articles devoted to the theme of urbanisation as a historic process of national growth.**

Why Do People Migrate to Cities?

ASHISH BOSE

The "Push and Pull" theory is not an adequate explanation

WHY do people migrate from rural to urban areas? Is it because of the increasing pressure of population on land and growing unemployment, or because of the attractions of city life and better employment opportunities in urban areas? In other words, what is the explanation for the continually swelling streams of rural-urban migration: the push of rural misery or the pull of urban living?

It has almost become a ritual for report writers on socio-economic surveys of cities to classify the different causes of rural-urban migration into 'push' and 'pull' factors. It is unfortunate, however, that whatever little research on rural-urban migration that has been done in recent years in India is heavily loaded with superficial discussions on push and pull factors. And one does not add to the clarity of thinking by arriving at the naive conclusion after a display of a series of statistical tables that both push and pull factors are important and it is only a question of the relative importance of these two factors. The National Sample Survey Report (No. 53) on Internal Migration abandons the push and pull approach and classifies the causes of migration into three categories: (1) voluntary (2) obligatory reasons; and (3) sequential resaons. This certainly is an improvement on the socio-economic surveys.

But the basic flaw in all these surveys is the complete absence of any data on the differentials in the rural and urban wage rates and the relevance of these differentials in real terms in motivating a person to migrate from his village. And no attempt has been made to study the costs and returns of migration.

It is our contention that migration analysis based on push and pull factors tends to be an over-simplification. Migration research today calls for a much more sophisticated approach. Larry Sjaastad's recent theoretical study on migration concludes that "Migration cannot be viewed in isolation; complementary investments in the human agent are probably as important or more important than the migration process itself.... cognisance of, and attention to, these additional investments offer a promising clue to observed immobility in the face of large differentials in *current* earnings."[1]

Apart from wage rates, two other factors have an important bearing on migration streams from rural to urban areas, namely, the size of land-holdings and the size of family. In an exploratory survey of migration in some villages around Delhi undertaken by the Institute of Economic Growth, we found four "migrant types" among the underemployed and unemployed population: (1) those who were not willing to go out of the village at all and wanted employment opportunities within the village; (2) those who were willing to com-



Lone migrants in big cities ply small trades and send their earnings home

mute to the nearest city from the village but not leave the village; (3) those who were willing to go anywhere if they obtained suitable employment opportunities but wanted their family members to stay in the village (this was especially true of those who owned land); and (4) those who were willing to migrate anywhere with their whole families if suitable employment opportunities were provided to them (this was especially true of landless persons). The majority of the potential migrants belonged to the third category.

The predominance of adult males in the streams of rural-urban migration is invariably pointed out by the demographers but, from the sociological point of view, the important fact to note is that a large proportion of the adult male migrants to the cities are married and they leave their families behind in the rural areas. The enforeed separation from the family persists for long spells in the working life of the migrant.

Lone Migration

Defining a *lone migrant* as a married person who has left behind his family, we have estimated that over 40 per cent of the migrant households in Calcutta belonged to lone migrants.[2] These migrants send money home regularly and live as frugally as possible in the city. According to Asok Mittra, in 1960-61 the Calcutta industrial region sent out Rs. 276 million by postal money orders, the average value of a money order being Rs. 46. In his words, "these figures afford some idea of the further savings which the worker carries with him on his annual holiday, and also how he gets along without the barest minimum of housing, sanitation, comfort and privacy."[3] Indeed one would wonder how such a lone migrant gets along with the barest of family amenities which are confined to his annual or biannual visits to his native village.

This shows how unrealistic it is to think of the social effects of urbanisation in terms of the incidence of crime, juvenile delinquency and increase in divorce rates. It also reveals how unreal the psychological pull factors of urban areas are. In the Delhi Survey, it was found that 71 per cent of the migrants were sending money regularly home and of these 90 per cent reported that they had to send the money to maintain their families.[4] Thus, the lone migrant cannot enjoy the fruits of his increased earnings in the urban areas. There is a constant pull on his pay packet from the members of his family and other dependents who stay back in the rural areas. The extreme housing shortage and the high cost of living in the cities do not permit him to stay with his family in the place of work. To talk of the glamour of city lights and the comforts of town life is to shut one's eyes to the tragic reality of the urban situation for the millions who drift from villages to towns and cities. The tragedy is heightened when one thinks of the choice before the villager: in the city, jobs without homes; in the village, homes without jobs.

In the absence of social security measures, except in a limited sense and for a small section of the population, there is a constant "push" factor in urban areas which operates whenever a migrant in a city falls sick, is unemployed or retires from service. This is especially true of the migrant who comes to the city in the expectation of a job but fails to get it. He is inevitably pushed back to his village or to some other city in search of a job.

One fallacy in the conventional "push and pull" approach is that it implicitly assumes that the push is always from the rural areas and the pull from urban areas. It is time the push and pull factors are viewed in the over-all demographic context. Under conditions of a high rate of natural increase in population not only in the rural areas but in the urban areas as well (as a result of high urban birth rates and rapidly declining urban death rates), the push factor operates in the urban areas also. The urban labour force of India is sizable and the urban unemployment rates are high and there already exist pools of underemployed and unemployed population in the labour force, pools which act as deterrents to fresh flows of migration from rural areas to urban areas. We may call this the "push-back" factor. If new employment opportunities are created in the urban areas, the first persons to offer themselves for employment are the marginally employed persons residing there, unless, of course, special skills are required (which may result in intra-urban migration) or there is a large demand for unskilled labour.

In support of our argument we may point out that

(*Continued on page 37*)

The differences in their outlook derive from their differences in social structures

OUR VILLAGES AND CITIES

A Contrast Between TRADITION AND MODERNITY

ANDRE BETEILLE

THE contrast between town and country as two modes of life is an old one. In India, where cities have existed for more than three thousand years, this contrast figures in the classical literature. The city dweller is associated with diversity, refinement and the arts of life. The villager, by contrast, is associated with hard work, frugality and the simple life.

In a traditional society like India, differences between village and city outlooks acquire a new dimension with the growth of the modern industrial city. For, increasingly the contrast between rural and urban has come to be viewed as a contrast between tradition and modernity. But it would be well to remember that in India cities also have in the past been repositories of traditional values. It was with particular reference to the Indian context that Redfield and Singer spoke of cities of the moral order and the technical order. One can contrast such urban centres like Banaras or Kancheepuram with Jamshedpur or Neyveli.

Cities in contemporary India exemplify highly mixed types from the sociological point of view. Not only are there cities of different kinds which represent very different degrees of modernisation, but within the same city one encounters remarkable contrasts. It is not unusual to find within a large metropolitan city pockets which are truly rural in character. In Delhi one has only to visit the Jat and Ahir *mohallas* in order to appreciate the truth of this statement. The peculiarly "rural" character of many of India's cities is related to the pattern of rural-urban migration in the country.

In this essay we shall compare values and attitudes typically associated with the modern city with those of the peasantry living in the rural areas. Enough has been said already to indicate that there are significant elements of continuity between the two.

Two Different Outlooks

Many of the differences between village outlook and city outlook derive from differences between rural and urban social structure. Urban communities are larger in size, more spatially compact, and show greater occupational, linguistic and ethnic diversities than do rural communities. The social life of the villager tends to be circumscribed within a limited sphere; social relations in the city tend to ramify in different directions.

The village generally constitutes a sort of primary group, characterised by face-to-face relations between its members. A limited number of people repeatedly interact with each other in a variety of different contexts. There is, relatively speaking, an active community life in the village. The activities of any individual are of interest to the entire community and are, accordingly, discussed, censured or morally approved. The peculiar atmosphere of community life in a village lends a positive value to traditional sanctions and a negative value to individualism.

Social relations in the city are more fragmented in character. The different spheres of activity tend to be segregated, and the individual interacts with different people in the spheres of work, leisure and domestic life; the people with whom he interacts in these different spheres are often unrelated to each other. This gives a more impersonal character to social relations in the city. Because of the fragmentation of relations, social life in the city also has a more anonymous character. The individual is relatively free to pursue his own tastes and inclinations and is not always subject to the watchful eyes of his community. Because community life is less binding, traditional sanctions do not have the same force in the city as they have in the village. This fosters a spirit of individualism among the typically urbane.

In the village the individual's kin-group and caste always loom large in his eyes. His loyalties to such groups, and to others in which he acquires membership by birth, are fairly rigidly defined. The city provides a more diversified social atmosphere and a greater measure of choice to the individual to enter into new relationships. In the city the individual joins associations in which membership is not always acquired by birth. Loyalties to kin-group and caste are partly (though not wholly) replaced by loyalties to new institutions which are more universalistic in character. In the village particularistic values predominate, whereas in the city universalistic values gradually acquire importance.

In the Indian village the peasant

tends to have a personal bond with the land which he either owns or cultivates. This bond with the land plays a large part in providing continuity and stability to peasant society. Work has a different value in the urban environment. The peasant's work is a part of his life in a much more real sense than that of the worker in the factory or the office. The latter sees the relations of work largely as contractual relations. They may be entered into or terminated according to considerations of a more or less rational nature.

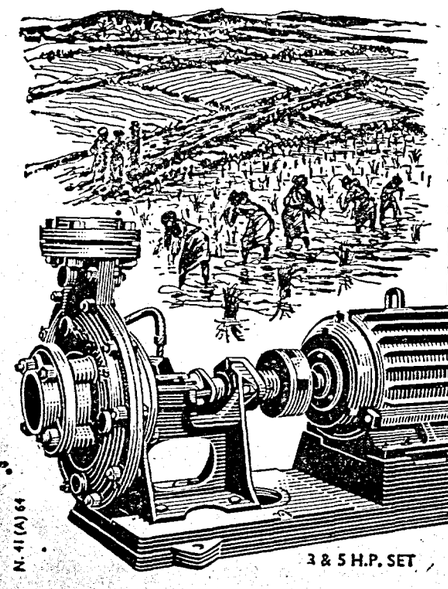
The contrast between urban and rural outlooks has been commonly viewed in terms of a pair of related oppositions: the rational and the traditional on the one hand, and the secular and the sacred on the other. Considerations of efficiency and expediency play a more important part in governing human action in the urban environment. For the peasant, efficiency is not the only consideration, or the most important one. The sense of collective participation and the satisfaction derived from perpetuating a traditional pattern of life play a large part in motivating the peasant's activities.

The peasant's attitude to life is marked by a simple piety which tends to yield place to a kind of scepticism in the city dweller. To the peasant the supernatural appears as a simple extension of the natural world; the cultural environment of the modern industrial city tends to push the supernatural into the background. Religious rites figure importantly in the life of the peasant, particularly those connected with the annual cycle of agricultural operations. Secular values tend to predominate in the cities, particularly in cities of the technical order where magic and religion are gradually replaced by science as a technique for understanding and manipulating the universe.

In India as elsewhere, cities are the centres in which the processes of modernisation originate. The social atmosphere of the city is more fluid and more congenial to innovations of various kinds. Within the city there is greater circulation of personnel, and greater social mobility, both horizontal and vertical. The city is also more directly exposed to influences from the outside world.

New ideas, values and habits which originate in the city do not for ever remain confined to it. There are diverse channels through which they percolate to the rural areas. Even in traditional India there were various mechanisms whereby town and country articulated with one another.

Channels of communication have been greatly extended over the last several decades. Better roads and cheaper transport enable villagers to come to the city with increasing frequency, and thereby to imbibe a little of the urban outlook. The media of mass communication carry directly to the village new ideas and new modes of thought. Villagers, in their turn, carry over many of their traditional outlooks when they go and settle in the city as migrants. In this way a living link is maintained between rural and urban society.



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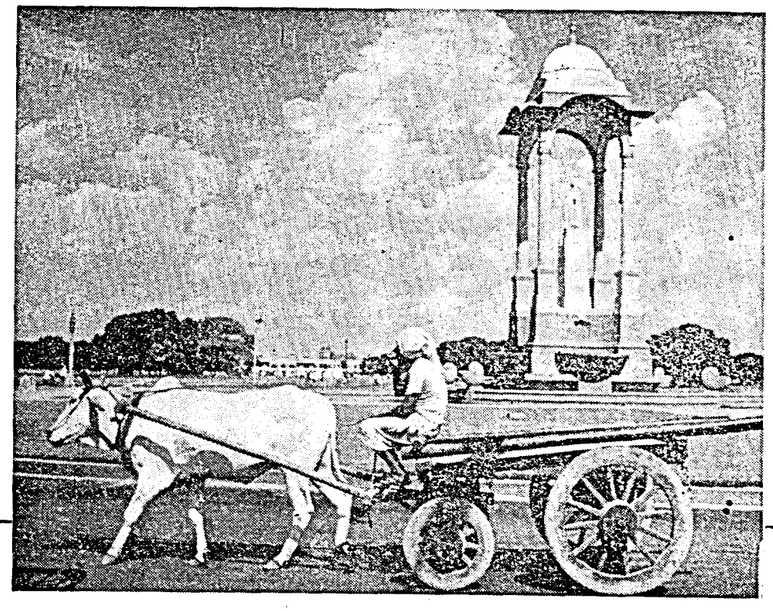
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IF CITIES are encroaching on the lands of the countryside, villages, too, impinge on the cities in many ways. Cities depend on them for their supply of farm products. Attracted by the existence of a ready market and better prices, small producers from suburban areas and outlying villages make daily trips on bicycles and bullock-carts to offer their goods or labour for sale.



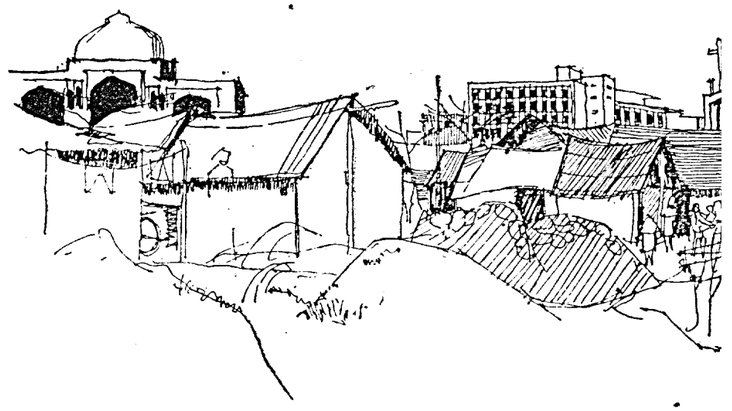
WE SHAPE OUR BUILDINGS

AND CITIES



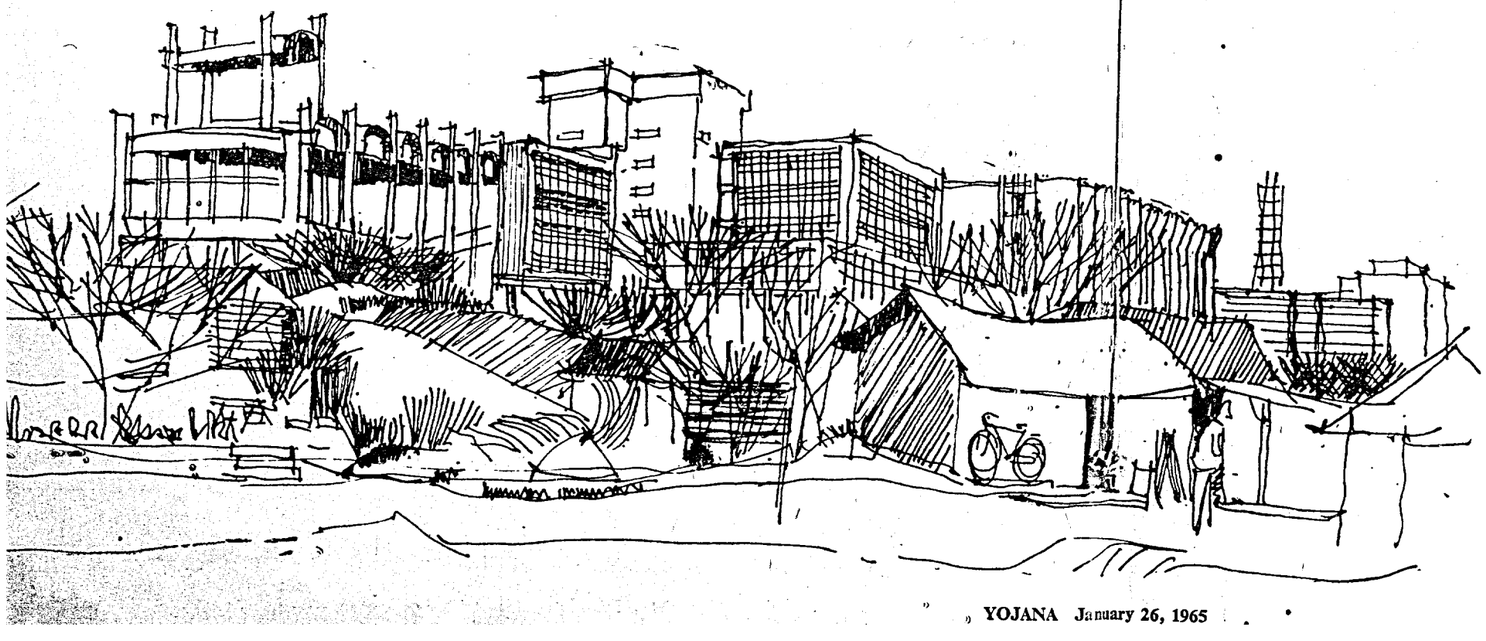
VITALITY and gigantism are the twin qualities of a growing city. When we lose control over this process of growth we become victims of its ugliness and absurdities.

These sketches of Delhi are by KALYAN BISWAS, a student of Delhi School of Planning and Architecture.





— THEREAFTER THEY SHAPE US



Worsening housing conditions in cities call for new policies on industrial locations

CITIES AND THEIR HOUSING PROBLEMS

B. N. DATAR

A feature film which won the President's Award in 1964 depicted the problem of housing in one of our big cities. No person who has seen it would say that realities of life are exaggerated in that film. In spite of attempts made in the last 14 years to improve housing conditions and a substantial investment in urban housing, living conditions are becoming more and more unbearable. In particular, because some of the larger cities are growing at a faster rate than the medium or small size cities, there seems to be at present little hope that housing conditions would substantially improve in our cities in the foreseeable future. Industrial housing has become a major problem for our country's planners.

Workers' tenements are small and overcrowded

In a recent report on 'Problems of Rapid Urbanisation in India', based on socio-economic surveys carried out in a number of cities under the auspices of the Research Programmes Committee of the Planning Commission, Dr J.F. Bulsara has pointed out the predominance of single room tenements in the cities of Ahmedabad, Lucknow, Poona, Kanpur and Bombay. (Calcutta, Madras and Delhi have not been covered in the report). It is likely that the situation is not different in other cities of comparable size. 'Multi-purpose room', therefore, is a feature with which our cities would have to contend for a long time to come. And this is not all. The multi-purpose room very often accommodates more than two persons and at times it is even used by shifts by several inmates. Apart, therefore, from persons who have no known residence and the seventy-five per cent of families who stay in such multi-purpose rooms, there is a large number of persons living in bigger tenements but under no better conditions. In terms of per capita space, if less than 25 square feet per person were to be taken as constituting overcrowding, Dr. Bulsara points out that between a third to a half of families in urban areas studied by the Research Programmes Committee, could be taken as living under such conditions. In cities like Bombay or Calcutta, their percentage would be even higher. Cramped cooking space, inadequate sanitation, absence of open spaces and other social amenities, and long queues in front of public hydrants are some of the well-known indications of overcrowding.

The Government have been fully aware of this problem. About 12 years ago they brought the subsidised industrial scheme into operation with a view to helping at least a section of the population which contributes to small savings through Provident Funds. This scheme is being implemented through three different agencies namely, State Governments, private employers and co-operative societies of industrial workers. The number of houses or tenements constructed up to the end of 1962 by all these agencies totalled about 125,000 as against 151,000 for which sanction had been given. In the last two years it is expected that another 20,000 units would have come up. Judging from these figures it would appear that even a modest rate of progress in housing programmes for industrial workers has been difficult to maintain. Expenditure on these housing schemes, as judged from Central assistance utilised in the three Plans, has been Rs. 13 crore in the First Plan and Rs. 21 crore in the Second Plan. In the first four years of the Third Plan it has come to about Rs. 18 crore. When we allow for price changes in recent years, achievement in physical terms is likely to indicate an even slower rate of progress.

Agency	*No. of units sanctioned*	*Completed*
State Government	120.0	102.1
Employers	26.1	18.1
Workers' Co-operatives	5.3	3.1
	151.4	123.3

figures in nearest thousands

If we were to analyse the progress of housing schemes in terms of the agencies through which they were implemented, we find that the actual achievement of the State Governments has been 85 per cent of the physical target, of private employers—70 per cent, and of co-operative societies—60 per cent. These percentages are not likely to vary when we assess the performance in subsequent years. What is the possible reason for this? It would appear that progress in terms of physical targets depends on the relative capacities of these agencies for undertaking initial expenditure.

The responsibility of co-operatives

Three important points seem to emerge from a close study of our housing problems: (a) there is, in the first place, an urgent need to tackle the problem of industrial housing with greater vigour, (b) we should probe deeply into all the causes that have led to slow progress in housing construction, and (c) we should devise effective methods to control the exodus of people from the countryside to urban areas. In the last ten years the industrial population of India has gone up by well over a million, while housing facilities planned for them cover only about 14 per cent of the requirements. Even this modest target has not been achieved, the actual construction being less than 12 per cent of the required number of tenements.

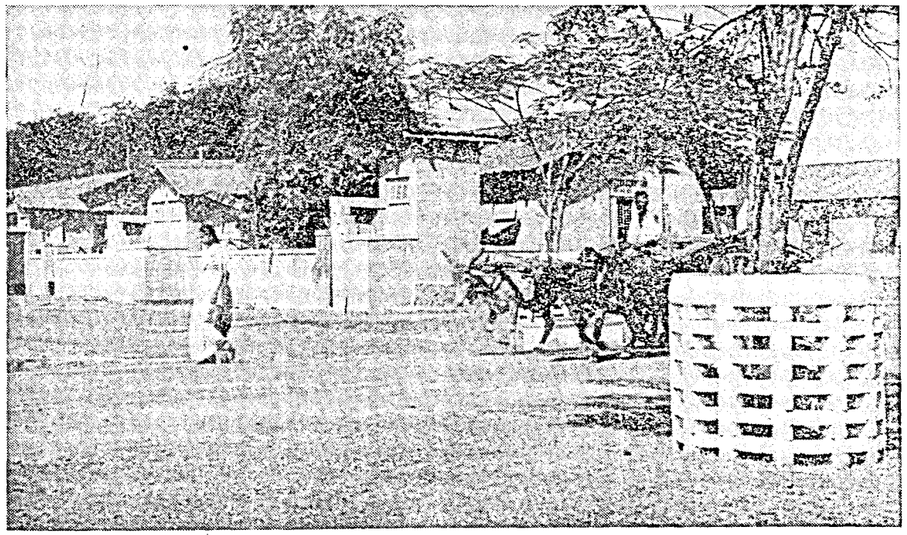
Approved agency	*Loan*	*Subsidy*
State Governments, Statutory Housing Boards, and Municipal Bodies	50%	50%
Registered co-operative societies of eligible workers	65%	25%
Employers	50%	25%

Among the agencies responsible for the construction of housing facilities, employers and workers' co-operatives were to give a helping hand to the State agencies on the basis of loans and subsidies to be made available to them through the Central Government. Over the last ten years the conditions of Government assistance under the scheme have been liberalised in favour of these agencies. For a long time financial assistance for approved schemes was as shown in the next column.

Workers were required to contribute 10 per cent of the expenditure with, if necessary, a loan from their provident fund account. Employers were expected to meet 25 per cent of the cost from their own resources. Even so, the progress has been halting. State assistance to employers is likely to be further liberalised to cover the full cost of the construction, 25 per cent of it being in the form of subsidy and the other 75 per cent in the form of a loan. While this may accentuate the rate of progress in construction, it is doubtful whether the required number of units would be constructed.

High prices for land and scarcity of building materials

There is a suggestion that employers should be compelled to provide living accommodation for a certain percentage of their employees. Whatever be the merits of this suggestion, there are some difficulties inherent in plans to improve housing situation which cannot be ignored, as, for instance, (i) high land costs, (ii) scarcity of physical inputs required for housing and (iii) the difficulty on the part of workers to pay economic rent.



A residential colony built for industrial workers with the help of Government subsidy

Areas which are most suitable for housing workers have to be near their place of work. These are the very areas which are also suitable for locating industrial units and as a consequence their prices shoot up, making their acquisition for residential purposes prohibitively costly. If workers are given houses in areas far away from their place of work, it would give rise to the problem of transport which it may not be within the means of every employer to provide.

We all know that shortage of cement, iron and steel and other building materials have often been mentioned as a cause for slow progress in industrial housing. Here again much depends on where residential units are to be built. If they are to be near the place of work the inputs would have to include much of the building materials which are in scarce supply. Use of building material locally available would be possible if sites for housing colonies are situated at places far away from industrial areas. In either case, it would result in hardship for workers—either rent would be beyond their capacity to pay, or they would have to pay for transport which they cannot afford. Even in a city like Bombay where a survey was conducted in 1958-59 it has been shown that a worker spends only about 4.6 per cent of his income on housing. In Calcutta, housing costs account for 8 per cent of workers' budgets. In the other large cities like Madras, Delhi, Hyderabad, Ahmedabad, etc. the percentage of expenditure on housing ranges between these two limits. In smaller towns, however, it is even less than 4 per cent.

As compared to this expenditure, rent which is considered to be appropriate by Government for classes to which it provides accommodation is about 10 per cent of the income. Economic rent for units constructed under the subsidised industrial housing scheme would be even higher.

What then is the remedy? A suitable location policy for industries seems to be essential. The Industries (Development and Regulation) Act gives powers to the Government to suggest alternative locations. By themselves these powers may not go far to solve the problem. So far, their operation has shown that an industrial unit can be prevented from being located in a congested area, but there is no guarantee that location suggested by Government would be considered attractive by entrepreneurs. The effect of such regulation, therefore, may be negative. One way of solving this problem would be to educate the workers and persuade them to agree to contribute a greater percentage of their income towards house rent; but this idea is fraught with limitations in these days of rising prices.

LESSONS FROM THE PLAN

(*Continued from Page 19*)

quite adequate, has become even weaker and less regular. As the Mid-Term Appraisal of the Third Plan has pointed out, this requires close attention. Thirdly, while a system of reports and evaluation can be developed for Plan projects and programmes, it is much more difficult to develop tests and data by which to judge progress in achieving important policy objectives. This aspect has not been considered so far, but has become increasingly important. As the scope of Plan programmes and policies grows, systematic reporting, study of reports and action on conclusions drawn from reports become matters of great importance for the success of our Plans. In any field, unless the reporting system at the base level is placed on a sound footing, satisfactory reporting and use of reports at higher levels cannot be achieved. Therefore, the question of reports has now become one of fundamental importance. Reference was made earlier to the introduction of performance budgeting and evaluation. This is also closely linked with the manner in which programmes are formulated and budgeted for and performance reported upon.

Weaknesses in the organisation for planning at various levels, and in data and analysis for planning

Planning and Plan implementation are intimately related to one another. Whether in project management or programme management or area development administration, unless the quality of planning improves, it is not possible to obtain the results which a Plan postulates. Nor is it possible to ensure that investments will be correctly made, targets correctly set and costs and returns correctly established. Therefore, the strengthening of organisations concerned with planning and equipping them adequately for obtaining and analysing the necessary technical and economic information is of the utmost importance. There is much to be done in this respect within the Planning Commission at the national level. Some steps were initiated after the Third Plan was formulated, but these have to be pursued much more intensively. The technical quality of work in the Planning Commission can and should be considerably raised.

Several Ministries at the Centre do not have adequate planning units of their own, so that their grip on their own plans and projects is much weaker than it should be.

Most of the larger industrial projects and construction projects do not have units assisting the General Manager or the Managing Director in overall co-ordinated planning and watching of performance.

In the States, although some steps have been taken from the technical aspect, the level of planning cannot be said to be anywhere near the difficult tasks they have to accomplish. There is need for much more overall study and integration. The planning machinery in most States does not function sufficiently above the ordinary departmental level to make the impact needed in terms of policy and approach. This was an important consideration behind the suggestion to States in April 1962 to set up State Planning Boards. This suggestion merits serious consideration.

In relation to the private sector, planning tends to reduce itself largely to licensing and allocations. The extent to which the leaders of an industry (from amongst employers, managers and technicians and workers) are in fact able to take an active share in planning for the development of the industry as a whole is much less than was hoped for many years ago.

Experience of earlier Plans and, more specially recent experience, has emphasised the need for early action in each of the directions outlined. Basically, the issue is one of taking positive steps urgently to strengthen planning organisations at various levels, so that they may develop the necessary competence to assemble the essential data required for sound planning, present their analysis and organise up-to-date data and studies in the future.

Our cities are growing very fast; but does this reflect the economic growth of the regions to which they belong?

Cities, Suburbs, the Region and Hinterland

V. NATH

CITIES all over the world are expanding rapidly. As their populations keep on increasing, their territorial limits are also expanding, encroching on areas of the countryside. This expansion of cities, which began in Europe after the Industrial Revolution, was greatly accelerated with the advent of the automobile which made suburban living possible, and has been further accelerated by economic growth in the two decades since World War II. In parts of western Europe, eastern U.S.A. and Japan, the process has gone so far that large numbers of adjoining cities and towns are coalescing to form gigantic urban complexes and the distinction between urban and rural areas is being obliterated. All the earlier terms used for distinguishing a city from its surrounding rural area—city, metropolitan area, conurbation—have become obsolete and the new concept of megalopolis has been formulated to describe this new phenomenon. Urban growth in India has not gone that far, though the population of Indian cities is also increasing rapidly and their expansion into surrounding rural areas has gathered great momentum in the years following World War II. Indeed, if present trends continue, it is not unlikely that 'megalopolis' may emerge in some areas like coastal Gujarat (between Ahmedabad and Surat) or in north-east India between Dhanbad and Calcutta, where a number of adjoining cities and towns are experiencing rapid growth.

A major factor which contributes to the rapid growth of cities is the location of industries. Cities with their large markets and reservoirs of capital, entrepreneurial and technical skills, act as powerful magnets attracting industries, especially market-oriented consumer goods industries and those using the latest technology and materials (e.g. electronics, plastics) which have been growing very rapidly in recent years. This locational pull is specially strong in countries like India, in which cities have had a disproportionately large share in the growth of modern industry. However, since further concentration of industries within city centres is undesirable, or is in some cases impossible, there is a growing tendency to locate industry on the urban periphery. This development is sought to be directed by those concerned with urban planning, by developing industrial areas outside the cities or by encouraging growth of satellite industrial townships. The development of industrial areas in the Thana-Kalyan region outside Bombay city and of industrial townships like Faridabad, Shahdara and Ghaziabad around Delhi, are examples of such direction.

One result of the demographic and physical growth of cities is that city planning is increasingly becoming regional planning, with its chief concern changing from policies of location of particular institutions or facilities within a city to a clearer definition of the pattern of land use and functional relationships within a metropolitan region. Secondly, as cities are getting more closely linked with the regions in which they are situated—through transport and communications and diverse economic relations—much greater attention has begun to be given in city planning to analysing developments within the regions. These trends are reflected in plan policies for the large Indian cities. In the master plan for Delhi, for instance, the unit of planning was the entire area of Delhi State, consisting of the cities of Delhi and New Delhi, the town of Shahdara, and a large rural area. Further, the plan gave considerable attention to the relation between growth of the city and its surrounding (peripheral) region in Punjab and U.P. It took into account the developments which were taking place in this region (e.g. ribbon development along the main roads) and made a number of recommendations for directing this development. Its most important recommendation related to development of the satellite towns mentioned above. The relation of Delhi with its hinterland in the north-western parts of India, was also examined in the plan.

Plans for city and suburban areas

In the proposed plan for Calcutta now being worked out, the unit of planning is not the city of Calcutta, but the Calcutta Metropolitan District—an area of about 450 square miles comprising the area of the corporations of Calcutta and Howrah, about 35 municipalities and a large number of villages. The Bombay Corporation has recently drawn up a plan for the Greater Bombay Area including Bombay city proper

and a large suburban and semi-urban area, totalling about 170 square miles. In addition, the Maharashtra Government has initiated action on formulating a regional plan for a much larger area of about 1,250 square miles, which includes large parts of Thana district besides the Greater Bombay Area.

The metropolitan region

The 'region' adopted as the unit of physical planning in these cases may be called the 'metropolitan region'. It consists of the city proper and surrounding suburbs and rural areas. The city is already expanding into its suburbs and will expand more in the future because of the compulsive demands of growth, requiring land for housing, industries, various social services, transport, and communications and recreational facilities. Demarcation of the "metropolitan region" is the first step in drawing up the physical plan for a city. A major object of the plan is control of land use i.e. allocation of land for various urban uses. The plan decides the pattern of location of economic activity within the metropolitan region and influences its functioning as an economic and social unit mainly through control of land use.

The role of a peripheral region in urban development

In addition to the metropolitan region, it is useful to distinguish for purposes of city planning two other regions—the peripheral region and the hinterland. The peripheral region is the area beyond the metropolitan region. It is essentially rural or semi-urban in character but is strongly affected by the economic and social influences emanating from the city. Its economic life is closely connected with that of the city because employment in industries or service institutions, located within the metropolitan region, is a major source of economic activity for its people. Agriculture and allied vocations in the region are directed towards supplying milk, vegetables, meat, poultry, and other perishable farm products needed by the city. The attitudes and values of the people of the region are also affected more by urban influences than those of rural people farther away from the city. The boundaries of the peripheral region are not well defined. At the inner margin, they are subject to change through periodic invasion by industries and service facilities—roads, rail or air terminals. In time, this inner part of the region may be absorbed by the expanding metropolis. Where a number of rapidly expanding cities and towns are located close to one another, their peripheral regions may eventually join to form part of a 'megalopolis'.

But a clearly defined concept of the peripheral region is essential for city planning, because it distinguishes an area outside the metropolitan region but, all the same, deeply affected by urban influences. Trends in land use within its peripheral region are of considerable importance for the future growth of a city. These should be closely watched and directed to the extent necessary. The need for location of industries in the peripheral region, in order to prevent concentration within the city area, is one reason which may make such direction necessary. For instance, the regional planning work for the area outside Greater Bombay, recently initiated by the Maharashtra Government, is a reflection primarily of this need. Demands for land for various other non-agricultural uses also increase within the peripheral region as the city grows and the metropolitan region gets filled up. Ribbon development along the main roads and railway lines, haphazard growth of industry or location of noxious industries which it will be difficult to shift later, destruction of large areas of productive land by brick kilns, lands being bought up for speculative purposes, are some of the dangers of unplanned land use in the peripheral region.

Planning of land use in the region is beneficial for another reason also. Parts of the region afford exceptionally good opportunities for intensive agricultural development directed towards producing perishables of high value for the city market. This development will lead to higher rural incomes and levels of living and will make these products available to the people of the city at lower costs. It is therefore essential that large areas of land are not unnecessarily taken out of agricultural use.

The concept of hinterland

The hinterland is the region for which the city acts as a service centre rendering various commercial, administrative and other services. Bombay, for instance, is the major port and commercial centre for Western India, including the whole of Maharashtra and Gujarat and parts of Mysore, Madhya Pradesh and Rajasthan. Similarly, Delhi is the commercial and service centre of North-West India. An analysis of trends in economic development within its hinterland should form part of planning for every city, because this analysis would indicate the demands likely to be placed on the city in future. Large increases in agricultural, industrial or mineral production in the hinterland of a city like Bombay will increase the demands on its port, and on the roads and railways leading to it. They will also mean larger demands on its banking, insurance and other services. These demands will be greater if industrial expansion depends upon use of imported fuels like petroleum or visualises large exports.

Small towns are 'tributaries' of metropolitan cities

A large metropolitan city is linked with its hinterland through a number of smaller cities and towns. The links between the large city and these smaller urban centres are similar to those of a river with its tributaries and smaller rivulets. Most towns in Western India have this kind of relationship with Bombay. Each, in turn, has its own tributary and sub-tributary towns reaching down to small towns which serve a group of villages. The economic and social influences of the large city percolate to the hinterland through these smaller cities and towns, and on that account its role as a base of services for the hinterland becomes real and meaningful. Industrial development undertaken in towns which are found suitable for it will help reduce pressure for industrial location in or near the metropolitan city. Expansion of educational, cultural and other service facilities in the hinterland would similarly reduce pressure on the facilities available in the city. Both these developments

are being currently advocated by some to relieve the pressure on large cities like Calcutta and Bombay.

Cities and towns as service centres

The "service" role of an urban centre for its surrounding area becomes most obvious in the case of small towns. The growth of these towns is intimately linked with economic growth in the rural areas served by them. Further, they are themselves major instruments of rural growth because they are the foci of modernisation. People from the villages go to them for commercial, administrative, educational or health services. New ideas, processes and techniques radiate from them into the villages. Such towns may well be called 'rural service centres'. They have a growing importance in the economic and social life in the countryside. The latter are using the service facilities located in them far more than they did 10 or 20 years ago and they will use them even more in future, as education speads among them, modern health services are accepted more widely and agriculture becomes more commercialised. Technological change in agriculture will also be a powerful factor in making the service roles of these towns more important, because the various facilities needed for accomplishing such change—distribution points for chemical fertilisers, pesticides, cement and diesel oil, workshops and facilities for servicing of agricultural implements etc., cannot be located in every village and must be confined to small towns or large villages. Agricultural processing industries and other industries specifically related to agriculture (e.g. manufacture of agricultural implements) have similarly to be located in such towns because of advantages of transport, availability of skilled workers, etc. The more specialised services rendered by the larger towns like district and divisional headquarters and large *mandis* will also be used more and more by the people in the villages as their economic and social levels rise. An increasing number among them would wish to go to colleges or universities, for instance, and to use the specialised facilities provided by a large hospital.

It is important that this service role of small and medium-sized towns is adequately appreciated and provided for in their development plans. It will also be an advantage to establish suitable relationships between municipal bodies which are concerned with planning for these towns, and the panchayati raj institutions which have the responsibility for planning in rural areas. This relationship can be best established at the district level. The provision for association of municipalities with the Zilla Parishads, which has already been made in some States, is a recognition of this need. But there is need for further progress in this direction.

The regional approach will have to be given an increasingly important place in urban planning in future. The unit of long-term physical planning for a city or town should not be the area included within its municipal limits but the larger, metropolitan region. The relation of the city with its peripheral and hinterland regions should be adequately visualised and provided for in its plan. This is essential for direction of economic growth in the peripheral region and achieving a better balance between growth within the city and its hinterland. In areas where large, expanding cities and towns are located close to one another, it will be an advantage to draw up a plan for the entire region in, addition to plans for individual cities. This regional plan may be less detailed and more flexible than the plans for individual cities; but it should visualise the general direction of development of the area and the interaction of the different cities within it. The service role of the small and medium sized towns for their surrounding rurals area should be adequately recognised. This recognition is important for both urban and rural progress because these towns are the foci of modernisation in rural India.

MIGRATION TO CITIES

(*from Page 26*)

according to National Sample Survey data, the unemployment rate was 8.2 per cent among the resident (non-migrant) population while it was 6.4 per cent among the migrant population[5]. In urban Delhi, it was found that 4.2 per cent of the working force in resident households was unemployed while only 2.7 per cent of the working force in migrant (excluding refugee) households was unemployed.[6] In Bombay city, 7.1 per cent of the resident males were unemployed while only 4.5 per cent of the non-refugee immigrant males were unemployed.[7] At the same time, it is true that more people come to cities in search of employment than because of better employment. On the basis of NSS data, we have estimated that for every 100 persons who come to urban areas because they have found better employment, 254 persons come in search of employment.[8] These two facts taken together, namely, the larger number of persons coming to cities in search of work compared to those who come having procured better employment and yet the lower unemployment rate among the migrants, indicate the operation of the push factor both in the rural and urban areas. In other words, there are not always clear streams of migration from rural to urban areas but there is probably a high rate of "turnover migration" (as Asok Mitra, the Census Commissioner, puts it), indicating push to and fro, from rural to urban, urban to rural, urban to urban, and so on. When the migration tables of the 1961 Census are published, there will be scope for a series of technical studies on the different aspects of migration. But one wonders if research workers will be pushed out of the field of migration research by the massiveness of the data or they will be pulled into this field by the availability of such data for the first time in the Indian census.

1, Larry A. Sjaastad, *The Costs and Returns of Human Migration," The Journal of Political Economy, Vol. LXX, No. 5, Part 2, October 1962, pp. 92-93.*

2. Sen S. N., *The City of Calcutta, pp. 164, 180,* Calcutta, *(1960).*

3. Asok Mitra, *Calcutta, India's City, p. 22, Calcutta, (1963).*

4, 6. Rao, V.K.R.V. and Desai P. B., *The City of Greater Delhi* (under publication) Institute of Economic Growth, Delhi.

5, 8. National Sample Survey No. 53, Tables with Notes on International Migration, Government of India, Delhi *(1962)*

7. Lakdawala, D.T., et. al., *Work, Wages and Well-Being in a Metropolis : Economic Survey of Bombay City, p. 482,* Bombay *(1963).*

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A CITY AT WORK AND PLAY

Social good, not money or statistics, should guide planning of cities



G. N. ACHARYA

ON New Year Day, Bombay newspapers carried a report of the decision of the Railway Board rejecting the suggestion to extend the Western Railway Suburban services beyond Virar, up to Dahanu Road. The Board, the report said, thought that the passenger services now running between Virar and Dahanu Road are adequate to meet the needs of existing traffic.

The Board must have made an exhaustive study of statistics and economics, as it always does. Some figures were cited even in the brief news item. It seems that while two lakhs and a half of passengers travel each way between Andheri and Churchgate every day, the traffic tapers off northwards. The number of people who travel between Nala Sopara and Virar is only 4,500 a day each way.

The conclusion that the Board drew on the basis of established principles is that the money needed to extend the suburban service cannot be invested to meet the needs of so few passengers. With this traffic, offering the service will not pay.

The conclusion is based on two cardinal fallacies. The first is that the development of transport follows already existing traffic. If the study of the population development in India has any lesson, it is that every spurt in urbanisation has followed and not preceded the development of transport.

Bombay and Calcutta started to grow when steam transport by water began, accelerated with the railways, and have become unmanageable in



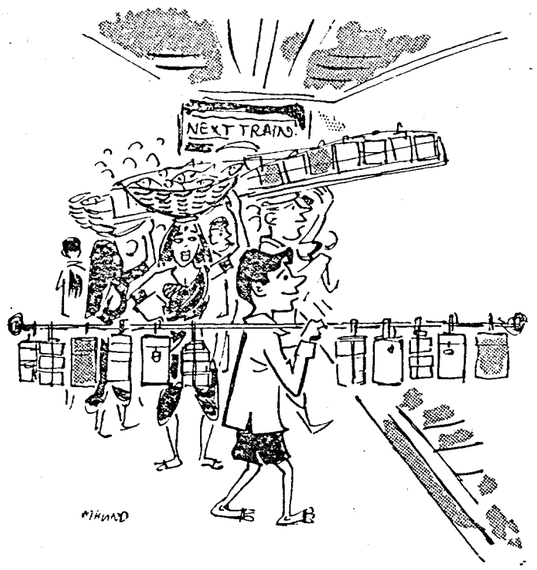
proportion to the growth of automobiles. Even within the logic of the Board's method of calculation, the traffic between Andheri and Churchgate was not what it is today when the suburban service was inaugurated. It has grown since then.

The second fallacy is that it does not pay. Pay whom? It is a singularly capitalistic logic applied to a society which professes to be marching towards a Socialist order. The number one priority in that order should be the total good of the community, and it seems sensible that all traffic should be integrated to yield the optimum social and economic advantage to the people.

The Railway Board can, of course, nod its wizened old head, shaking its grey locks, and smile at such theories. The Board alone cannot suddenly drop the concept of money dividends and begin to think of social good. All Bombay—or any other city for that matter—is not organised in terms of social good. If it were in a challenging mood, the Board might well ask, who has remembered that the most important thing about planning and development is that it concerns people—not figures, statistics, dots on a graph, nor dividends.

The Railways, the argument might continue, cannot be called upon to accept responsibility for a problem added by ages of thoughtlessness. They did not create the condition in which they have to carry such vast numbers of people back and forth for their work and play. They are not answerable for the situation where millions of people are forcibly flung together, but behave all the time not like friendly neighbours but "bored long-distance runners jogging away from one another".

If the venerable Board is ever provoked to such pugnacious polemics (of which, of course, there is not the slightest possibility), it will be right. The way Bombay, and other cities too are organised to live, work and play is both shocking and amazing. Here, for instance, in the narrow tongue of land stretching like a slightly bent finger into the Arabian sea, are concentrated innumerable offices where people work.



And here too are all the principal aygrounds. The Brabourne Stadi-n, the main centre of cricket; the ɔopearge the main centre of football; e Hockey Association's ground and e Bombay Gymkhana; tennis courts .d swimming pools, and a cluster gymkhanas clinging to continu-ısly shrinking areas along the sea ɔnt, where table tennis and bridge e played. Also centred in this same ea are all the best theatres. Exhibi-ɔns and circuses must be held here o, because there is nowhere else do so.

If work is no play in a city, play an ordeal. Going to see a game of icket or hockey can be an agony Bombay.

Similarly, the bulk of retail busi-ss and shopping centres are within narrow arc stretching about a mile ɔm the Jyotiba Phule market. ıe bulk of the mills and factories ain are concentrated in a compara-ely narrow area. As these concen-ıtions leave no space for people to e, the residential areas are sprawled de and far. As the commuter lt creeps wider, communications rrow down to tentacles of the :tropolitan octopus.

Part of this is the result of historical :ident. But the situation is sustain-and continued by outmoded theo-s of town planning, a philosophy work and life that counts on transport to mitigate the inescapable by-product of industrial development. Machine industry, it was argued by planners and architects in Europe half a century ago, has brought with it a new relationship of man to life. This new correlation is a necessary consequence of the conditions of machine industry.

The assumption behind that theory was that though man has to work the machine, man and machine cannot live together. Industry produced so much noise, so much filth—like Calcutta's jute mills—that people cannot live near the place. The argument, of course, did not cover the poor and the destitute, but "civilised" people—people who could pay for the luxury of a fair environment.

That theory has not the same validity today. Not only is it possible to control the machine so that its output of deleterious wastes is minimised and regulated, but it is thought to be in order to discipline industry to see that it causes the least harm to the human environment. But in India we are somewhat unresponsive to new ideas, and patterns of thought abandoned elsewhere continue to live here, like the obstinate grass that grows, pale but alive, even under a rock.

The theory of "zoning" that finds constant mention in all our urban development plans is like that weed under the rock. A by-product of the faith in zoning is the tolerant attitude towards the grim, daily spectacle of thousands of people wasting time and energy in going for their work, their play, their entertainment, their marketing or other needs. Hence too the growth of drab, grey suburbs, mere dormitories where people sleep, not thriving, vital centres of community life.

I have a feeling that this tolerant, almost complacent attitude of the planners towards the location of the places of work and living, has complicated and accentuated the commuter problem. A factory like Hindustan Aircraft at Bangalore, has to collect its employees from far-flung areas of the city. Oddly enough it has a "colony" at Jayanagara, an hour's journey by bus each way every day.

Some other establishments in Bangalore like the Hindustan Machine Tools and the Indian Telephone Industries are in a position to do better. H.M.T. has a thousand acres of land at its disposal for development and housing. The I.T.I. has less—650 acres. Even so, they have been able to house only a small proportion of their employees. But the position of an old factory like the Perambur Integral Coach Factory is more difficult. It has no room for its own expansion, and had to acquire land some distance away.

Some of these difficulties are certainly not easy to solve. But problems need not be multiplied by sticking to dead theories of zoning. The fundamental approach should be to concentrate on people, their needs, their comforts. It is important to see that people need to spend as little time as possible to go to their work, their play or for the education and recreation of their children.

If the problem of urban development is approached from this premise, the impact on transport may be startling. The present approach is so confused that while an incessant clamour is heard in Parliament for more cars and cheaper cars, a city like Bombay has no road space (or even garage space) on which to put the cars (or buses) if they start coming out faster from the assembly line. Road vehicles obviously cost less in capital and maintenance than railways; but a sensible use of road space becomes impossible if the centres of work, play, entertainment and residence are so distributed that it calls for constant, excessive, wearying and time-wasting movement.

The suburbs must be redeemed. Life in cities must be so reorganised that it consists not of restless masses of wage earners unconcerned and incapable of being concerned with the lot of their neighbours, but of true human beings, warm, sensitive and concerned in the welfare of the community. This is not only one of the things that socialism should mean; it is one of the things that is implied in civilisation.

QUOTATION BOX

He who wrote comfortably of India would not be writing about India.

—D. J. Enright

Some Bihar Government employees are piqued by the "substantial increment" recently given to police dogs.

—UNI report

Gina Lollobrigida, I see, has been asked by the President of the West German Nature Protection Society to stop wearing her leopard-skin coat, on the ground that the fashion threatens the extinction of these "noble and beautiful creatures".

—Flavus in New Statesmen

I would concede that Ministers work for the nation both by day and night—sleepless nights and sleepy days.

—H. V. Kamath, M.P.

One point said to loom large in India's fears of moral turpitude was that the female form divine is not always decorously covered in foreign films, a visit to any river or tank ghat would have shown officials, imprisoned in the red sandstone of the capital that near nudity among perfectly respectable people is a condition with which we are not unfamiliar.

—Editorial in "The Statesman"

When ministers are out of office their attitude to the Government changes.

—Mr Singhasan Sinha at the Durgapur Session of Congress

Mr Raj Bahadur said he had been surprised to hear that the cost of the Kosi project, originally estimated at Rs 11.5 crore, was later brought down to Rs 6.5 crore after a non-profit service agency had entered the field.

—The Statesman

We are now passing through a situation somewhat analogous to what Lenin faced in the countryside some years after the Communist revolution. But Lenin had powers which we do not have and do not wish to have.

—Mr. T. T. Krishnamachari

The first word about Nehru is, he cannot be seen on a rupee coin, nor even in a Teen Murty museum.

—Letter in Mainstream

It is intolerable that when people cannot build houses to live because of scarcity of cement and other raw materials, palaces worth crores of rupees should go up for use by a single family. I suggest that buildings worth more than Rs 2 lakh should not be permitted to be built.

—Mr Jagjivan Ram at the Durgapur Session of the Congress

An American farmer has found after experiments that a "periodic and undisturbed rest" on a foam rubber mattress adds considerably to the milk yield.

—Indian Farming

There is no country in the world where there is so much wastage of human energy and public money on education, as in India. Unless the present economic conditions change, education would continue to exhibit this wastage.

—Mr Krishna Menon

Handicrafts are a living art in India. The beautiful things which your craftsmen produce become part of everyday life. In this way I find your country is like only two other countries in the world—Peru and Mexico.

—Dr Danial Rubin de la Borbollo, Executive Director of the National Handicrafts Board of Mexico.

The Central Sericultural Research Institute, Mysore, has evolved a new specie of silk worm. It is named the Mysore Princess. The silk produced by this worm is of a superior quality and of a uniform thickness and better suited for zari work. This new development is expected to double the silk output of Mysore.

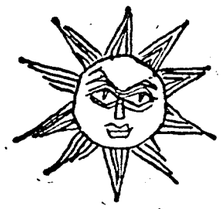
MADRAS EVOLVES HIGH YIELD PADDY STRAINS

TRIALS conducted by the Agriculture Department of Madras State on intensive fertiliser application to paddy crops in a pilot project in Kumbakonam Division of Tanjore district have proved that the newly evolved Japonica-Indica Hybrid (ADT27) will yield very encouraging results. In field experiments conducted under local conditions this hybrid variety has been found to respond well to high level nutrition up to 60 lbs of nitrogenous or 300 lbs of ammonium sulphate per acre, with an output ranging from 5,000 to 6,300 lbs. ADT27 (formerly called Culture No. 2914) is a selection from the hybrid progenies of an Indian variety of paddy and a Japanese variety. The first cross between these two types was produced in the Central Rice Research Institute, Cuttack, and the first generation hybrid was brought to Aduthurai where it was further back-crossed with the indigenous parent. As a result of this intensive breeding in the past seven years, the desirable traits of both the parents have been happily blended in the final hybrid which shows superior grain qualities with hardiness and responsiveness to fertilisers.

The crop matures in 80 to 85 days after transplantation and can be harvested in 105 days from sowing.

The first electric train fitted with traction equipment manufactured by the Heavy Electricals, Bhopal, has been commissioned for service on the Bombay suburban routes. The train comprises three electrical multiple units and two motor coaches.

Heavy Electricals has also supplied 111 traction motors and associated control gear to Jessops and Company, Calcutta, for equipping the coaches built by that company.



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We are victims of the tyranny of borrowed ideas on what a city should be like

City Builders Need A Philosophy

BIJIT GHOSH

THOUSANDS, if not millions, migrate to the cities every year from villages. They largely do so by choice and not by compulsion. Quite a few migrate because of the importance of living in a city. Seldom do they return to the village again, whatever the discomforts of life in the city.

The city creates tremendous opportunities for all types of persons—workers in factories, traders, men of profession, students in universities and for many others besides whose labour and services keep the city going. Cities provide, too, a wide range of opportunities for recreation and entertainment which are quite tempting to the potential emigrant from the countryside. The city's transport facilities, cinema houses and theatres, bookshops and libraries, restaurants, parks and shopping centres—these and many other factors produce a magnetic appeal for the young men and women living in villages. They conjure up a life in which the housewife does not have to go to ponds or wells to fetch water, or drudge in smoky kitchens under flickering wick lamps.

Almost everything in a city is characterised by a vitality which sets in with the process of gigantism—mass migration, mass building, mass movement, mass production, mass recreation, and even mass obsolescence. To be a part of it amounts to living an active life for most city dwellers.

People from different parts of the country, people belonging to different ethnic, religious or linguistic backgrounds come to live in a city, enriching its social life. The contrast between rural life and city life is discernible in almost everything that the city offers—in space enclosure, in the relation of building to space and in townscape, roadscape, landscape, carscape and skyscape. These qualities provide relief to the city dwellers from the drudgery and monotony of their daily life.

As every big city builds up a personality of its own, its people also develop a sense of pride in belonging to them. To belong to these cities gives a status symbol. How often have we not seen Bengalees being nostalgic about Calcutta? The Maharastrians simply adore Bombay. If these are the rewards of city life, why should we derive our opinions on city life and urbanisation from the slums, pavement dwellers and insanitary conditions in certain parts of the city? We must adopt a rational approach to the question of urbanisation by recognising its attractions and values for the immigrants and tackle its problems in a scientific way.

The Explosion Problem

Urban explosion. This is what many are afraid of. We have already the problem of population explosion right in our midst. Calcutta's population has increased by 3.5 million in the last decade. Urban population has been going up by 4.5 per cent per annum and this process will make towns of villages, cities of towns, metropolis of cities and megalopolis of metropolis. In future, a megalopolis may contain as many as 50 million people. In this process, if forces governing urbanisation are allowed to have their own way without any control whatever, there will be urban disaster. If controlled, like hydel forces, these may benefit many millions of people. But is it desirable to restrict the size of population and thereby the size of the city by placing a girdle of green belt and saying: "thus far and no further"? No city has obeyed this dictum; it has always grown and outgrown its limits. To restrict the growth of a city is to call for its stagnation, if not its death. Then again, how can one accurately predict that for a city like Delhi, the population in 1980 will be exactly 4.95 million?

A rational approach might be to accept the inevitability of mass migration to cities as a natural phenomenon and provide for it. Even as early as 7th century B.C., the Greeks accepted it and built their polis or city-state on the basis of planned centralisation. This megalomania can possibly be controlled for the need of maximisation and competition and there can be twin, triple or multiple cities or a city conurbation in a region so located as to facilitate optimum utilisation of resources in the region. This is bound to take place in any planned approach to human settlements—the existics.

A city is essentially made by man. Its existence, organism and growth is conditioned by his requirements, aspirations and goals. But so overwhelming is the process of expansion that people have lost control of it. Instead of a city responding to the activities of people its function being determined accordingly, the people

are forced to adjust themselves to the many maladies and absurdities of life in a growing city. Sir Winston Churchill once said "We shape our buildings and thereafter they shape us". The same is true of almost everything in a city—traffic, water supply, land value, cost of living, etc.

If the civic amenities in a city become paralysed it is mainly because of its wild growth. The growth of a city, new or old, must be rationalised and there must be comprehensiveness in planning a region with its cities, and covering all the physical and socio-economic aspects.

Myth of Garden Cities

We are also victims of the tyranny of certain ideas, borrowed from the West, on what a city should be or should not be as, for example, the concept of the "Garden Cities of Tomorrow", introduced some decades ago in England by Sir Ebenezer Howard. The emphasis here is on town and country relationship, and so one finds in these towns extensive provision of green belts, green wedges and green links. The steel town of Durgapur is a typical example where open space constitutes almost 50 per cent of the total area. While the main principles governing "garden cities" are self-sufficiency and single ownership of buildings, they can apply only to a city of about 35,000 people, with vast and easily accessible open spaces. An arbitrary application of these principles to conditions in our country have only produced catastrophic and bizarre results. Among those who support the idea of garden cities, are those who still feel nostalgic about the countryside and farms. Inevitably this has led to the planner being confronted with the concept of 'a cottage, a cow and an acre'. If these are multiplied by 20,000 families, as is the case in Durgapur, the result is, to quote Le Corbusier, "a scandal, a fatal de-articulation of urban phenomenon". The town then would stretch for miles, the journey to work spots would take hours, the green belts and the green wedges would become mere dust bowls and grazing fields for cattle; consequently, the urban sprawl makes maintenance of roads and utility services uneconomic, and any control of further growth of the city would become impossible. An industrial town like Durgapur should respond to the working of a steel plant. It should function effectively and efficiently as a steel town. This confrontation of 'a cow, a cottage and an acre' will induce the town to slug and sloth in rural slumber. In developing these cities, how can we assume that land is freely available, that millions of acres can be wasted on so-called urbanisation which eats up the most valuable agricultural land when there is a continuing food crisis in this country. Even a medieval city like Jaisalmer in Rajasthan built in 1176 A.D. proves how incongruous are these principles of contemporary planning.

In pursuance of the principles of garden cities, the concept of planning the residential areas as neighbourhoods is followed almost in every city in this country which is being planned. This concept introduces a cluster of villages—a cluster of mohallas, within the framework of a city. It is motivated by an ambition to foster neighbourhood feelings among city people by creating physical opportunities for meeting. The planning therefore endeavours to deconcentrate the population from central areas to garden suburbs, to identify small low-density areas separated from the city by green wedges where houses are within walking distance from one another. The planning also endeavours to decentralize the activities, to provide for local schools, shops, community centres etc.

It is not always realised that urbanisation is neither deconcentration nor decentralisation; urbanisation is characterised by the intensity of activity. It is also not realised that a city dweller does not always take kindly to his next door neighbour and his idiosyncrasies. He can always visit a friend even he has to travel long by bus or train.

A common standard in this country is to plan a city for 100 persons per acre—a follow-up again, of the principles of garden cities. Why should this be so? Why can we not plan a city for 1,000 persons or 2,000 persons per acre in such a way that no amenities are denied to its citizens? In doing so, it must be possible to control building construction and traffic, to preserve the open spaces, and, at the same time, create a really urban climate in the city. This calls for a different approach in planning, an approach that does not confuse a city with the village.

The Urban Mind

It is not those cities which have grown and outgrown for centuries in the past that have turned out to be the graveyards of souls. The real culprits are the planned cities of today, which being an extension of our idea of a village, restrict the mobility of its dwellers and make it difficult for us to control their growth.

Whatever people may say of Calcutta or Bombay, of the filth and squalor in them, there is a tremendous vitality in these cities. In contrast to the life in these adult cities, our new planned cities like New Delhi or Chandigarh look juvenile. That there is such thing as an urban mind is often missed in the process of planned development. The maturity of the urban mind stems from a sense of participation on the part of the dweller in the various activities for which the city is known. They are related to production and consumption, living and recreation, and also to such not-so-material values as culture, knowledge, etc. A city pulsates and thrives with the intensity of activity, movement and building. In planning or developing a city, we have to look for the urban mind, and visualise the hopes and demands of posterity.

No investigation has been made on how the evolution of a city has taken place in this country. The city mirrors the living pattern of its inhabitants, with all that is precious and preservable in their traditions. Today, there is not even an awareness of these values. There may not be much of a scientific basis in the manner our forefathers built their cities, but what they did was the result of a good deal of trial and error. We have only a few ancient monuments to remind us of their achievements. In modern planning we may not follow our ancestors in whatever they did, but we cannot jettison the traditional values which must continue to be with us. This is particularly important as the basic human values remain the same although the social and economic values may change with time.

When a monarch built a city, he used to say "Look upon my work, Ye mighty, and despair". This was the spirit which brought into existence Shahjahanabad and New Delhi. Today, the same spirit prevails among the planners. The cities are planned by "we", the planners, for "them", the people. There is no public participation in what we do. This is not a correct approach to planning. Some planners are dogmatic in their concept, and once they are convinced of its validity, they shut their minds to new ideas. The aspects of orientation, being rigidly followed, have given rise to a regimented grouping of houses both in Nangal and Bhilai. Many planners find it convenient and safe to conform to general formulae. They dream, visualise and plan our cities sitting in an ivory tower; seek to produce the effect of monumentality and translate a grand vision of 'the city beautiful' into the language of brick, steel and mortar. Seldom do they provide for the real needs of community and land, and the need for conserving the existing features or old values. Otherwise, what is the explanation for locating a Heavy Electricals industry in Hardwar, or putting up a ring of buildings around the noble structure of the Konarak temple, or the proposal to bull-doze the picturesque foreground of the Jumma Masjid in Delhi?

God's Own Junkyard

If we are not proud of a man-made city, the reason lies in our failure to create the right environment in it. More often than not we allow it to become a junkyard. While in an unplanned city there is confusion and chaos, the planned city has often the appearance of a chicken farm with rows of houses, with their entrance doors glaring at each other across the road. In these cities, the environment becomes all the more distressing when planning and urban design become mediocre, with no philosophy behind it. How infinitely interesting are the street pictures of Jaisalmer or Shahjahanabad where every turn of a street brings a surprise and the fort stands high up as a huge big drop, and, comparatively how dismal is the picture of our new towns like Durgapur where one can only identify a road on a house by number and not by the character it possesses! Alongside, there is also a certain fading of emphasis on design. We build show pieces like Ashoka Hotel or new 'bhavans' while domestic architecture is sadly neglected.

Politicians and the officials are fully satisfied that the roads are laid, that thousands of houses are built; but it is apparently nobody's business to create a proper environment, or to make it satisfying. Very little attempt is made to recognise that a city should have a character, mood and personality and that an urban environment should essentially be urban.

A rationl approach to city planning is possible only if we realise that city planning should consider the life in space. The vitality of a city, its growth and survival depend on the intensity of human activities. The use and design of space must be rationalised. Time is the fourth dimension of a city. The pattern of human settlement is bound to change drastically in future and the prospect of our cities may therefore be city conurbation.

D. R. GADGIL *(From Page 7)*

Five Year Plan has consequently to be oriented specifically towards study of problems of each region and local area and devoting large resources towards solving them. Employment orientation would be a natural concommitant of this new approach. The overall national effort in the field of basic industries and national systems of transport, power, etc., would have to be meaningfully related to the plans of regional development.

Emphasis on the utilisation of the hitherto neglected resources and particularly on the fullest utilisation of labour resources would require a changed outlook on plan formulation and different arrangements for plan implementation. The local area and community will then not be a formal but a vital, active agent in the entire process. Officially prepared plans executed largely by official agencies have obviously failed. Local participation and drawing upon local leadership must now become important. The relevance of the co-operative sysem becomes clear in this context. Impatience with evident lack of progress has led recently to all kinds of proposals regarding State action and intervention. This can have no lasting result. All recent instances of outstanding progress in rural areas have demonstrated the need for and value of local enthusiasm and local leadership. Insistence on a genuine co-operative pattern is the only way to bring about similar results everywhere in the country.

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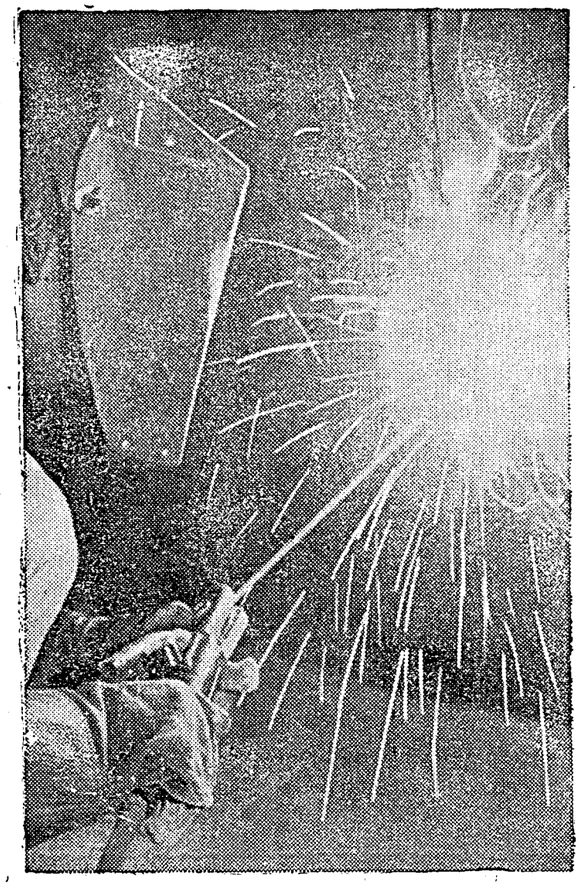
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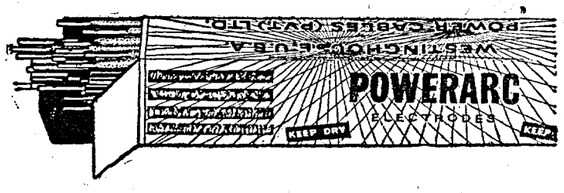
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Economic backwardness and lack of basic amenities are not confined to villages only

Our Cities, Too, Deserve Community Development

CONTRIBUTED

RECENTLY, the municipal corporation of a metropolitan city in India was requested to furnish information on the welfare services administered by it. In reply, the corporation sent a copy of its latest annual report and stated, in effect, "Please see for yourself in this report what is welfare and what is not. We do not know". Most of what we could say of welfare services in cities could be derived from this short, interesting reply.

In fact, a keen student of our development plans has observed that what we are not doing for cities and towns is in a strange way the result of what we intend to do for the villages. Certain oversimplified assumptions of the pre-development era still seem to influence our development designs. "The real India lives in its villages. All the misery is concentrated in the rural areas. Our villages have been long neglected or exploited." So run the assumptions and, therefore, it is urged that all that needs to be done by way of development and welfare should converge on the villages.

A city, by its very definition, is regarded as a privileged habitation. It is considered to be overflowing with amenities and overserved by improvement measures. The last two Census Reports, some recent socio-economic surveys of cities and a few rounds of the National Sample Survey have disclosed facts which belie these assumptions in a startling manner.

According to the 1961 Census, the urban population is 18 per cent of the total of nearly 44 crore. The phenomenal rise in the population of the cities can be seen by contrasting these figures with those of 1921, when city dwellers constituted only 11.2 per cent of a total population of a little over 25 crore. In 1961 the number of cities and town groups each having a population of over a lakh had risen to 113. It is worth noting that these 113 cities and town groups have achieved the urban status not by the standard of living conditions or the kind of services which are popularly associated with a city. It is only the size of their population that has elevated them to the status of a city.

Normally, it is supposed that pucca houses, piped water supply in the dwellings, private sanitary facilities, electric lighting in the homes etc. are some of the special features of urban residence. But in reality, only 45 per cent of the urban dwellings are pucca. A Memorandum brought out by the Research Programmes Committee of the Planning Commission gives a rude jolt to some of the suppositions about urban amenities. The Memorandum is based on socio-economic surveys of nine typical cities of India. In these cities, 27 to 78 per cent of their populations were residing in one-room tenements. The number of persons residing in each such room was anything from four to seven comprising not infrequently one or more married couples together with relatives or friends and children. The Memorandum adds that the preponderant majority does not even enjoy the amenity of an independent internal water tap, bath room or latrine. As for electric lighting in homes, one can believe that in a small city like Gorakhpur in eastern Uttar Pradesh as many as 92 per cent are without it. But it may come as a surprise to most that 41 per cent in Bombay, 66 per cent in Kanpur and 81 per cent in Lucknow are without electric lights in their homes. The one general inference is that the slum conditions pervade most parts of cities with the difference that in some areas the slums are visible, and in others they are hidden by walls from public view.

Social Profile

The face of a city is thus very much poxed. The sorry state of social conditions adds to its ugliness. With immigrants constituting 15 to 40 per cent of the city's population or 30,000 to 92,000 unemployed persons or 36 to 80 per cent persons living at subsistence level, a city cannot but present a miserable picture. Because of the preponderance of males among immigrants, the disparity in the sex ratio has markedly increased, and women labour in industrial employment has declined. The proportion of children and youth has also been rising. Illiteracy still ranges from 46 to 70 per cent. These unwholesome conditions make for poor health and high morbidity.

If welfare services were to be planned so as to uplift living standards in cities, the bulk of our city population would be requiring the benefit of such services. The traditional approach to social work which seeks to isolate those who are in dire need of ameliorative services would

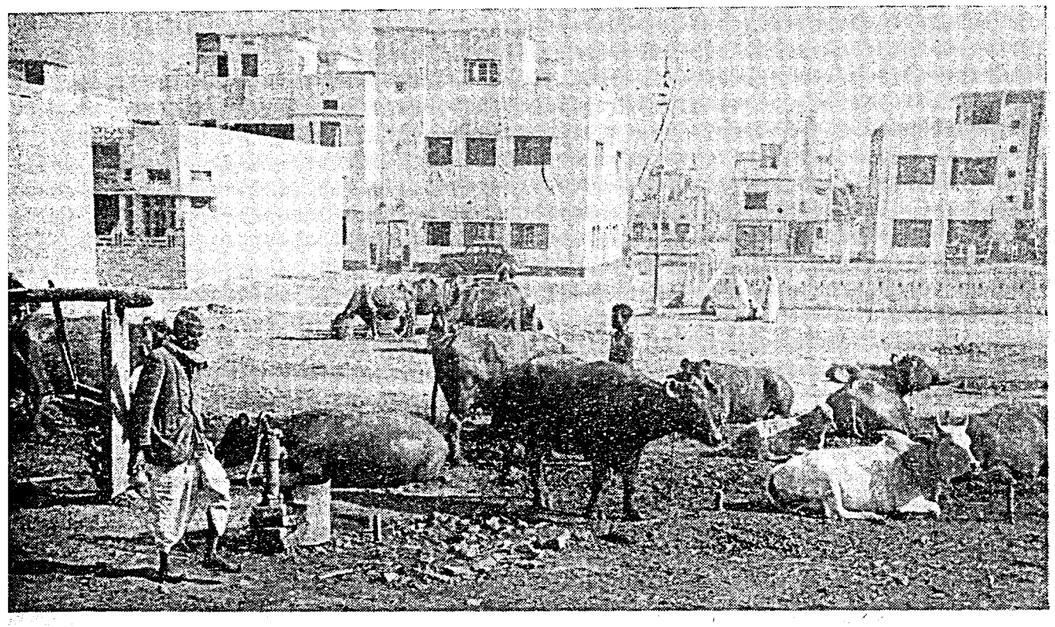
be utterly inadequate. The existing welfare services in cities are mostly in that early phase of development. Homes for the destitute and the handicapped, night shelters for the pavement dwellers, palliative measures for the slum-dwellers, approved schools for the delinquents, work-centres for the able-bodied professional beggars, protective homes for women in moral danger are all indicative of gallant but futile attempts to place the urban problems behind walls.

Vanguard of Progress

Whether we like it or not, the urban population is the vanguard of the country's progressive forces. It is socially more conscious and therefore more articulate. Given facilities it can provide dynamic leadership in the development and progress of the nation. If, on the other hand, its interests are neglected, it can thwart our national progress by playing into the hands of unscrupulous politicians or anti-social elements.

The welfare of city-dwellers is therefore a matter which calls for urgent and serious consideration. Our approach to the problem of urban development has to be broad-based and imaginative. Drawing up of master-plans for cities in accordance with the principles of town planning, construction of additional dwelling units of different categories, eradication or improvement of slums, expansion of municipal services like water supply, and sewage disposal, electric lighting, roads and transport are the types of amenities being introduced in small measures to meet the vast and growing problem of urban development.

The experience of rapid urbanisation gained during the last 15 years, including the growth of new industrial towns, clearly indicates the fallacy of treating villages and cities as different entities to be developed in insulation from each other. It is becoming increasingly urgent to consider the rural-urban nexus as one continuum to be developed through the techniques of broad-based regional planning. It is not sufficiently realised that cities are not merely large physical habitations. Municipal services may make a city possible, but by themselves they do not make it a dynamic functional entity. For a city to be endowed with a creative ethos, it has to be a living and growing community. This is precisely what has been lacking. There are the urban conglomerations but there are no urban communities. The characteristics of a community have to be rekindled in the urban masses. For this purpose, nothing short of a comprehensive and bold programme of urban community development has become very imperative. The Third Plan document has hinted at this possibility. Some projects of a limited nature have also been taken in hand. But these are confined only to a few visible slums. The idea of community development seems to have become a patent remedy only for the underprivileged communities.



A new residential colony in Delhi which threatens to grow into a slum.

Secondly, efforts to capitalise on the gains of limited experimental projects have been feeble and halting. The programme of urban community development has got stuck in a Hamletian crisis of "To Be or Not To Be". The objective realities of the urban situation are meanwhile becoming more explosive. The need for indecision is urgent. Community development projects in urban areas may not be a panacea for all ills of our cities but they will certainly inject new incentives for co-operative effort and quicken the pace of progress.

An urban centre should be viewed as the focus of a region reflecting its economic growth

CITIES can't be divorced from the COUNTRYSIDE

L. S. BHAT

Problems of urban development have different area dimensions—local, regional and national—which are inter-linked. In India, regional aspects of urban development have not received any serious attention in planning at the local and national levels partly because of the ambiguity of the regional concept as an operational tool in planning. We have made few regional studies with a view to identifying common problems, if any, of towns situated in different types of physio-agronomic or resource-regions. Socio-economic studies of a few towns and cities are available but their number is too small to permit any generalisation on the regions as such. Moreover, these studies are confined to the cities and do not reveal the 'organic' links between the city and the region of which it is a part. Studies on agricultural economics treat the city limit as a dividing line of research on urban and rural land use while urban studies are oriented to land use planning within the city. Inter-relationship between the city and the region is therefore either neglected or ignored.

In the process of economic development, urban centres should be viewed as the foci of the region at which the economic activities of the region are reflected. Balanced development of a region implies its integrated development, with agriculture, industry and urbanisation playing their part in a certain proportion. The *norms* which should govern such a development can be laid down only when we define clearly what types of economy are most suited for the different regions. In other words, our strategy of regional development can take a precise shape only when we are able to relate our programmes and methods of work to the level of income and employment which we desire for the region. From these considerations, it follows therefore that even the preparation of master plans for our rapidly growing cities, if not for all the 2,700 towns, should be a follow-up of the broad pattern of regional development.

When we examine the distribution pattern of urban centres in India, we find that they show a marked regional affinity. First, there is a striking resemblance between the spatial pattern of population density and concentration of towns. Areas of high density (more than 500 persons per square mile) have a large number of cities and town clusters as in the Gangetic plain, the Kerala coast, the Krishna-Godavari delta, parts of Madras coast and the Coimbatore plateau. These areas had the initial advantage of an extensive and relatively developed agricultural base. Diversified cropping with emphasis on commercial crops has facilitated the growth of industrial complexes to which towns have provided favourable location. Economic activities of the market towns and processing centres follow the rhythm of agricultural operations in the surrounding area. Such are, for instance, the activities of small towns in the Krishna-Godavari delta which have a few rice and oil mills, tobacco processing and sugar mills. Case studies of the relatively developed agro-industrial economy in the Coimbatore plateau, the Krishna-Godavari delta and the Upper Krishna basin, reveal that proximity of small towns to larger cities is for the mutual advantage of both and this in turn results in benefits for the entire region which sustains them.

Cities Have Their Regional Affinities

In contrast to this are some areas with inherently low land productivity and limited natural resources as, for instance, the Telangana in Andhra Pradesh, where the twin cities of Hyderabad and Secunderabad and their town-groups alone have a larger share of the total urban population (see table on next page). Stabilisation of small towns in this area is essentially a regional problem. The Malnad region (consisting of the Western Ghats) of the Mysore State is yet another example where the problem of economic development shows its own special characteristics. Here it is closely linked to transport and marketing facilities. The creation or upgrading of important market towns in this region such as Sirsi, Sagar, Koppa and Mercara is essential if they are to serve as nodal points with facilities for wholesale and retail trade in plantation and forest products and become service centres benefiting the rural areas. An integrated development plan of the Malnad region would have to be based on its rich forests and plantations.

It is also important for us to distinguish and assess the impact of urban-industrial complexes on the integrated development of a region. Regional nodes with specialised services and amenities, not ordinarily found in all the urban centres, produce greater impact on the development of the region than emerging new towns where major industries are located. Such towns will remain 'foot-loose' in the sense that they cannot be fully inte-

grated with the economy and social life of the vast rural areas surrounding them, and the industrial products originating in these centres would have to be mainly exported to other regions in the country. For example, in spite of the concentration of large industries rooted in the coal and iron ore resources in the north-eastern plateau, this area remains little urbanised, with only 9 per cent of its population being classed as urban. On an average there is one town for an area of about 35 square miles, and if we exclude the linear development of urban centres along the railways connecting the steel-belt, there remains an extensive rural tract of tribal population dependent on farming which is carried on at a subsistence level. Wide gaps in their social and cultural patterns tend to keep the rural population at a distance from the 'new towns'. For such areas 'the concepts of balanced growth of industry and closer rural-urban relationship' will largely remain theoretical and academic unless our approach to planning stems from 'grass roots'.

This takes us to the question of a suitable framework of fundamental/nodal regions starting from the simpler type of a region in which a small town with very few but important functions serves its own population as well as the villages situated in similar land form/land use regions. Development Block is an ideal unit for this purpose. Regional centres with specialised functions should be developed for a group of blocks constituting a nodal region of higher order in the system of regions. In the hierarchy of regions meriting the attention of planners, preference should be given to economic regions with single or multiple nuclei of urban-industrial complexes.

In reality, this type of regional hierarchy and nodes is already existing in aggregations of urban districts like Bombay and Calcutta which dominate western and eastern India. The individualities of nodal regions of a lower order in these wings are either lost or do not exist as such due to the formidable 'pull' of these conurbations.

What should be our future policy of urbanisation and industrial development? Where should we locate new towns so that they can arrest the process of over-concentration of population and industries in the metropolitan cities? Where and which towns or town-groups should be given priority in the development of services and amenities of regional importance? All these questions are linked up with the problem of understanding precisely the relationship between different aspects of development within a region and the course of inter-regional relationship to be developed on economic consideration.

Inter-regional relationship gets strengthened through the medium of towns extending their spheres of influence beyond the regions in which they are located. Boundaries of such regions do not pay regard to artificially created administrative boundaries. The Upper Krishna Basin comprising a relatively developed agro-industrial complex around the cluster of cities and towns in the districts of Belgaum (in Mysore State) and Satara, Kolhapur and Sangli—all in Maharashtra—is a unified regional entity. Inter-State boundary disputes will only impede integrated development of this region. For that matter, political units prior to reorganisation of States had developed a 'centripetal outlook' and hence, though there has been a much desired linguistic unity, very little has been achieved in respect of economic integration, particularly in the States formed by grouping together parts of former States. Towns have a major role in the reorganisation of the economic activities in order to integrate the related parts of different types of regions.

REGIONAL VARIATIONS IN URBAN PATTERNS—1961: **Selected Examples**

Types of regions	*Area in square miles*	*Population density per square mile*	*Urban population*	*% of urban population to total population*	*Total No. of towns*	*No. of Class I towns*	*% of population to total urban population in the region*	*No. of Class II towns*	*% of population to urban total*	*No. of Class III towns*	*% of population to urban total*	*No. of Class IV towns*	*% of population to total urban*	*No. of Class V & VI towns*	*% of population to urban total*
A. Relatively developed in agro-industrial economy															
1. Coimbatore plateau	13046	565	1649517	22.6	59	2	32.5	4	17.5	16	25.4	17	15.3	20	9.3
2. Upper Krishna Basin	15644	403	1016101	16.2	42	4	43.6	1	5.0	6	16.8	20	28.0	11	6.6
3. Krishna-Godavari delta	16335	605	1912601	19.8	57	6	46.0	1	4.1	19	29.5	22	17.1	9	3.3
B. Less developed areas															
1. With resource potential to develop forestry and plantation economy: Western Ghats Area of Mysore State (Malnad)	15043	235	620929	16.4	54	—	—	1	10.3	8	39.2	11	23.6	34	26.9
2. With limited natural resources and low land productivity: Telangana	44312	318	2449235	19.3	82	2	52.2	4	11.4	10	11.4	24	13.5	42	11.5

SOURCE:—*Census of India 1961. Pt. IIA—General Population Tables—Maharashtra, Mysore, Andhra Pradesh and Madras. District level data are used in the study of regional patterns.*

Design, Choice and Being

An Encounter with Louis Kahn, the Architect

SHEILA DHAR

Louis Kahn (64) is an eminent American architect who is designing the Rs one crore Institute of Management Complex at Ahmedabad. In spite of his known talents for music and painting, he voted for architecture in which he loved to specialise.

Among the famous buildings that Kahn has designed are the Alfred Newton Research Building (University of Pennsylvania), the Yale Universiiy Art Gallery, Adath Jeshuram Synagogue (Elkins Park, Pa.) and the Row Housing Community Centre, (Philadelphia).

Louis Kahn was recently on a visit to Ahmedabad.

LOUIS Kahn had entered the room. There was something courteous, almost reverent about the way he took up space. From the moment he walked in, one felt his reluctance to disturb the air, to upset the equilibrium of things.

Now he was shaking hands. One could not quite say that he stood with bowed head; but one would have to say that as he stood, he seemed to be apologising to the air sheet above his head. When he stretched his hands in front of him in pale, precise movements, it was with tenderness for the air enveloping his fingers. Without shrinking, even in the act of expanding, he gave the impression of one who would be content to live economically and elegantly in the consciousness alone.

Elegance engulfed us. Sprays of green foliage vied with stretches of deep red in an eye-catching scramble for taste. Every gleam of dull bronze, every bit of orange pulp had a reason for being where it was. Nobody could be blamed for not recognising immediately what on the table was eatable and what on the table was not, least of all absent-minded geniuses with bad eyes. The transparent blue bubbles clinging to undulating deep red, orange, and green images in front of one might or might not have signified fresh beetroot, carrot and lettuce in a glass of water.

"There's your salad", our hostess said.

"Oh! I thought it was growing!" Louis Kahn exclaimed with wonderment. Genuine wonderment? Almost, I'd say.

"The point is, Picasso has the *right* to paint green horses, and I have not", he was saying. "Picasso has the right to have doorways smaller than people, to see four faces in one, and I have not. Square wheels on gun carriages is his way of saying 'war is futile', and it cannot be mine. That is the only difference between a painter and an architect."

His sentences came in a strange flood—clipped and impassioned at the same time. Brooding, narrowed eyes lost in continuous flashes of glass, the conventional deep and furrowed brow, the gently bowed head—all combined to intensify the image in my mind that for him an idea was a giant arrow. I watched him insert this 'idea-arrow' slowly in the bowstring, pull it back taut, aim it and then shoot. Each time he shot an idea out of himself, he would relax, the intensity would ebb and a little boy would peep smilingly, uncertainly from behind thick glasses. After a brief lull, intensity would reclaim him and the bow-shooting process would begin all over again.

"The greatest of story-tellers is Gogol", he began. The pale, fine hands were stretched out again, his fingers almost touching the world of Gogol. The breathless, puckish, fabulous, tongue-in-the-cheek quality of a Gogol story came through unaltered, almost reinforced, one felt. Gogol telling the story of Fyodor, and Louis Kahn telling the story of Gogol telling the story of Fyodor—which was the more fascinating? It was not easy to say.

At the mention of Tolstoy, his back slumped, the eyes stopped smouldering. "Fine writer, great writer", Kahn said quickly, with more reverence than warmth. "Of course, he is more matter-of-fact, more....". He strained for the right word, the right shade of meaning, then gave up, with a smile. His hands, and quick nods of the head, said "You know what I mean".

"Dostoevsky", somebody drawled, beginning a sentence. The name seized the room like a sudden vibration. Kahn sat up. "Now, Dostoevsky", he said eagerly, "is different. Oh, yes, he is different. There is no doubt about it."

China, crockery, pleasantries. Then somebody began to talk of creativeness, of departures from the norm, of free forms, of the drive to be different.

"Oh, to be different for the sake of being different would be very wrong, very bad. It would be a failure from the start. The creative man doesn't *think* of being different. What he sees *is* different because he looks at it in a different way, with different eyes, with a new vision. And then, of course, the artists begin to imitate the creative man. They make a cult of his idiosyncracies".

Kahn was using the word 'artist as casually as he would have used 'carpenter', or 'brick-layer', denoting a man with an honest profession. The creative man, the man with the eye and the vision, was for him a

phenomenon quite distinct from the artist, even the best artist.

"Picasso didn't *know* that he was giving a human face three eyes. He just went round and looked from the other side. He actually *saw* three eyes and green horses; and he painted what he saw." After a pause, Kahn said softly, "Picasso often thought his best work terrible. That usually happens to the truly creative man."

"And the music was absolutely free! He took an extra-sensitive microphone and a glass of water, and just *gargled*, can you imagine, just gargled!"

From Picasso the next step to Louis Kahn was to point out the difference between design and form. Form was the thing, and design was the process. By the time a design had been conceived of, choice would already have come into operation.

"The distinction you have drawn between design and form explains Indian music. People from the west complain of the difficulty of understanding Indian music because of its formlessness."

"I don't know much about Indian music, but I am told, there is much improvisation in it. But even improvisation is limited by conventions, isn't it ? There is John Cage, our experimental musician. He claims that his music is wholly a product of chance, but I doubt."

The amazing account went on.

"Do you remember, at one point the ballerina began to sweep the stage with a broomstick. It was not intended in the usual sense. Of course there *was* a pattern in it all, a wonderful...."

"I don't believe in bizarre accidents", Louis Kahn cut in. "Things do not become meaningful in art, or anything else, unless conscious *choice* has been exercised. Even in science. Art and science may be terribly different creative processes, but the artist and the scientist are the same; they have to be the same in the exercise of *choice*, in the defiance of things as they are, or nature if you like.

"That is a well-worn, old fashioned idea, of course".

"To me it is a sound one. I am conventional in lots of ways. For instance I believe that vegetables have souls, or if you like, a resistance to not being. If you were to put a carrot in a crushing machine, every living cell would shout and say 'I am! ' in protest".

His face turned away, and the shallow, intense voice passed out of earshot, but I could see his hands moving in the air, loving, ecstatic, describing... what was it, what could it be? Exquisite flowers? poetry? waterfalls? In a moment the face and the voice returned. He had been talking about a brick wall.

"What the masons have done today is even better than what I'd planned originally".

"In what way is it better"?

"Oh, it is more casual, more unconscious. See. Even for a brick wall to be good, there is definitely a choice. But you choose to fulfil the inherent *nature* of brick, which *is* casual. Don't you see that?"

It was time to go. He picked up his Christmas gift, a set of Jain begging bowls. As he left us, he chuckled, "Now I can afford to have children of every age and size."



WHAT IS REALLY WRONG WITH

INDIAN SCIENCE?

A. RAHMAN

We have a sound base for the pursuit of research, but it must become more purposive

In a recent broadcast from the B.B.C. (Third Programme, reproduced in *The Listener*, September 24, 1964 and reprinted in one of our English dailies) Professor Kurt Mendelssohn gave his impressions of science in India. Surprisingly, this article has not so far evoked any discussion or debate among Indian scientists.

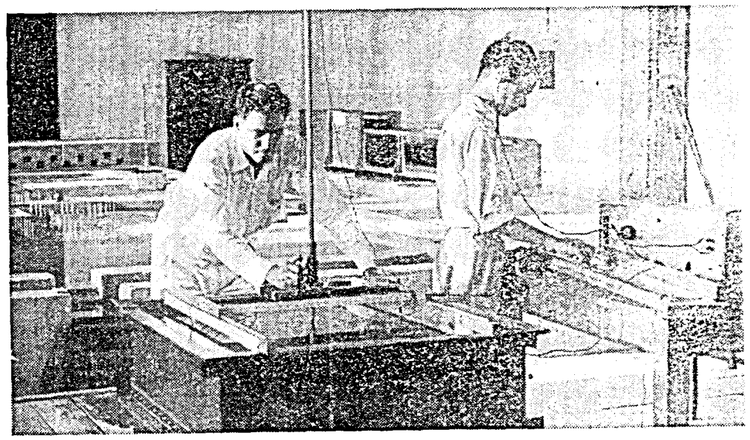
It may, however, be worthwhile to recapitulate the three main points made by Professor Mendelssohn in his observations. They are: 1. Indian scientists are carrying out research on, by and large, outmoded problems; 2. Indian administration does not recognise science as a major factor of social transformation, and its outlook on science and attitude to science is not only not sympathetic but definitely such as to hamper its development, and 3. Dependence of Indian science on science abroad.

If a criticism of this nature was made in an advanced country, two things certainly would have happened. Firstly, on such a generalisation a serious debate would have been started. Secondly, information would have been collected, sifted, and analysed to either repudiate or to prove the criticism. In case information was not available, special broadcasting programmes would have been started to answer the questions raised by the professor.

In this connection, reference may be made to American science, where the launching of the Sputnik by the Soviet Union created a public furore and led to a thorough heart-searching. The impact of this development can be gauged by a study of the literature published since then, the special programmes and projects started in many directions and the spurt given to education, research and technical development.

India was attacked by China in 1962 and in 1964 China exploded its first nuclear device. One would have expected a public furore in India similar to what happened in the U.S.A. following the launching of Sputnik, and heart-searching by Indian scientists. In such a public discussion the observations of Dr. Mendelssohn would have been helpful.

Three points follow from this: (1) the expenditure has been nearly doubling every five years; (2) that even though it is so, it is not enough and the actual increase is not sufficient to meet national requirements, and (3) there is considerable imbalance of investment in the different sectors of research such as agriculture, medicine, surveys etc. The table on the next page gives a picture of the personnel and the people available for research.



Engineers at the Roorkee Irrigation Research Institute working on a siphon model which will provide better inflow of water in canals

It may be worthwhile at this stage to have a brief look at Indian science, its achievements and failures.

Expenditure by the Centre and the States on scientific research on different sectors in 1952-53 was Rs. 12.19 crore. In 1959-60 it amounted to Rs. 37.93 crore. In 1961-62 it rose to Rs. 46.91 crore or 0.32 per cent of the national income.

The table shows that though we have a good base for development of scientific research, it is not adequate. There is, besides, considerable imbalance in the availability of qualified persons in the different branches of science.

Major Categories

Organisationally, scientific research in India is widely dispersed. It can, however, be grouped under five main heads: (1) Surveys, (2) Councils and Departments, (3) Universities and

institutes of higher learning, (4) Laboratories and institutes under various Government departments and (5) independent research institutions.

There are all-India institutions like the Geological Survey, Zoological Survey, Botanical Survey, Anthropological Survey, Archaeological Survey and the Survey of India which have been in existence for many years. These Surveys collect basic data on the resources of the country and also carry out research in their respective spheres.

The Councils and Departments together represent the largest investment in research by the Government. The Indian Council of Agricultural Research supports agricultural research through grants, and controls a number of research institutes like the Indian Agricultural Research Institute, which enjoys the status of a university. Besides, it supports roughly 50 specialised research stations and 700 sub-stations. Some of the stations carry research on rice, sericulture, arid zones, veterinary science, marine fisheries etc.

The Indian Council of Medical Research supports both educational and research programmes, though it has no institutes working directly under it.

The Council of Scientific and Industrial Research controls a chain of 30 National Laboratories. In addition, it supports research by offering post-graduate scholarships, sanctioning research schemes at the universities, and by providing facilities to scientists for work at various levels.

The Council of Scientific and Industrial Research is by far the biggest complex of industrial research in the country, its researches covering both fundamental and applied science. It has three types of laboratories for specialised subjects: institutes like the National Chemical Laboratory, National Physical Laboratory; commodities laboratories like those on leather, food and glass, and multi-purpose laboratories at Hyderabad, Jorhat and Jammu, to meet the requirements of scientific research peculiar to these regions. Recently, the Council has taken up an analysis of the work being done in the laboratories. To meet the specific requirements of these areas, it has set up a Design and Engineering, Survey and Planning of Scientific Research, and Defence Co-ordination Units. In addition, it has reorganised the Indian Scientific Documentation Centre, Publications and Information Directorate, Manpower Unit or the National Register Unit and the Industrial Liaison and Extension Unit, to further develop and organise activities in this direction.

The Atomic Energy Department, apart from carrying out research in its own establishment, is also supporting research on a large scale in physics and nuclear physics, and other related areas of research.

The Ministry of Defence has 22 establishments in the country covering various aspects of research, both fundamental and applied.

There are also a large number of laboratories under the various departments of the Government like Commerce, Industry, Health, Food and Agriculture. These laboratories conduct research in specific fields. In addition there are special commodity committees on jute, tobacco, sugarcane, arecanut, cashewnut, spices, coconut, tea, coffee etc. These committees also sponsor research programmes bearing on agricultural processing and product manufacture.

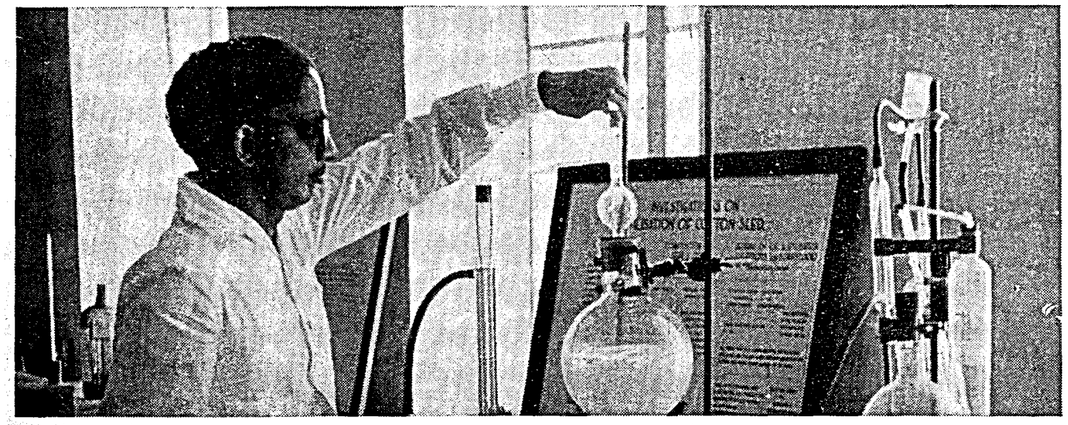
Besides these organisations, there are also specialised research institutes which are supported by industry or endowment or the Government. They include the Raman Research Institute, the Shri Ram Institute of Industrial Research, the Indian Institute for Mathematical Sciences, the Ramanujam Institute of Mathematics, the Demograph Training and Research Centre, the Birbal Sahni Institute of Paleobotany etc., also various medical research institutes.

The base for scientific research in the country is the universities and the specialised institutes where much of the countriy's fundamental research is being carried out. The University Grants Commission has an active policy of support for research at the universities and at the specialised institutes like the Indian Institutes of Technology at Kharagpur, Kanpur, Delhi, Bombay and Madras. Of the organisations mentioned above, a few are more than 100 years old and the others have come

POST-GRADUATE AND RESEARCH ENROLMENT 1961-62*

Faculty	*Post Graduate*	*Research*	*Total*	*Per cent distribution*	*Research as % of Col. 4*
Arts	39,154	2,934	42,088	57.8	7.0
Science	14,511	1,876	16,387	22.5	11.5
Commerce	6,604	160	6,764	9.3	2.4
Education	1,184	129	13,13	1.8	9.9
Engineering	418	29	447	0.6	6.5
Technology	243	17	260	0.3	6.5
Medicine	1,841	46	1,887	2.6	2.4
Veterinary science	191	...	191	0.3	...
Law	916	17	933	1.3	1.8
Agriculture	1,411	41	1,452	2.0	2.8
Oriental Learning	1,111	...	1,111	1.5	...
Others	26	...	26	...	...
Total	67,610	5,249	72,859	100.0	7.2

*From the lecture delivered by Dr. S. Husain Zaheer, Director-General, Council of Scientific and Industrial Research, at the Indian Science Congress in Delhi in 1964.



Dr. R. Rao has proved that cotton seed oil can be utilised in the preparation of margarine. Now he is trying to extract edible oil out of it.

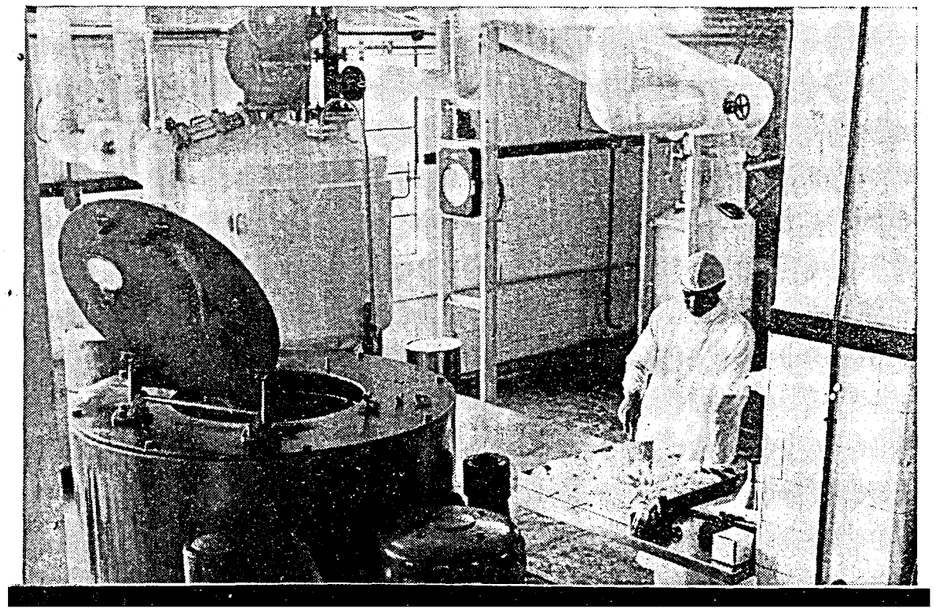


Left: Dr. C. V. Raman at his Institute in Bangalore. His recent researches in the science of optics are considered to be of revolutionary significance.



Below : The ten-year old Hindustan Antibiotics at Pimpri which supplies most of our requirements in antibiotic drugs, has also developed new drugs like Hamycin, and Chortetracycline hydrochloride, now being produced on a commercial scale.

Dr. Ganapathi Srikantiah's discovery of a vital link which holds atom nucleus together, has been acclaimed by scientists all over the world. He is now engaged in research on cosmic radiation.



up after Independence. There is no doubt, therefore, that there is a sound base for scientific and technological research in India.

To run our vast organisational structure more efficiently would require a proper assessment of different aspects of research like (1) research programmes, (2) co-ordination at institutional and national levels, (3) organisation, (4) personnel, and (5) national policy.

The methods commonly adopted for assessment of work in the different fields of research are, appointment of committees, (Congressional Committees, as in U.S.A., or the appointment of Commissions as in U.K.) to go into specific spheres and make recommendations, and review studies, such as those in the scientifically advanced countries. This is by supporting special programmes of research on specific questions relating to organisational problems. These studies become the major documents in policy making. The National Science Foundation, for instance, supports a series of such research programmes in the U.S.A. on scientific organisation, activities, research programmes, international relations etc. These programmes bring to the fore all the basic data, and their analysis influences the formulation of policies for scientific research and development in the country. The advantages of a continuous study of the organisation of science would be far greater than periodical analyses.

In the Western countries, in addition to the special programmes sponsored by special committees or commissions, research work done at the universities and social science institutes, and organisational and related problems of scientific research are subjected to study by post-graduate students. Their theses and special papers supply data for a critical analysis of all the activities connected with science and technology. And it is these studies and discussions that help in the development of science and technology.

It is the lack of informed criticism which is responsible for the present state of science and technology in India. Scientific research has been no doubt progressing in India, but only in parts without any major effort at correlation and co-ordination. The data of research are not being made available to the scientific community as a whole to enable them to appraise their value.

ANNUAL PLAN OUTLAYS

The Planning Commission has approved outlays for annual plans of the following States for 1965-66. The States together with the outlays (in crores of rupees) are: Madras Rs. 77.86; Andhra Pradesh Rs. 86.89; NEFA Rs. 2.73.

An outlay of Rs. 66.98 lakh has been approved for the annual plan of the Union Territory of Laccadive, Minicoy and Amindive Islands.

Need for Collecting Data

Science in India requires a machinery which would be able to collect data continuously at various levels, analyse it and make critical assessments. In addition to the periodical reviews, which may be done through special committees or commissions, a special joint programme at various universities or social institutions could be taken up to throw light on specific problems of organisation of science and technology. What is more, the scientific community should be brought into the decision-making machinery, so that it can participate in the organisation and development of scientific research in the country.

In this connection, mention may be made of the Survey and Planning of Scientific Research Unit set up by the Council of Scientific and Industrial Research last year. This unit has been set up to carry out surveys and collect data on the organisation of scientific research and related problems. It has already carried out a number of surveys on expenditure, research by the Government institutions and industry and other institutions and has analysed the role that specialised institutions like scientific societies and scientific journals can play in the promotion of science and technology in the country. The work of this unit, however, can be fruitful only when the scientific community utilises the available data in making decisions and reorienting policies.

It should be realised that scientific research in India has been progressing but the organisation of research has become complex. It is no longer easy to formulate policies, without detailed scientific studies being carried out and without subjecting these studies to the professional criticism of scientists and technologists at all levels. Frank and free discussion on all matters affecting research is essential for true scientific progress.

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Books

Sources of India's Foreign Policy

Indian Foreign Policy by K. Satchidananda Murty. Scientific Book Agency, Calcutta. Rs 12.

R.V.R. Chandrasekhara Rao

PROFESSOR K. Satchidananda Murty, Professor of Philosophy at Andhra University, has already established a name for himself outside the philosophers' circle through his book (written in collaboration with Dr Bouquet of Cambridge).

The present volume, *Indian Foreign Policy*, which has a foreword by Professor Harold D. Laswell and an introduction by Professor Quincy Wright, is a welcome addition to few perceptive books on the subject.

The novelty of Professor Murty's book is its bold attempt at relating Indian foreign policy to the roots of Indian tradition, and in thus vindicating the view that ideology does constitute a vital determinant of actual policy. Secondly, Professor Murty is not inhibited by the wide area of his study. These are days of area studies, each scholar confining himself to a very narrow field of observation. While such researches yield meticulous detail, a comprehensive assessment of foreign policy in a bold sweep is neglected and even shunned as premature and unwarranted. Still, the scholar who systematises and generalises can be of greater help to the public at large. Professor Murty is one such and he combines a wealth of information and wide range with acute insight and felicity of expression. While he may miss a point here and there, yet he catches a bird's-eye view of the entire landscape. His work is so much the better for making available that landscape to us.

Professor Murty traces with a sweep that reveals considerable erudition the ideological moorings of Indian foreign policy. He shows the fundamental distinction between norms of Hindu political thinking and those of Buddhist genre, the former approximating, more or less, to the modern 'realpolitik' attitude and the latter to the idealistic conception. The Gandhian weapon of Satyagraha is in line with the Buddhistic tradition. This and the anti-imperialist struggle together shaped Nehru's ideas on foreign policy. A moral revulsion at human suffering and human indignity and abhorrence of violence are common to both these.

But while emphasising the influence of Buddhist altruism, the author has this to say about the ends of Nehru's policy: "In spite of all else that may be said, the foreign policy of a country must be primarily conducive to its own security and progress. No foreign minister can sacrifice his own country's interests in pursuance of other objectives. The major criterion therefore of a country's foreign policy is the coolly calculated national interests of that country". And again: "Security was free India's paramount need. Militarily weak India could not be at loggerheads with any powerful country. Naturally, therefore, India proclaimed its friendship for all countries, and practised it as far as possible. As Nehru said in his 1958 speeches in Parliament, India sought to gain its security". This reviewer is tempted to ascribe to "peace" rather than to "security" a major influence on Mr Nehru. Indeed it is his concern for peace that explains better his policies over Kashmir and Tibet, for in both cases what was left relatively unattended to was the "security" dimension. No doubt Peace and Security are usually clubbed together (as are Law and Order) but the struggle between idealism and realism usually is a rivalry between Peace and Security. And Nehru's contribution to international politics consists in boldly opting for the former, trusting good sense and good faith to take care of the latter. Conditions of peace, no doubt, bring in their wake opportunity for economic development and prosperity, but these advantages in themselves are not Nehru's reasons for opting for peace.

Professor Murty points out the inadequacy of the labels "neutrality" and "neutralism" in their application to Indian policy. In so doing he treats the terms as synonymous. That eminent authority Professor Hans Morgenthau also holds this view. It is also true that people like the late Mr Dulles used the words "neutrality" and "neutralism" as if they were interchangeable. All the same it appears that a valid distinction can be made between "neutrality" and "neutralism". Such a distinction will enable us to contrast the Indian situation with those with which it is mistakenly identified. In one sense the word "neutral" implies legally accepted rights and duties. It is in this sense that Belgium was neutral, Switzerland and Austria are now neutral and France likes the Indo-China states to be made neutral. It is obvious that India is not neutral in this sense. Yet quite a few statesmen do speak of our attitude to the power blocs as "neutral", while fully realising that it is not neutrality of the Swiss type. Dr Soekarno of Indonesia himself referred to India and Indonesia as "neutral" states. Thus it would seem that there is a sense in which a policy of non-alignment can also be explained as "neutralism", albeit distinct from the legal status of "neutrality". The American attitude towards European politics during the nineteenth century and the Swedish position during the last war also fall under this category.

Therefore, there is something to be gained in distinguishing the two concepts of "neutrality" and "neutrialism". Indian policy cannot certainly be called "neutrality". But calling it "neutralism" may not also be either precise or helpful. But even "non-alignment" is not a precise

term and Nehru himself complained against its imprecise use. "Neutralism" may not be any more out of place than "non-alignment." As Professor M. S. Rajan suggested, it is best to describe our policy simply as an "independent policy".

Discussing the various conditions conducive to non-alignment, the author says: "Because of its geography India is not in the way of either bloc and there is no necessity either for it or for the blocs that it should join one of them". Unqualified as the statement is, it sounds odd. First, to be 'in the way' of either bloc has not been a consideration with those who joined either of the blocs, and secondly, to say that "there is no necessity either for it or for the blocs that it should join one of them" is to ignore that America did ardently wish India's entry into the western camp. But Professor Murty is right in stating that recent advances in nuclear weapons and methods of weapon delivery have given the lie to any protection that either of the blocs can afford. This factor is of great importance in our present debate over the acceptance of a nuclear shield.

In his case studies, the author defends India's action over Goa. As a philosopher, Professor Murty goes beyond the legalistic stand that the Goan episode is a violation of the U.N. Charter, and sees it as a just solution—statisfying Indian interests and the aspirations of the people of Goa and fundamentally in accord with the newly emerging norms of international mortality.

Over the Sino-Indian issue, the author aptly starts with Nehru's wholesome praise for and confidence in the wisdom of the Chinese. This in the context of their later betrayal strikingly brings out the 'soaring idealism' of Mr Nehru. The Chinese betrayal led many to pour scorn over the entire basis of our policy and against these Professor Murty comes out with a brilliant defence of Panchsheel. "As the recognised constitutional position stood, China had a right to be in Tibet, while as a newly independent nation which stood for the liberty of all peoples, India had no desire to stick to the extra-territorial rights in Tibet which it inherited from the British Indian Government". Breach of promise has always been the risk inherent in a contract only, in international relations, there is no way of enforcing performance except by force. Why then blame India for its sincere belief in the Chinese living up to their promises?

But I cannot agree with Professor Murty when he says that India was right in not even condemning the Chinese occupation of Tibet. He says: "Had India irrevocably and fully condemned the Chinese outrage on Tibet, it would have led to the abandonment of Panchsheel and hope of peaceful relations with Peking for ever and meant India's joining the Western Bloc at that time, for Russia then had not yet fully developed tensions with China". It is difficult to understand how an outright condemnation of China could have taken us into the Western camp. It is understandable why India could not then have resisted China by force, for the fears expressed by Professor Murty might then have come true. Further, the author himself says: "If two countries fall out and go to war, obviously there will not be friendly relations between them and they will be aligned against each other. If one of these was previously following the policy of non-alignment and friendly relations with all countries, it could still continue to do so with all other countries, and when war comes to an end with that particular country too". This statement contradicts the one cited just before. If non-alignment remains despite the Sino-Indian conflict, surely, nothing would have happened to non-alignment if we called a spade a spade to the face of the Chinese.

Of the many timely suggestions he makes for the reorientation of our diplomatic set-up, the most interesting and pressing is the need for a Brains Trust. The Government should associate the academicians in the policy making process (no doubt, in an advisory capacity). F.D.R. and Kennedy brought university men into the White House. Britain too is to draw largely from the wisdom of the universities and expert bodies like the Royal Institute of International Affairs. Such a 'descent of the dons' seems all the more necessary in India.

The author suggests some form of a confederation of South Asian states as a probable method of containing China. Apart from the impracticability of such diverse states as Afghanistan, Nepal and Burma coming together, can an enduring structure be built merely on the basis of common fear?

Professor Murty's knowledge of the culture-patterns of the western and oriental civilisations is impressive. His concern is thus far wider than the preservation of Indian security. To make succeeding generations enjoy and enrich the legacy of human achievement is the prime concern of all lovers of humanity. This concern is most evident in his work.

Men of letters, philosophers and scientists in this country rarely bother to show their awareness of the terrible situation facing man on earth. They are content to remain 'unpolitical' little realising that, to use Herbert Read's phrase, the 'politics of the unpolitical' is of utmost use in these days. Pioneers like Professor Murty, who are not professional politicians or political scientists but feel deeply involved in politics, ought to be welcomed.

Farmers of India

Farmers of India, Vol. III. Indian Council of Agricultural Research, New Delhi. 429 pages. Rs. 23.

Khushwant Singh

IN his foreword to the volume under review, the Minister of Agriculture in the Central Government, Mr. Ram Subhag Singh, makes three assumptions which may be described as the *raison d'etre* of venture undertaken by the Council of Agricultural Research. First, that India owes its cultural unity to the fact that the basis of its social structure is rural. Secondly, that since the close of the nineteenth century the urbanite educated class which furnishes India with its mandarins has been drifting away from the villages and now almost completely severed itself from the roots which give sustenance to India. Third, that this lack of *rapport* between the city and the village, between the brains and the brawn, is the chief reason why schemes aimed at growing more food are often misconceived and go awry. The task therefore is to educate the educated city-dweller and inform him of the problems and ways of living of his country cousins. When that has been achieved our agricultural plans would become more realistic and the rustic would become more responsive. In pursuance of this objective, this series aims to bridge the "emotional hiatus between officers and the villagers."

This is the third volume in the series "Farmers of India". It deals with the north eastern States: Assam, NEFA, Manipur, Tripura, West Bengal, Orissa, Andaman and Nicobars—all of them situated in the rice-belt of India and therefore possessing an agricultural communion. As in the earlier volumes, practically all aspects of village life are covered including customs, folk-lore, poetry, and dancing. The photographs, though good, could have been better and more related to the text. The text would have also benefited by avoidance of cliches and platitudes and deletion of banalities which pass for poetry. Despite these minor irritants the book gives good value for the money.

Utilising Rajasthan's Desert Lands

Agriculture and Livestock in Rajasthan. National Council of Applied Economic Research, New Delhi. 101 pages. Rs. 7.50. $ 2.00. Sh. 13.

V. Sagar

THE Report is a part of the *Techno-Economic Survey*, an appraisal of Rajasthan, conducted by the National Council of Applied Economic Research (NCAER) at the request of the State Government in 1960-61. The findings and recommendations of this Report were incorporated in the main Report published in March 1963; the present study gives the suggestions for solution of the problems in respect of agriculture and livestock which were indicated in the earlier one in an expanded form.

Six of the nine chapters of the Report have been devoted to the discussion on the possibilities of development of agriculture and animal husbandry in the State. The peculiar conditions existing in Rajasthan require greater emphasis on proper utilisation of land and water; in this, as compared to other States in India, land is abundant, but water, both in terms of natural precipitation and irrigation, is so scarce that planning of land use and proper utilisation of water are the most essential items in the planning of agriculture and animal husbandry development in this State. Since the desert conditions as they exist in Rajasthan are not found anywhere else in India, comparison with experiences gained in North African and Middle East countries, where more or less indentical climatic conditions prevail, have been utilised. Notwithstanding the usefulness of the experiments conducted in these regions, the Report has rightly suggested the need for conducting further research for determining optimum utilisation of land and water in this region.

The present Report is based on the information collected up to 1960 for preparing the main Report on the techno-economic survey of Rajasthan and as such the data utilised in the Report under review generally pertain to the Second Plan period and only references have been made to the proposals for the Third Five Year Plan, which were under consideration at that time. Since the Report was published in August 1964 one would naturally expect to find more up-to-date data. This would have involved an extra effort but would have increased the usefulness of the publication.

Besides the various suggestions made for the introduction of various important agricultural practices and the need for reconversion of cultivated land into pasture land, the Report has brought out the possibilities of growing date-palm in some areas of Rajasthan, where climatic conditions are similar to those prevailing in the Sahara and Arabian deserts. In this connection, one would like to point out that the possibilities of growing olive, which is quite useful for many purposes, may also be tried.

One may, however, not agree with some of the observations made in the Report. To quote two of them:

(i) "Absence of cash crops in some areas is also attributable to the lack of processing factories (P. 5);"

Very often the establishment of processing factories follow the availability of raw material and the factors responsible for the absence of cash crops in Rajasthan probably lie somewhere else.

(ii) "In view of the large holdings (average size being more than 16 acres) in Rajasthan the per farm requirements of credit will be much larger than that in other States where the average size of holding is much smaller." (page 68).

Credit requirements for farms are not determined merely by its size but by the intensity of cultivation which is dependent on many factors. As such credit requirements of a farm may be much higher than that of a farm double its size.

Proper analysis of the data and inferences from them have, no doubt, been handicapped on account of their non-availability over a long period because originally Rajasthan consisted of many princely States where no regular records about area, production and yield were properly collected. However, this Report has utilised the available data only for six years—1952-58, because it considers that the earlier data were not available. This is not correct. In fact information is available for the years commencing from 1949-50.

The Report will prove useful for workers engaged in the study of agriculture and animal husbandry problems of Rajasthan.

PUBLICATIONS RECEIVED

Management and Control in Public Enterprise by S.S. Khera. Asia Publishing House. 270 pages. Rs 16.

Union Budgets - A Factual Study of Finances of Government of India (1950-51 to 1964-65). The Indian Merchants' Chamber Economic Research and Training Foundation, Bombay. 272xxcvi pages. Rs 17.50.

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TIJ/G/233

30 CRORE FERTILISER FACTORY

THE foundation stone of a Rs 30-crore fertiliser plant was laid at Durgapur on January 8. It will be located on a 1,000-acre plot donated by the West Bengal Government.

The Durgapur factory which is being set up by the Fertiliser Corporation of India will have a capacity, in terms of plant nutrients, of 125,000 tonnes of nitrogenous, 108,500 tonnes of phosphatic and 16,000 tonnes of potassic fertilisers. It will also make available scarce raw materials such as ammonia and technical grade urea for use in important chemical industries.

The Durgapur plant will be a significant achievement for the Fertiliser Corporation as it has been designed by Indian engineers. The project will be completed within 30 months of commencement of work if foreign exchange is made available without delay for the import of some unavoidable items. In the beginning raw materials such as sulphur and rock phosphate will have to be imported. But subsequently sulphur will be substituted by pyrites which will be mined within the country. The new fertiliser plant will incorporate the latest techniques.

PLUTONIUM PLANT

A pilot plant for producing plutonium set up at Trombay by the Atomic Energy Commission has been commissioned recently. It has been built entirely by Indian technicians at a cost of Rs 3.5 crore.

A still bigger plutonium plant is to be set up at Trombay. In the light of the experience gained on the pilot plant, this bigger plant is estimated to cost only Rs. 10 crore as against Rs 14 crore originally estimated.

FREE TRADE ZONE

The Kandla port and Gandhigram colony nearby have become a Free Trade Zone from January 1 this year. Official approval for the location of 32 industries in the Zone has been given. More industries are expected to be set up here soon.

As The PLAN Moves

FOOD CORPORATION IS BORN

THE Food Corporation of India has started functioning this month. It will undertake the purchase, procurement and distribution of food grains and build up and operate buffer stocks of grains. To begin with, it will handle 30 lakh tonnes of indigenous and imported rice and will gradually extend its operations to other commodities.

The Corporation will have its headquarters in Madras. It will soon take over the procurement machinery existing in the States.

The Corporation is expected to take over nearly half of the storage capacity of the Central and State Governments and also the godown facilities in the private sector. In the initial stage it will spend Rs. 4 crore on improving storage facilities in Madras and Andhra Pradesh. In addition to procurement the Corporation will enter into direct purchase contracts with grain producers.

At a later stage, the Corporation will set up State Corporations.

Noonmati Thermal Station

The thermal power house at Noonmati, the first major electric project in Assam, has been commissioned. It produces 12,500 kW of power.

President's Award For I. T. I.

THE Indian Telephone Industries, Bangalore, has bagged the President's award for being the best in performance among industries in the public sector in 1962-63. It has also won the certificate of merit for outstanding performance during that year. Other two recipients of the certificate for the year are the Hindustan Cables, Rupnarainpur, and the Hindustan Antibiotics, Pimpri. The Nangal unit of the Fertiliser Corporation has won the Certificate of Honour for good performance in the year.

Farm Price Policy Commission

An Agricultural Prices Commission has been set up to evolve a balanced and integrated price structure with due regard to the interests of the producer and the consumer. The Commission will recommend a price policy for farm products keeping in view the need for incentives to the producer for adopting improved techniques, a rational use of land and other resources. The Commission will keep in mind the effect of farm price policies on the rest of the economy.

PANVEL-DIVA RAIL LINK

The Panvel-Diva section of the Konkan railway was opened to passenger traffic this month. Goods traffic was begun on the section in October last.

The section is a part of the Diva-Panvel-Uran and Panvel-Apta-line, 68 kilometres in length, being built at a cost of Rs 3.82 crore. The construction was started early in 1962.

The railway line brings the benefits of railway transport to the upper Konkan area for the first time. At a later stage, a Konkan railway is to be built for transport on the western coast from Bombay to Mangalore.

The National Small Industries Corporation earned a net profit of Rs. 33.33 lakh in 1963-64, as against Rs 14.38 lakh in 1962-63.

REG. No. D—876

YOJANA

YOJANA seeks to carry the message of the Plan to all sections of the people. It tells the story of our progress, points out the shortcomings and stimulates an open debate on problems of economic and social development. It endeavours to increase mutual understanding among our States and regions.

YOJANA is issued every fortnight in two separate editions (English and Hindi) on behalf of the Planning Commission by the Publications Division of the Ministry of Information and Broadcasting, Government of India. Although an official journal, it is in no way restricted to expressing the views of the Government.

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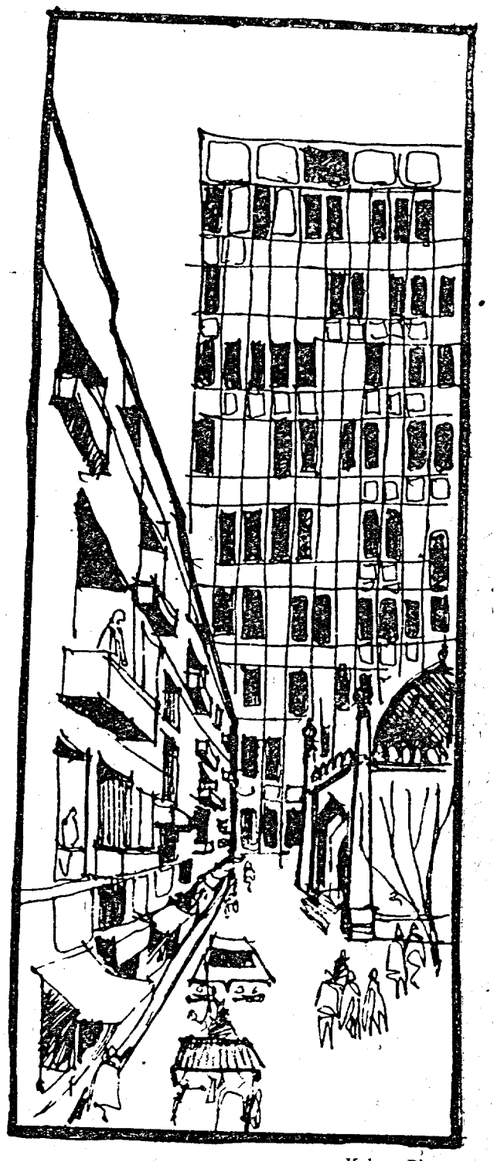
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Kalyan Biswas

A few more cities do not make for urbanisation of the country any more than a few tall buildings make a city beautiful.

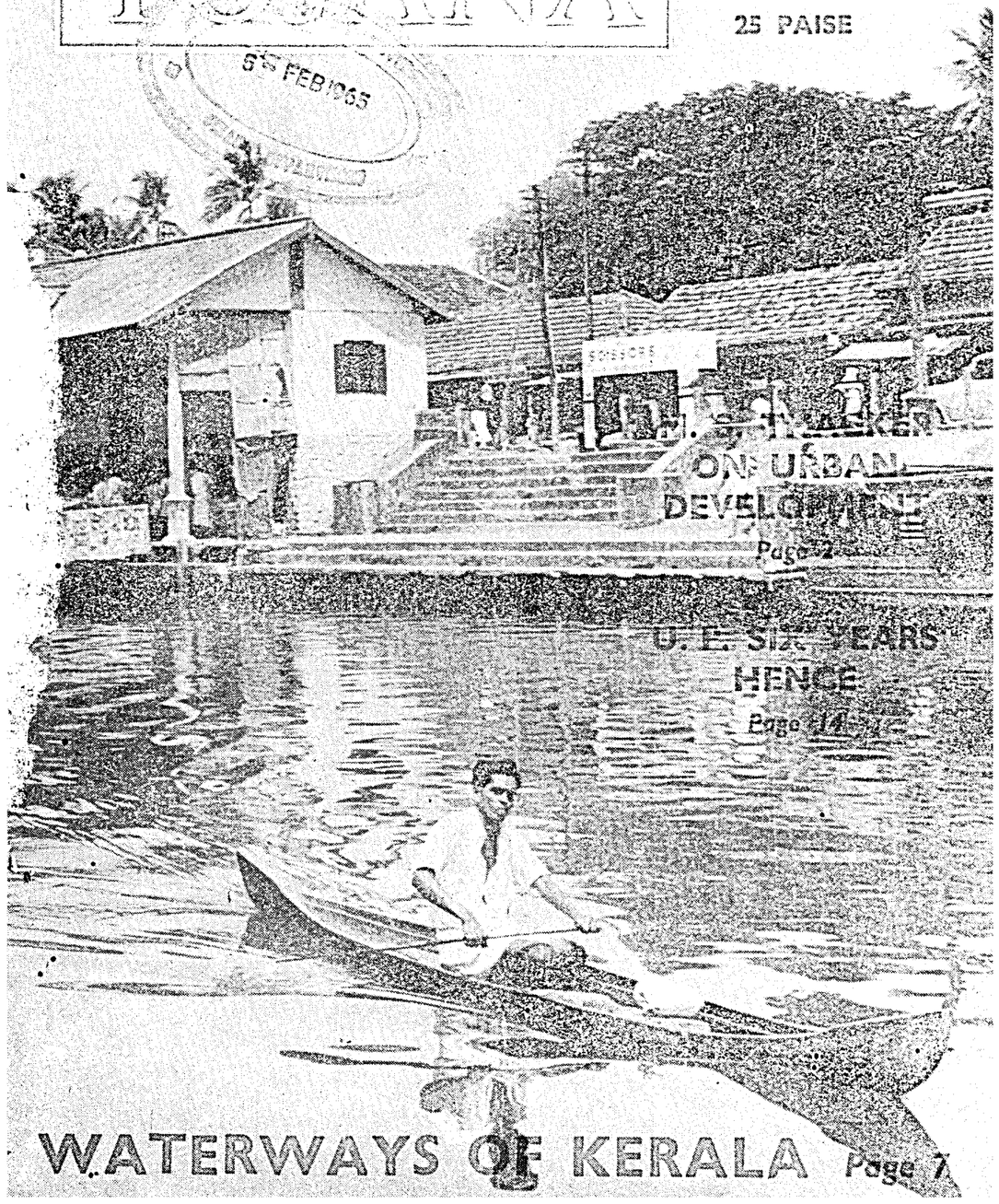
This issue carries some special articles on URBANISATION.

For more drawings see centre spread.

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ABOUT YOJANA

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Letters

Water Is What They Need

THE needs of agriculture may be classified as primary and secondary. The primary needs are land, water and manure, the secondary being fertilisers, better seeds, better implements, etc. Primary needs are to be met first. With the allotment of the available waste lands to the landless poor, land as a factor of agricultural production would have reached its limits. The alternative would be to develop the quality of land which depends on the proper application of water and manure. An economic survey conducted by the Government Arts College Planning Forum, Cuddapah, in 1963-64, revealed that the peasants had no difficulty in obtaining manures. What they wanted was water. Of the cultivated area in India only 25 per cent is irrigated, the rest being left to the vagaries of monsoons. If food production is to increase, irrigation has to be developed.

While major irrigation projects take decades to complete and require enormous money, minor irrigation schemes have a distinct advantage of producing quick results at lesser cost. The two main sources of minor irrigation in India are tanks and wells. It is not so much the excavation of new tanks as the expansion of old ones that is more important. They are now filled with silt. Without much expense, the silt can be used to increase the height and length of the bunds. It will enhance the water-holding capacity and help in raising double crop at places where at present reaping even a single harvest is uncertain.

Wells have a pride of place in minor irrigation as 70 per cent of the total irrigated land depend on them for water supply. The problem is lifting of water. Peasants are anxious to have pump sets but they don't have money, and the loans given by the Government are a drop in the ocean. A new policy can be formulated under which the State can provide capital in the form of a well, electric current, oil pump sets, tractors etc., and collect a levy along with land revenue from the farmers according to the investment made on their lands. This can be called Estate Farming, where the peasant enjoys the ownership but pays a special levy for the capital provided by the State. Estate farming can be first started with holdings of not less than five acres on the application of the landowner who is willing to enjoy the benefit by paying the extra money.

When the Government is spending huge amounts of money on major irrigation, minor irrigation by wells should be given a due place. Its importance in stepping up food production can be proved statistically. For instance, the Nagarjunasagar Project in Andhra Pradesh, when completed by 1975 at a cost of more than Rs 100 crore, is expected to irrigate three million acres. A well with a pump set to irrigate five acres of land requires only an investment of Rs 10,000. With Rs 100 crore (needed to complete a major irrigation project in not less than 20 years) 100,000 wells can be sunk with complete water lifting equipment providing assured water supply for five million acres. This is not to decry the major irrigation projects but only to emphasise the role well irrigation can play in solving our food problem.

Cuddapah R. SREERAMA RAJU

NEXT ISSUE

SHARAVATI
Illustrated Feature

M. C. CHAGLA
on Education

M. S. SWAMINATHAN
on Food

Vol. IX No. 2 **Fortnightly Journal Published on behalf of the Planning Commission** **Magha 11, 1886**

FOOD FOR LAND

A FAVOURITE topic of discussion everywhere is food. Reports of bumper harvests from many rice-producing districts do not seem to have minimised the general concern about the food situation. In the heat of disapproval for the ills, many seem to have missed the full significance of two important events in the last few weeks. One is the Rs. 30 crore fertiliser project for which the Prime Minister laid the foundation stone at Durgapur on January 8. This factory is expected to produce, in less than two and a half years from now, 125,000 tonnes of potassic fertilisers. The other is the revelation, by a survey group of American experts, that the offshore islands in the Bay of Bengal contain considerable deposits of phosphate rock which is a chief raw material in fertiliser production. Mr. Humayun Kabir who announced this encouraging news on January 9 also indicated that negotiations were progressing with the Bechtel Corporation of U.S.A. for setting up a chain of five fertiliser factories during the Fourth Plan.

The problem of food in India which has recurred often in our history is really the problem of 'per-acre yields'. Land reforms, irrigation facilities, better tools and seeds, improved techniques and the like are all different facets of this problem. All of them have been receiving the attention of planners as well as administrators. To this list must be added fertilisers and manures of which, almost by every account, there is not enough to go round in our countryside. By the end of the Fourth Plan India is expected to have a gross crop area of about 170 million hectares, including an irrigated area of about 44 million hectares. Taking a realistic view of fertiliser production in the coming years, the Ministry of Food and Agriculture has set a target of 16 kilograms of fertilisers per hectare to be realised by 1970-71. This modest target represents about five-fold increase on the level of consumption in 1964-65 and nothing short of dedicated efforts on our part will help us to achieve this much.

These hard facts cannot be glossed over in the heat of criticism for current shortages in foodgrains. If production of fertilisers constitutes a major problem of planning, the task of distribution and consumption of available fertiliser supplies has not been easy either. Available statistics on fertiliser consumption in India as compared to many countries in the world make pathetic reading. India's average consumption per hectare is less than 3 kilograms as compared to the world average of about 23 kilograms. It has often been said by experts on Indian agriculture that for every ton of plant nutrients that we put into the soil, we can get ten tons of foodgrains.

A sample survey conducted very recently by the National Council of Applied Economic Research has made several interesting observations on factors affecting fertiliser consumption in India. Although the Survey was limited only to areas where irrigation facilities were available, it has helped to expose some basic flaws in the attitudes of our farmers to fertiliser consumption and in the existing price and distribution system.

According to the Survey, one of the impediments to fertiliser consumption is its high price, and consequently a higher scale of Government subsidies to promote sales has been recommended. It is doubtful if this observation can stand close scrutiny because, even at the existing prices, investment on fertiliser input is known to produce approximately 200 per cent profit. In other words, for every rupee that the farmer spends on fertilisers he will earn approximately 3 rupees in terms of increased output.

India's fertiliser prices are no doubt higher than world market prices. With the setting up of massive new plants and changes in production techniques, prices are bound to decline. The high cost of fertilisers in India is due to the conventional production methods followed in the existing factories. Naphtha, a cheap raw material in which India is very rich, will replace some conventional sources for which India is dependent on imports. The increase in fertiliser consumption by the farmers should not so much depend on the question of subsidies as on better short-term credit facilities.

Far more important than these factors is what the farmers think about fertilisers. According to the Survey, even those who have derived higher crop yields by using them are not convinced of the utility of their continued use because of a belief that their lands would ultimately be denuded of natural fertility by repeated use of fertilisers. To a large majority of farmers in India fertiliser input is still a novel idea and their outlook, rooted as it is in tradition, acts as an inhibiting factor. This calls for a streamlining of institutional arrangements for publicity and education through audio-visual aids, dissemination of useful literature, group discussions at farmers' level etc. A whole range of measures, administrative as well as educational, would have to be brought into play to inculcate new attitudes which are essential for scientific agriculture.

Our cities were not designed for growth. We cannot afford to commit the mistake again

Planning For
URBAN DEVELOPMENT

M. S. THACKER

POPULATION growth in India during the last three decades has been accompanied by a rapid increase in urban population. While the population of the country has increased from 279.0 million in 1931 to 439.2 million in 1961, the number of people living in cities and towns has increased much more rapidly, from 33.8 million to 78.8 million.

GROWTH OF URBANISATION 1931-1961

	Population of India (in million)	Per cent variation per decade	Urban population (in million)	Per cent variation per decade	Per cent urban to total Population
1931	279.0	+ 11.01	33.8	+ 18.4	12.13
1941	318.7	+ 14.22	44.3	+ 31.1	13.91
1951	361.1	+ 13.31	62.6	+ 41.2	17.34
1961	439.2	+ 21.50	78.8	+ 25.9	18.00

The large metropolitan cities—Calcutta, Bombay, Delhi, Madras, Bangalore—have been growing even faster. The population of metropolitan Calcutta has increased from 24.9 lakh in 1931 to 65.8 lakh in 1961; of Bombay from 13.0 lakh to 41.5 lakh and of Delhi from 4.5 lakh to 23.5 lakh. The population of the 11 largest cities of India has increased from 72 lakh in 1931 to 215 lakh in 1961—a three-fold increase.

This rapid growth of city population has greatly accentuated the problems of housing, water supply and sanitation, traffic and transport, and provision of essential services like health and education. Even in pre-War years, we find that housing and other essential services were very inadequate in the large Indian cities and these inadequacies were brought out by several surveys conducted in the 1930s. The rapid growth of population in the last 30 years has only accentuated the shortage of civic amenities. Moreover, since these cities were not designed for the sizes which they have now attained, the technical problems and cost involved in expanding these essential services have increased much more than the increase in population. The surveys on traffic and transport conducted recently in Bombay and Calcutta emphasise this point. The Bombay survey has revealed that roads in the Central area of the city are already being used to saturation point so that any further increase in the number of buses or trams would not improve the traffic conditions. The situation in Calcutta is no better. Consequently the movement of increasing numbers of people, to and from the commercial centres of these cities, can only be accomplished by taking up increasingly expensive and difficult transport projects. In the case of Calcutta several alternative solutions such as construction of an underground railway, an aero-rail, and a circular railway have been suggested by traffic experts. Each of these projects would involve large outlays and would take several years to complete. A similar difficulty would arise in regard to other amenities such as water supply, sewerage and other urban services. The growing requirements of water for Bombay city can only be met by bringing water from longer distances. In the case of Madras, even a desalination project for the sea water was being considered for some time and the idea was given up only when a good source of ground water was located recently.

Government Policies

Decentralisation of industry and a policy of discouragement to continued immigration into large cities have often been recommended as a solution to the problem of high concentration of people in metropolitan areas. The policy of decentralisation of industry has been accepted by the Government of India in its Industrial Policy Resolutions and several measures like aid to village industries, promotion of small-scale industries, development of industrial estates and location of large public sector industries in resource-rich, underdeveloped regions have been taken up in pursuance of this objective. But considering the growing magnitude of the metropolitan problems, some of these measures would have to be intensified in application and further measures taken during the Fourth and subsequent Plans. In recent years, the policy of locating industries and industrial estates on the periphery of large cities and in less developed regions has proved very beneficial, and this policy has to be pursued even more vigorously in the future. Restrictive measures, aimed at discouraging location of industry within cities, which are already operative in some cities, may have to be extended to others.

These measures will no doubt influence the character of urbanisation by preventing undue concentration of population in large cities and promoting the growth of small and medium-sized urban centres. But they will not affect either the rate of urbanisation or the total size of the urban population. The latter will continue to increase with economic growth, as it has happened in other countries.

The responsibility for planning and execution of development programmes in cities and towns rests primarily with the municipal bodies—corporations, municipalities, notified area committees and others. But we all know too well how the majority of these bodies have not been able to discharge this responsibility satisfactorily because of financial and organisational weakenesses. Even if these weaknesses were not there, the rate at which the population of cities have been growing would in itself be a great strain on the resources of these bodies. In the course of a decade the populations of most cities have doubled themselves, giving rise to a multiplicity of problems; but they have not been able to find additional revenue in the same proportion, or strengthen their administrative and technical organisation rapidly enough to cope with these problems. Problems of water supply, traffic and transport in the large metropolitan cities are so complex that municipal bodies cannot afford to have within their own organisation highly specialised personnel in sufficient numbers to tackle these problems as they arise.

Relation to Suburban and Rural Areas

Moreover, rapid population growth raises questions of inter-action between the cities and the surrounding rural areas. The unit of planning for a large city cannot be confined to the area within its municipal limits; it has to embrace the metropolitan region, including the adjoining suburban and semi-urban areas into which the city is expanding already or is expected to expand in the future. The Master Plan for Delhi, for instance, includes, besides the towns of Delhi and New Delhi, the entire area of Delhi State and also makes recommendations for the adjoining areas of Punjab and U.P. In the development programmes for Calcutta and Bombay similarly, the units of planning are metropolitan districts, together with their suburban and rural areas. These large cities occupy a pivotal place in the economies of the regions and their problems have to be viewed not merely in terms of civic amenities for the city-dwellers but also in relation to the role of these cities in promoting the growth of the region and the national economy. Thus, expansion of the port and of rail and road transport facilities in metropolitan Calcutta has to be seen not only from the standpoint of the city of Calcutta but in the total context of the development of the eastern region of India.

Technical and financial assistance for drawing up development plans for cities and towns is now being given by the Central and State Governments. The town and country planning organisation of the Ministry of Health is assisting 71 municipalities to draw up long-term development plans and this kind of assistance would be given to a still larger number of towns during the Fourth Plan period. Most State Governments have in recent years established separate departments for town planning to provide guidance and assistance to the municipalities. The Town Planning Department of Maharashtra, for instance, is helping nearly 100 out of 225 municipalities in the State.

One difficulty in town planning is the extreme shortage of well qualified and trained planners. The shortage is so serious that in some States 50 per cent or more of the vacancies for town planners remain unfilled. Training in town and country planning is of very recent origin in India and the present out-turn of trained planners is only around 50 per year. A programme for expanding the capacity of existing training institutions and opening new ones, which will raise the annual out-turn to 150 is under consideration of the Government at present.

The Need for Master Plans

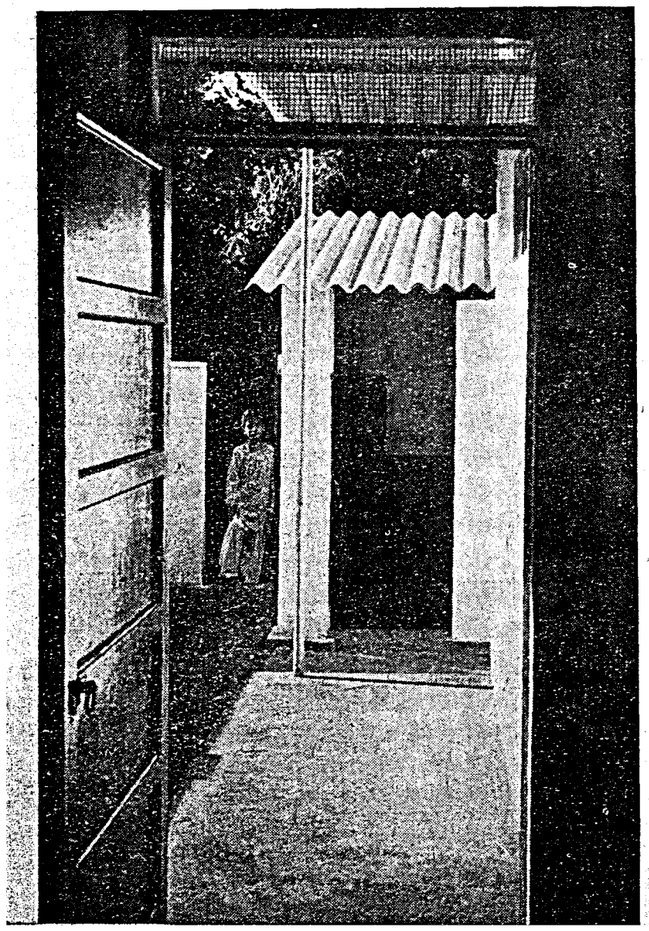
In the case of large metropolitan cities, it is essential to draw up Master Plans which provide for the development of urban areas over a long period of say, 20-25 years. The Master Plan for Delhi, finalised in 1962, was the first of such attempts. It projected the growth of the city to 1981 and made a number of recommendations for development within the metropolitan area of Delhi and in the surrounding areas of Punjab and U.P. One of its most important recommendations related to the development of satellite (ring) towns to ease the pressure of growth within the city. Similar work on the drawing up of long-term plans is in progress in Calcutta and Bombay and this will be extended progressively to other cities also. In the case of Calcutta, a metropolitan planning organisation (the CMPO) was set up three years ago. It is being assisted by a team of Advisers of the Ford Foundation. The Bombay Corporation has recently formulated a Master Plan for the Greater Bombay area and work has been started on a regional plan which includes, besides Greater Bombay, a large surrounding area of the Thana district. This regional plan is an essential part of the Maharashtra Govrnment's policy of dispersal of industries outside Bombay City.

Financial Assistance for Urban Programmes

Financial assistance for the execution of urban development programmes has hitherto been given scheme-wise. Water supply, health, education and the provision of similar amenities have been undertaken in cities and towns as part of national development programmes, though in certain instances like the water supply schemes of Bangalore and Bombay special assistance has been given. But experience during the last few years has demonstrated that the needs of the urban areas would have to receive much greater attention. In my view, the principles and procedures for the financing of urban development

programmes need to be reviewed in order to ensure that the growing needs of urban areas are met more adequately. It may also be necessary to review the adequacy of the organisational and staff arrangements of the municipal bodies. Thus, it is necessary to consider whether the municipal body of each city and town can build up, *entirely on its own*, the specialised staff and organisation needed for construction and operation of various development services. If this is not possible and outside assistance is required, e.g. for survey and planning of traffic, or for drawing up a sewerage scheme, the nature of such assistance and the most efficient and economical method of providing it would have to be considered. In the case of some categories of professional personnel like public health engineers, for instance, it may be an advantage to have State-wise cadres so that these officials are deputed to municipalities for specific periods. In certain other fields of specialised work, like planning of traffic or urban and regional development, it would be a great advantage to have experts working in Central agencies so that they could be sent to conduct surveys and help municipal bodies to draw up schemes of development.

The problem of urban development, therefore, is not merely confined to the existing cities. With progressive industrialisation new towns with large concentrations of working population are coming up, and as years go by, the tendency of towns to grow into cities and cities into metropolis will become even stronger. We shall have to plan for this development well in advance and find enough resources in money and trained men to translate these plans into reality. This kind of planning would have to provide for the development of towns and cities as integral parts of the region to which they belong. Resources needed for urban development on this vast scale will naturally be massive, and far beyond the capacity of municipalities and city corporations. The Central and State Governments would therefore have to step in, in a big way, and work out master plans as an organic part of bigger plans for the economic and social development of the country.



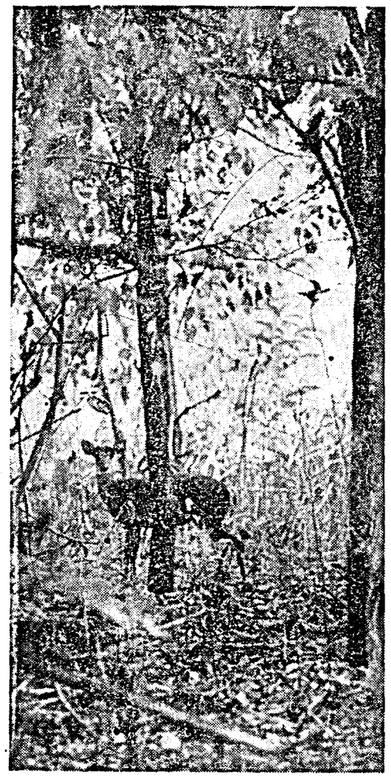
THE pre-fabrication technique for raising buildings for residential and office accommodation has made its appearance only recently in India and has still to go a long way to become popular. Pre-fab structures are cheaper, costing less than Rs 9 per square feet as against Rs 13 for a conventional type of structure. It can also be raised far sooner.

The Hindustan Housing Factory (H.H.F.) is the only one of its kind in India which produces pre-fabricated components according to standard specifications. Among the important structures raised by the H.H.F. in Delhi are some three-storey-high Central Government office buidings, a few schools, besides milk-booths, bus shelters and some living quarters.

THIS PRE-FAB HOUSE TOOK LESS THAN Rs. 2,500 TO BUILD

FORESTS ARE VITAL TO AGRICULTURE

K. G. BHATIA



MAN IS AT THE ROOT OF THE DENUDATION OF FORESTS; MAN ALONE CAN RECTIFY THE SITUATION

THE use we make of land is a measure of the maturity of our nation's economy. Land is among the most valuable natural resources of a country. What we do with it influences our living standards so directly and intimately that in anything we do in the name of planning land use must find priority of place. Apart from the two major uses to which land is put such as agriculture and forestry, there are its other uses such as urban growth, industry and communications, nature reserves and national parks which must find their place in the scheme of things. The balancing of such competing claims on the limited land resources of a country calls for a great deal of imagination on the part of the planners.

Rational land use aims at combining different ways of utilising land to make the best use of the factors of production to obtain the maximum returns. It is therefore necessary to evolve a rational land use pattern. It means that each area must be put to the best possible use for promoting the growth of balanced economy and securing maximum satisfaction to the community as a whole.

According to available statistical data, 44 per cent of our land is under agriculture, and 17 per cent under forests. Fifteen per cent of the total area is not available for either agriculture or forestry because this land is under mining and townships. There is yet another 15.3 per cent of the total land area, amounting to 50 million hectares, which is potentially productive either for agriculture or for forestry but is at present lying barren. This so-called waste land includes also permanent pastures and grazing lands. One reason why this land has become unproductive is that people did not pay attention to the conservation of its fertility. Indeed, some of the lands recently brought under cultivation were unfit for agriculture a few years ago, and will remain agriculturally productive for some years only. But it should be possible to maintain all these lands in a perpetually productive state for growing food grains or forests or as pastures, if we only went about it in a scientific way.

Forests at present occupy only 17.2 per cent of the total land area. The proportion of forest land varies from 11 per cent in the north-west to 44 per cent in the central region. Besides, forests are scarce in the regions where they are most needed, as is the case in the densely populated and intensively cultivated Gangetic basin. What is equally important is that all our forests, wherever they are, need better care and maintenance. For a country to be well within the limits of self-sufficiency in forest resources, about a third of the total land surface should be covered with well distributed and properly managed forests. The National Forest Policy of 1952 has emphasised that the area under forests should be steadily increased to 33 per cent—60 per cent in the hilly region and at least 20 per cent in the plains.

What are the reasons for the progressive decline of forests in India? Man is at the root of this catastrophe, and man alone can rectify the situation before it spells an even greater disaster to the economy of India. The area under forests, which were rich and plentiful even about 100 years ago, has been progressively declining because of our hunger for more land for agriculture. With growing pressure of population in the countryside and our abject dependence on primitive forms of agriculture, we have been cutting away the forests and converting them into farm lands. In recent years this land hunger has assumed massive proportions because of the increase in the number of landless agriculturists and the need to provide lands to displaced persons from Pakistan. Some portions of farm lands, though proportionately small in themselves, have been submerged by reservoirs formed by dams which we have built in recent years to provide water for irrigation and power. Our towns and cities, too, have been growing rapidly and the result has

been gradual encroachment on lands which have been under farming all along. This is an irrevocable process and is bound to continue relentlessly as greater industrialisation results in urbanisation and urbanisation again results in heavy demands on our timber resources and other raw materials which only forests can produce. It is time that the impact of these factors on land use is studied from a long range point of view. We cannot stop the historic process of industrialisation or urbanisation. At the same time we have also to reckon with the stark reality of a rising population. A major problem of planning now and hereafter is to provide for these phenomena and implement a scientifically designed programme of land use which will benefit the community for all time. In evolving such a comprehensive land use policy it is necessary to decide what role forests should play.

Where agriculture and farming operations have been well designed, ensuring adequate attention to environmental factors, forestry becomes an extension of farming. The benefits from forests are, broadly speaking, two-fold: (1) the forests are a source of wood and other products, and (2) they exert salutary physical and social influences on the countryside. The fate of a nation's agriculture is seldom decided on the crop lands alone. Factors seemingly unrelated to farming play a significant role in the success of its operations. Forests give protection against soil erosion, control floods and regulate flow of sub-soil water. Trees act as wind-breakers and shelter belts to farm lands and prevent desiccation from hot or cold winds. A free and uninterrupted wind blows the top soil away and thus reduces the fertility of the soil. Forests can provide fodder and grazing for the livestock and add to the beauty of the landscape. Thus forestry and agriculture are economically interdependent and sustain each other. In other words, forestry is the foster-mother of agriculture.

A reference to the adverse effects on forestry by an increasing population deserves repetition, although the problem of population growth, mighty as it is, is an altogether separate question. We have to evolve a workable programme of land utilisation for every village, every district and every State so that a balance is always maintained between forestry and agriculture. This will call undoubtedly for more scientific methods of farming, making the existing lands yield more food. If forests are cleared to make way for farm lands, they will no doubt be fertile in the first few years, but will start losing their fertility fast, leaving neither forests nor arable lands eventually. This is how the so-called waste lands are formed, and their extent is increasing year after year.

One of the major pre-occupations of our planners and administrators is to ensure a higher rate of food production. This, as everyone knows, is possible only if we are able to restore to the farm lands the fertility they have lost by continual farming over a long period. This again means that all farmyard manure is systematically used for cultivation purposes. The woods, jungles and pasture lands must be cared for and enriched by tree-planting. It would be a primary task of administration to mobilise public opinion and co-operation to ensure sustained efforts at afforestation. Preservation of forests and wild life are the two facets of a common effort, at all levels, to preserve and expand our forests as well as farm resources.

Agriculture and forestry are in every way complementary to each other. Indeed in many cases no agricultural improvement is possible without a development of forestry preceding it. For instance, lands cut up into ravines have to be reclaimed for afforestation, whatever the cost, and soil conservation programmes must be implemented for protecting culturable lands. Far more important even than as sources of timber or fuel, forests play a vital role in soil conservation in catchment areas and hilly regions.

Forestry and Industry

Forests are assets which are renewable. Under wise management they can be kept perpetually productive and useful in contrast with the robber-economy of mines, which either get exhausted or their working may become uneconomic. Wood, a major forest product, can be used either as fuel or for industrial purposes.

Forests yield a variety of products, besides fuel and timber. Resins, oils, medicinal herbs, gums, waxes, dyes, tans, fibres, flosses, canes, grasses, honey and lac, are all forest products that play an important role in the country's economy.

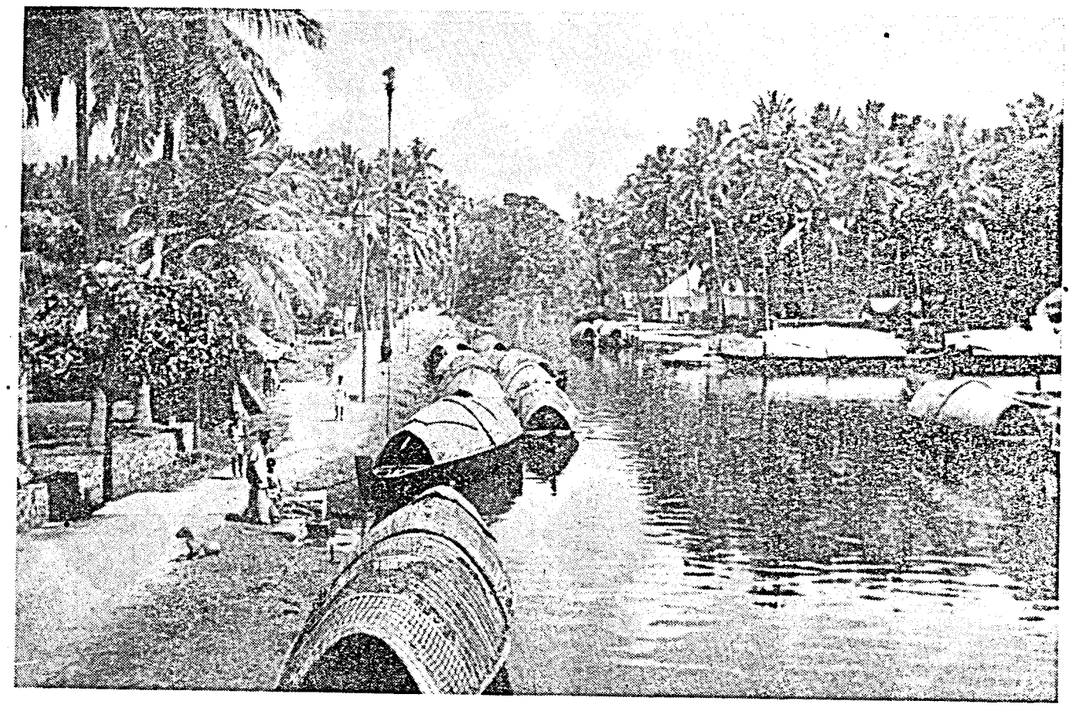
The present per capita consumption of forest products in our country is extremely low. It is expected that economic growth will create an increasing demand for sawn wood and wood-based sheet materials as well as for paper and board. Unless concerted efforts are made, the gap between consumption and production of wood will widen and hamper the social and economic development of the country.

Foresters and those concerned with planning for economic development are confronted with the poser, 'How to meet the growing need for wood and its products?.' The obvious answer is intensive management, increasing the production of raw materials most in demand, and economy in the use of materials by eliminating waste. The present level of forest products is less than a tenth of what they would be capable of, if suitable species of trees are planted and tended carefully. It would also be desirable to improve the harvesting techniques to minimise wastage in felling, conversion and transport. Excellent results have been obtained in other countries with exotics such as eucalyptus, populus and pines, which grow fast, yield plenty and are suitable for several industrial uses.

Forestry, is of necessity, a long-term venture and much care, thought and patience are required before benefits accrue to the community. Another phase of forest management is rehabilitation of unproductive land. Many areas such as swamps, abandoned farms and ravine infested land, could be reclaimed and afforested. The basic principle in distributing land for several uses should be that under any particular scheme its yield would be maximum and the chances of deterioration in fertility would be at the minimum. No land should be allocated for production of agricultural crops unless it is ensured that it will be kept permanently productive. All land, if there be any, which is not required for agricultural or horticultural use, should be kept under forests to prevent its deterioration due to exposure and denudation.

WATERWAYS IN KERALA'S ECONOMY

S. KRISHNA AIYER



Maintenance, Control and Expansion Are Needed

IT is not often realised how important inland waterways are in the transport system of India. In Assam, West Bengal, Uttar Pradesh and Orissa particularly they have played a vital role in the economy by providing the cheapest form of transport for large quantities of forest and agricultural produce. To a lesser extent perhaps, but no less vital, inland waterways influence the economy of South India. Andhra Pradesh, Kerala and Madras are the three southern States where this method of transport lends itself to considerable improvement.

Inland water transport is perhaps the slowest mode of transportation. But this does not diminish, in any way, its value to the economy of any country, however highly industrialised it might be. It is by far the cheapest mode of transport. In industrially advanced countries like Belgium, Holland, France, Germany, England, U.S.S.R. and U.S.A., it plays, and will continue to play a crucial role in the transportation system. Its importance for a developing country like India has been recognised from the very beginning of our five year plans. The Ganga-Brahmaputra Board constituted during the First Plan was an important step in the direction. The report submitted by the Inland Water Transport Committee in 1959 made far reaching proposals for the development of inland waters in India. The Third Plan programmes of water

transport costing about Rs. 9 crore were based on the recommendations of this Committee. This contrasts sharply with the meagre Rs 1 crore during the first two Plan periods. Recently a technical organisation has been set up by the Ministry of Transport for scrutinising the various schemes of development and suggest measures for improvement.

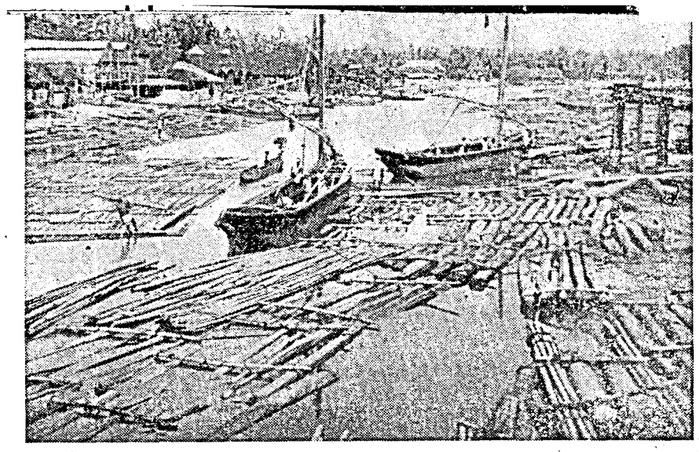
Kerala's Potentialities

In India, Kerala State alone has a total navigable length of 1,920 kilometres of waterways or roughly 20 per cent of the total inland water transport in the country. Kerala enjoys a regular navigation system because of a number of west-flowing rivers and a coastline interspersed with backwaters. The canal system, navigable all round the year, extends from Trivandrum in the south to Badagara in the north and is interlinked by backwaters and rivers through artificial canals.

The interior canal system comprises the main West Coast Canal and a chain of backwaters and lakes from Trivandrum in the south to Hosdurg in the north. It flows through practically every district in the State. The West Coast Canal helps in distributing agricultural produce from the adjoining areas and serves the needs of various industries such as tile, timber, coir, fertilisers, aluminium, rayons, plantations, cashew, titanium etc.

The inland cross canals of Kerala inter-connect the rivers on whose banks are located important commercial and industrial enterprises. There are about 610 kilometres of inland cross canals which lie mostly in the Travancore-Cochin area. The total goods traffic carried by the State's inland water transport system is of the order of 23 lakh tons. The traffic in Cochin area alone accounts for 12 lakh tons or half the total traffic. The rivers in the State providing more than 800 navigable kilometres are fit for boats only during the monsoons. For the rest of the year, navigation is possible only in the lower reaches. Although other modes of transport like roads, railways etc. have been developing fairly satisfactorily, water transport has never lost any of its importance and continues to be the cheapest mode of transportation.

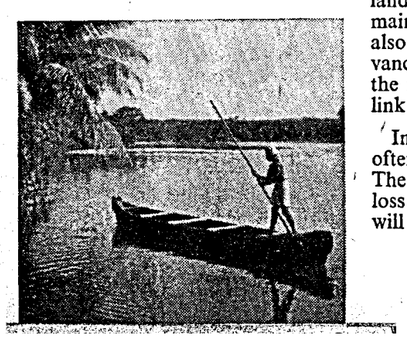
About 25,000 country crafts with a registered tonnage of nearly 2 lakhs,



Timber being carried through the waterway.
Below: A country boat serving as a means of transport

500 motor boats and 1,300 other varieties of transport vessels ply on the inland waterways of the State. The annual licence fees amount to Rs 3 lakh. There are several locks and tolls in the Malabar area where fees are levied. The motor boats carry about 28,000 passengers all over the State's water routes. Besides, about 15,000 passengers are carried daily by the motor boats operated by the Kerala Water Transport Corporation in the Cochin-Quilon area.

The State Government took over private passenger motor boats plying between Quilon and Cochin, a distance of about 144 kilometres, and set up the Water Transport Corporation in April 1958. The Corporation charges a slightly higher fare than other passenger boats. It has 11 motor boats with a total seating capacity of about 1,470. The Corporation, however, suffered setbacks and the Water Transport Department of the State incurred heavy loss during the last few years. In 1962-63 it amounted to Rs 1.72 lakh as against Rs 16,657 in 1956-57. The Corporation is controlled by a Board of Directors of 11 members



appointed by the Government—five are senior Government officials, four are representatives of the boat owners (whose boats were taken over) and the remaining two are representatives of the employees of the Corporation.

The present inland navigation system in the State, however, needs considerable improvement. The Traffic Survey on Inland Navigation in Kerala conducted by the Public Works Department in 1960 observed: "The inland waterways have to be placed on a really working basis and continuously watched so that it does not in any manner disrupt the economy of the country." If we are to achieve this end, four things require to be done: (1) to lay down certain standards for the width and depth of the canals and to suggest improvements in the existing canals; (2) to frame rules for improving traffic; (3) to provide for dredgers; and (4) to set up an organisation which can take over their maintenance and control.

The West Coast Canal requires renovation. Land erosion during the rainy season prevents free movement of boats on this waterway. More landing places and jetties and the maintenance of the existing ones are also necessary. Besides, in the Travancore-Cochin area there is also the need to construct additional link canals.

Inland navigation in Kerala has often to face the risk of pilferage. The introduction of insurance against loss or theft and booking agencies will give the needed protection to the cargo. Licensing rules are not uniform and the levy of tolls in the Malabar area add to the complication. There are at present licensing restrictions on the transport of bulky petroleum products in tank boats. More than 70,000 tons of petroleum need to be transported in a year. With progress in the industrial field, especially with the starting of the oil refinery at Cochin, traffic is likely to increase considerably. It is therefore very necessary that a uniform licensing policy should be adopted.

The Alleppey-Shertallai Canal was improved at a cost of Rs 2.81 lakh during the First Plan period. During the Second Plan period, works on the deepening of the Alleppey-Shertallai Canal, improving the Trivandrum-Shoranur Canal and other canals in the Malabar area from Badagara to Azhikkal and other minor schemes were taken up. The total expenditure allotted for inland water transport in the Second Plan was Rs 43 lakh. Of this, Rs 33.08 lakh, were spent during the Plan period. A major scheme undertaken during the Second Plan was the construction of a 46 kilometre-long link canal in the Valapattanam river mouth providing through traffic from Trivandrum to Hosdurg, a distance of over 560 kilometres. Only the preliminary works of the scheme were completed by the end of the Second Plan period.

The man-made canals in the State have only an average width of 20 feet and depth of two feet. They require to be widened to 30-40 feet, and deepened by 5 to 10 feet if motor boats have to ply on them. Proper landing places have also to be built at suitable points. There are also other defects in the existing canals which need immediate attention. The country boats require to be replaced by modern crafts of 150 to 200 tons to facilitate both passenger and goods traffic. Above all, the total length of navigable waterways have to be nearly doubled if we are to meet a substantial part of the transportation problems that are inherent to a developing economy.

A comprehensive plan for the development of inland navigation system in the State involving a total outlay of Rs 49 crore was suggested in the Traffic Survey Report of 1960. An amount of Rs 1 crore has been envisaged in the Third Plan for the development of inland waterways. This includes an allotment of Rs 50 lakh by the Ministry of Transport. A length of 7,400 feet in the reach of Badagara-Mahe canal has been completed while construction of jetties, landing places, as also the work on the Trivandrum-Shoranur canal and Elathur-Kallayi canal is in progress.

Thus only a part of the development plan envisaged in the Traffic Survey Report could be implemented till the end of last year. The nature of the schemes that will finally be adopted in the Fourth Plan is not yet known. An outlay of Rs 2.25 crore has been prepared for inland navigation by the Working Group for the Fourth Plan in the State. A proper assessment of the goods and passenger traffic needs of the State should be made especially in view of the rapid growth of industries envisaged in the coming years. What we need in the present context is a perspective plan for both road development and canal development. There is also a need to conduct a thorough study to find out how far and how efficiently existing canals are being utilised for transportation purposes.

The progress of inland navigation in India as a whole leaves much to be desired. Since 1958 there has been a fall of about 4.5 lakh tons in the volume of cargo carried by the inland waterways. The potentiality for the growth of inland navigation in Kerala is considerable and Kerala's record in handling inland water transport on co-operative lines has been quite encouraging. The idea of starting a Corporation for Road transport has been accepted by the Government of Kerala and inland water transport will form part of this Corporation. Inland water transport in Kerala can have an assured future only if a well thought out development plan is implemented.

It's Time to Revive Chakkis

HAND-GRINDING on traditional chakki has been an age-old practice forming a part of daily routine in every home. In the villages and even in the towns there are lakhs of chakkis which are operated generally by women.

They play an important part in our rural economy and provide part-time employment to village women, especially widows and poor and blind women. Due to the continuous expansion of flour mills in urban and rural areas, hand chakki is losing its importance. Mahatma Gandhi had rightly remarked, "In the thousand villages where power machinery exists, one misses the sweet music in the early morning of the grinders at work. It is an undisputed fact that the flour mill and the rice mill have driven women out of employment and deprived them of the means of income".

From the nutrition point of view, hand ground flour has a great importance.

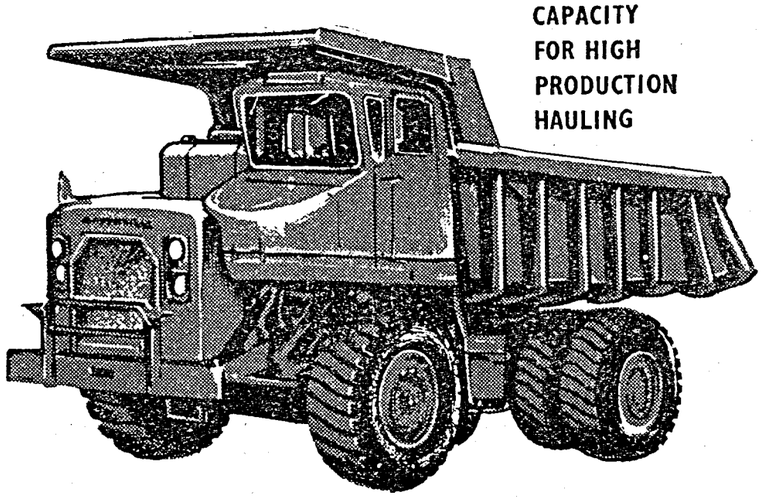
Considering the importance and employment potentialities of the hand chakki, our Government is patronising this home industry. The Khadi and Village Industries Commission, which is responsible for the development of this industry, is taking steps since its inception to increase productivity of the traditional chakki by introducing technical improvements. The Khadi Commission also provides financial assistance for implements. On an improved hand chakki a woman grinds 14 kilograms of wheat in eight hours. A 10 H. P. electric driven machine grinds about 1,100 kilograms in eight hours. This works out to nearly 11 kilograms per 1/10 of an H.P. of electric energy which is the equivalent of a woman's energy for eight hours. Therefore the utility of hand chakki is greater than that of the electric mill from the productivity point of view also.

The manufacture of an improved type of hand chakki is being done at five places in U.P. on co-operative lines with the financial and technical assistance of the U.P. State Khadi and Village Industries Board. The Board is taking active steps to increase the productivity and also supply chakkis to the interested people. The improved chakki having ball-bearing attachment is made in sizes varying from 14" to 18" in diameter and its prices vary from Rs 20 to Rs 31. Its productivity is about two kilograms per hour.

D. N. D.

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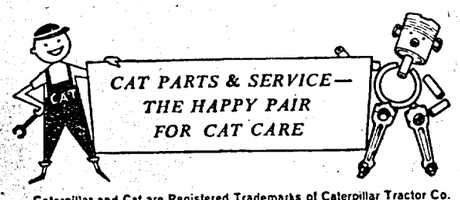


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TIJ/G/245

Merger of Panchayat Samitis and Zila Parishads has produced headaches for the B. D. O.s

Extension Workers Deserve New Deal

S. BHATNAGAR

THE gram panchayat is a traditional institution though in its present form it has been in existence for the past five decades or so. Although the gram panchayat that we have today is substantially different from the older type, our people in the countryside are quite used to this institution. What they are not yet used to, however, are the other two institutions of local self-government, i.e. the panchayat samiti and the zila parishad. They have not yet come to fully appreciate the special role they are expected to play in the development of our countryside. During the field survey in the Kangra district of Punjab (which I conducted in connection with my research for the doctorate degree) I came across a few of these problems, most of which, I suppose, are not peculiar to Kangra alone.

Conflict of Loyalties

Dwarfing all the problems that have arisen in the working of the present system, is the one relating to personnel. Previous to the introduction of the panchayati raj, two governmental agencies catered to the needs of the rural areas, namely, the Department of Community Development and the Department of Panchayats. The former dealt with the developmental aspect, and the latter with the administrative. In view of the close inter-relationship of their functions the two departments have now been merged. In the resultant set-up, the Block Development Officer also acts as the executive officer of the panchayat samiti. In the same manner, the old panchayat officer has been entrusted with the duties of the social education organiser. This fusion of two different functions in one official has brought in its trail problems both for the officer concerned and for the system in general. The B.D.O.-cum-E.O. for instance, has been placed under two different chiefs. In the former capacity he works directly under the discipline of the State Government through the Deputy Commissioner and the sub-divisional officer. In the latter capacity, he acts for and under the express wishes of the people's representatives sitting in the panchayat samiti. There is therefore always the risk that his two superior officers might give contradictory orders, thereby creating difficulties for the B.D.O. and E.O.

An executive officer of a panchayat samiti related to me a very interesting experience. When in the wake of the Chinese aggression in 1962 a campaign for the collection of Defence Fund was started, he, along with his staff, also collected public contributions. Now, the sub-divisional officer wished that the money be handed over to him so that he could present that amount to the Deputy Commissioner. But this suggestion was not acceptable to the chairman of the panchayat samiti. He, in his turn, preferred to present the money himself to the chairman of the zila parishad. Confronted with such a situation, the B.D.O.-cum-E.O. felt very embarrassed, for, whenever he happened to visit the sub-divisional headquarters, the S.D.O. scolded him for the delay in depositing the money. When he tried to bring this to the notice of the chairman of the panchayat samiti, he was warned against doing anything of that kind. The controversy was finally settled by the S.D.O. himself, who ruled that the samiti chairman had no jurisdiction in this matter.

Situations like these are most unhelpful to the smooth functioning of B.D.O.s. On the one hand, the officer becomes 'the wife of two nagging husbands', as that B.D.O. himself put it. He cannot work freely and efficiently. He becomes ultra-cautious and refrains from taking responsibilities. The nature of his job is, however, such that unless he takes bold decisions, he can never do justice to his office. Secondly, the good effect of subordinating the executive officer to the chairman and through him to the panchayat samiti is offset by his shared responsibility with the S.D.O. Since the executive officer and the S.D.O. belong practically to the same cadre, the former prefers to obey the latter under whom he may have to work again and again. Were it otherwise, he would definitely show greater regard to the chairman of the panchayat samiti and take keener interest in the work of the samiti.

Victims of Merger Policy

The extension officer for social education and panchayats is another victim of the policy of merger. As organiser of social education he works under the discipline of the panchayat samiti. As panchayat officer, he performs agency functions. Being an emissary of the State Director of Panchayats, he inspects and supervises the functioning of the gram panchayats. Herein lies the biggest irony. The panchayat samiti under whose discipline he works is composed of elected representatives on whose

behalf he is supposed to supervise the work and it is, therefore, not humanly impossible for him to discharge the duties of the office honestly and effectively. One obvious result of this merger of the departments of community development and panchayats is that supervision of the gram panchayats has been rendered less effective.

The policy of merger has affected not only the top officers but the entire personnel. Now there are two sets of officials. The one consists of a few extension officers, an accounts clerk, two junior clerks and two peons who are drawn from the various services of the State Government. The other category is that of the samiti staff. It comprises a head clerk, two junior clerks, one or two tax collectors and two peons. The pattern of work for both categories has been worked out in such a manner that in certain posts there is duplication of functions and in certain others no provision has ever been made for specific duties. This has resulted in wastage on the one hand and inertia on the other.

Furthermore, this staff pattern has adversely affected the relationship of the officials with the non-officials. It is an open secret that the executive officers and the samiti chairman in a majority of cases do not see eye to eye with each other. As for the causes, they are largely the same everywhere, namely differences in attitudes and behaviour. But in certain cases it was found that the samiti staff was responsible for sowing the seeds of dissension. Since this category of staff is recruited by the samiti, most of its members are local people who have affiliation, either personal or political, with the samiti members. They further seek to strengthen these ties by carrying tales to them. Thus assured of the support of their political chiefs, they become slack and neglectful of their duties. The executive officer feels helpless when he feels like pulling them up.

The executive officer and his colleagues who, according to the civil service conduct rules, must be politically neutral, do not remain as such. To spite a troublesome chief they indulge in politics. They make and break alliances with the sole purpose of putting men of their choice in the saddle. The extension officer for social education and panchayats, in his capacity as the supervisor of the gram panchayat work, generally plays the leading role in this game. I was given to understand that in one block this officer arranged a special tour of his area in order to canvass support for his friends through persuasion or intimidation. This dissipates the energy of the permanent officials and vitiates the functioning of this democratic institution.

The problem of co-ordination is even more acute at the zila parishad level. The samitis are administered by the executive officers who are drawn from the State cadres. They are comparatively young in age. Moreover, they are required to undergo a prescribed course of training which has of late been development oriented. They are further required to undergo periodical refresher courses to enable them to acquire a more democratic approach. But in practice, all this training goes to waste because of the bureaucratic and domineering attitude of those who control the zila parishad notwithstanding the fact that the services of these officials have been placed at the disposal of the panchayat samiti.

Sources of Finance

Finance is the life blood of an institution, especially of one which is charged with the delicate task of social advancement of village communities. A panchayat samiti in the Punjab draws its income mainly from two sources—the professional tax and the local rate. The latter is a sort of cess levied by the State Government at the rate of twentyfive paise per rupee of the annual value of the land. Fortyfive per cent of its proceeds go to the panchayat samiti and fiftyfive per cent to the zila parishad. This tax is levied and collected by the State Government itself. But so far as the tax on professions is concerned, the panchayat samitis are facing one big problem. They are not receiving the co-operation they are entitled to from Government departments whose sub-offices are located in the rural areas. A few of the departments, such as the railways, posts and telegraphs and electricity, have, in particular, adopted an attitude which is very unhelpful. As a result, it was found that, in certain cases no assessment of the tax due from the employees of these departments has ever been made. Repeated requests to the concerned heads of departments to furnish the lists of their staff members have been of no avail. Whenever the samitis have succeeded in making assessment, the collection has been very difficult. It was revealed that in one or two instances the tax collectors were even manhandled when they approached the assessees for payment of the tax.

The problem by itself is a minor one and can be solved given a measure of understanding. Recently, the State Government of Punjab took a very laudable step. The executive officer there has been vested with the powers of a Grade II Collector. This will go a long way in speeding up the collection. But it would still be highly desirable if the matter were to be discussed at a ministerial level between the State and the Union Governments.

The problem concerning finance relates specifically to the gram panchayats in Kangra. Leaving aside the taxes, fees and grants-in-aid, the main source of revenue of a gram panchayat is the income from the common land. In the district of Kangra large areas of land in practically every village have been traditionally set apart for the common use of the villagers. A sizeable part of this common land consists of forests. By an old Act of the colonial administration, these have been categorised as 'undemarcated protected areas' and 'unenclosed areas'. This classification has created a strange situation. The proprietory rights of the land vest in the gram panchayats but the yield belongs to the State Government. In this way, the gram panchayats of the district are being constantly deprived of the income from their property. A method should be devised by which at least a part of income from these lands is reimbursed to the gram panchayats.

Finally, there is the problem of budgeting. Strictly speaking, this is a problem related more to the personnel and less to finance. The work at the panchayat samiti headquarters is in complete disarray.

(*Continued on Page 24*)

Modern Leveller

MY qualification to speak on behalf of the pedestrians derives from the fact that, except for a brief four years or so when I had a gift horse, (a bicycle), I have never owned or kept any means of transport, and that includes buses, trucks or trailers, cars, motorcycles and scooters, or even a tonga or a horse. As far as I, or for that matter my father, can recollect, pedestrianism is in my blood, so to say. It is but natural, therefore, for me to divide the world's population into two classes—those who depend on some means of transport—mainly the weak, the women and the infirm—and those fortunate, self-sufficient souls who are proud pedestrians, masters of the road.

There was a time when a man was proud to proclaim his affinity with the path he traversed; he called it "my walk", "my road", "my beat". Now a road is something quite impersonal, it is built by machines to be used by machines. It has no intrinsic value otherwise. Its only justification lies in that it leads to somewhere, the ever receding, never attained, somewhere. He is only intoxicated by the constant state of motion, the dizzier the better.

What is life but movement? Men are moving towards stars. So are prices. India is moving into the bicycle age and talking of economy cars. Power, electric and political, is moving towards the villages. Villages are moving towards the cities. Cities are moving towards their embargos, the slums, the suburbs and the industrial townships. Castes are coalescing into classes which, in turn, are splitting and reforming into factions. All is movement and flurry. All is change.

Subjected to this incessant onslaught on one's consciousness by the whirligig of time, can I honestly claim that my attitude towards mobility has not suffered a subtle change? Alas no. The confidence and elation of childhood and adolescence has been corroded by the frustrations of youth and the disillusionment of middle age. Thus now whenever a car or any vehicle overtakes me on the road and throws dust into my eyes I seem to shrink into my skin. A sense of diffidence and defeat envelopes me.

Put yourself in my place. Suppose you were taking your early morning constitutional walk in some deserted lane near India Gate, twirling your walkingstick, breathing ozone and feeling at peace with the world, even trying to reproduce a difficult passage from a morning Raga, say Kafi or Bhairavi, Jaunpuri or Asavari, or, being in a particularly light mood, you are trying a lilting film tune of 20 years ago, suddenly your melody is shattered by the rude blasts of horn, filling your ears with a blare that continues like a fanfare of victory even after the blighter has whooshed by, filling your mouth with dust, your lungs with petrol or diesel fumes and your heart with the conviction that India must produce an atom bomb.

SHAMBU: by Malinda Topa



The old part of the city is no better. You have only to introduce the variables of phut phuts, motorcycles, scooters, tongas and cycles. Take the vintage tonga for instance. Except for its lame clip clop, it never announces its presence until it is about to run you over and then the phrases that assail your ears 'Buch Mor Toon', or 'Tera Dhyan Kidhar Hai Bhai' make you seriously wonder whether it is not preferable to be run over than have to listen to this.

The cyclist, on the other hand, is a perfect gentleman. Whenever he finds you interfering in his snake march, he may give a melodious tinkle and then coolly overtake you from the left or the right, whichever you expect least, and, while doing so, bestow upon you a withering, or worse still, a pitying glance. The only reason, which stops me from blasting these offending sights from the face of the earth is the fact that occasionally they do atone for their sins by persuading me to accept a lift in them. Even then I suspend sentence only on that type of vehicle which elects to honour itself by carrying me. I have a hope that some day these vehicles, so full of murderous intent to one another, succeed in the eventual destruction of all the vehicles, leaving the roads once more free and safe for the rightful owners, the pedestrians.

One solution of the problem might lie in making all pedestrians vehicle owners. Heavens save us from such a fate. They will only hasten the doom of the world. The presence of pedestrians constitutes the strongest guarantee for the achievement and continuance of the socialistic pattern of society we are pining for. In the final analysis, it is the road, and not death, that is the great leveller.

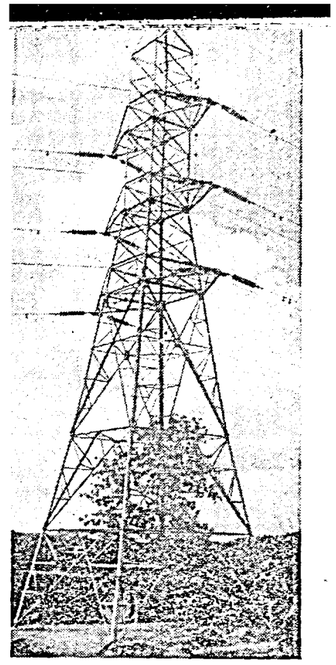
M. A. Husaini

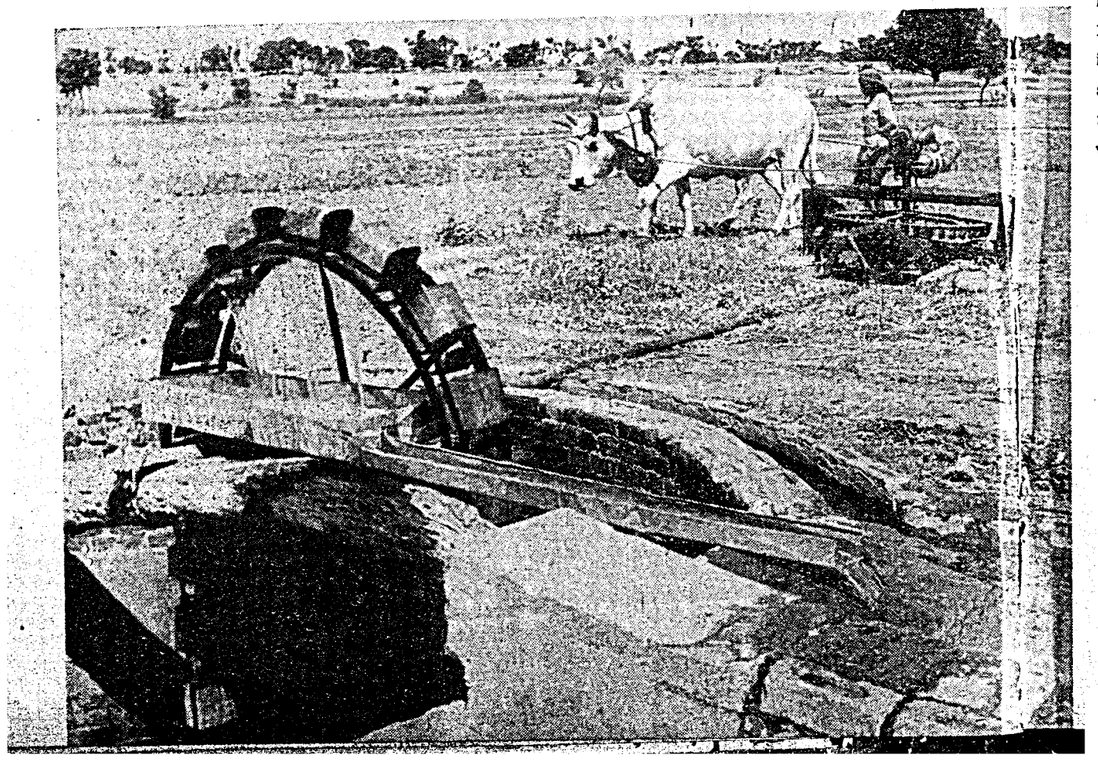
U.P. TO SPEND FOUR TIMES MORE IN THE FOURTH PLAN

LION'S SHARE for Agriculture

KRISHNA CHANDRA

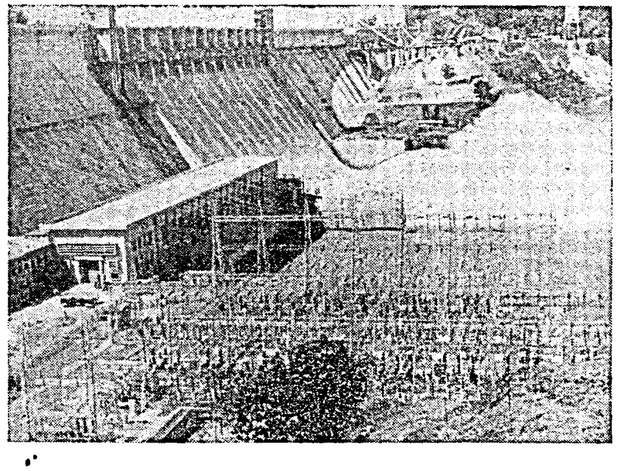




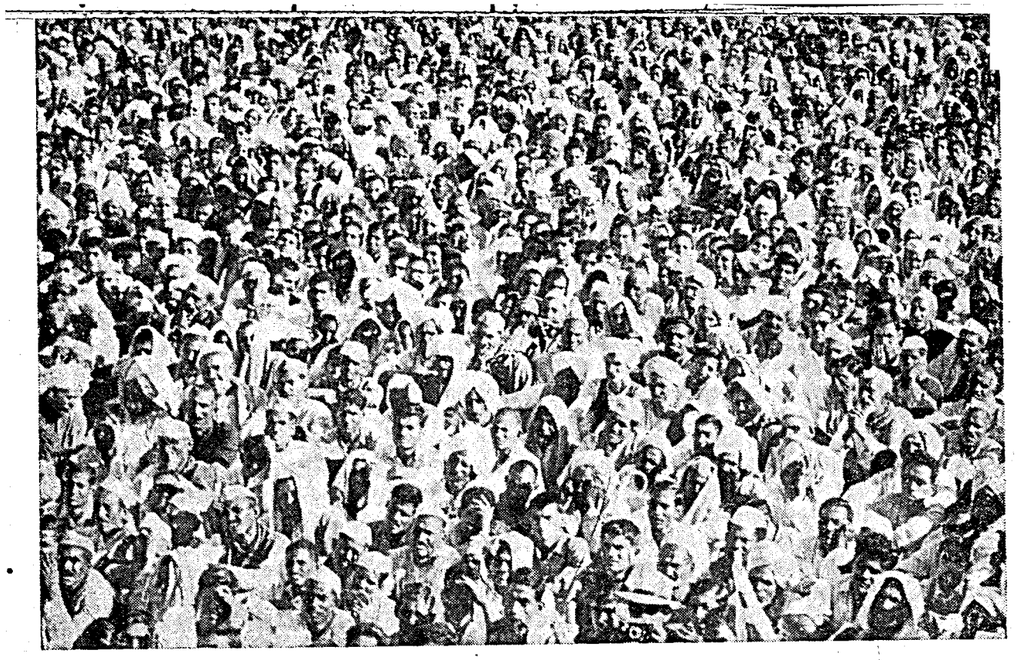


NEW training institutions will admit 16,000 students every year. MINOR irrigation will bring 70 lakh more acres under crops. PLAN provides for additional output of 19,000 megawatts of electric power.

AMONG India's constituent States Uttar Pradesh has some well known superlatives to its credit; it is the biggest and the most populous State and produces the largest quantity of food grains and potatoes in the country. It accounts for about 40 per cent of the total sugarcane production and ranks second in the production of oilseeds. In contrast to this, Uttar Pradesh is much behind smaller sister States like Punjab, Bengal, Bihar and Maharashtra in industrialisation. One important reason for this is the utter lack of known resources of mineral wealth such as coal or iron. Even agriculture in Uttar Pradesh has been relatively stagnant, although 78 per cent of its population lives in the countryside, and over 75 per cent of the State's working population is engaged in the pursuit of agriculture. The urban population of the State, distributed over 275 towns, stood at nearly 95 lakh in 1961 which is 12.85 per cent of the total population of the State while the average of urban to the total population of India was 18 per cent. Uttar Pradesh's 7.4 crore people are multiplying at the rate of nearly 2 per cent per annum so that by 1971 their total number is expected to be somewhere around 9 crore.



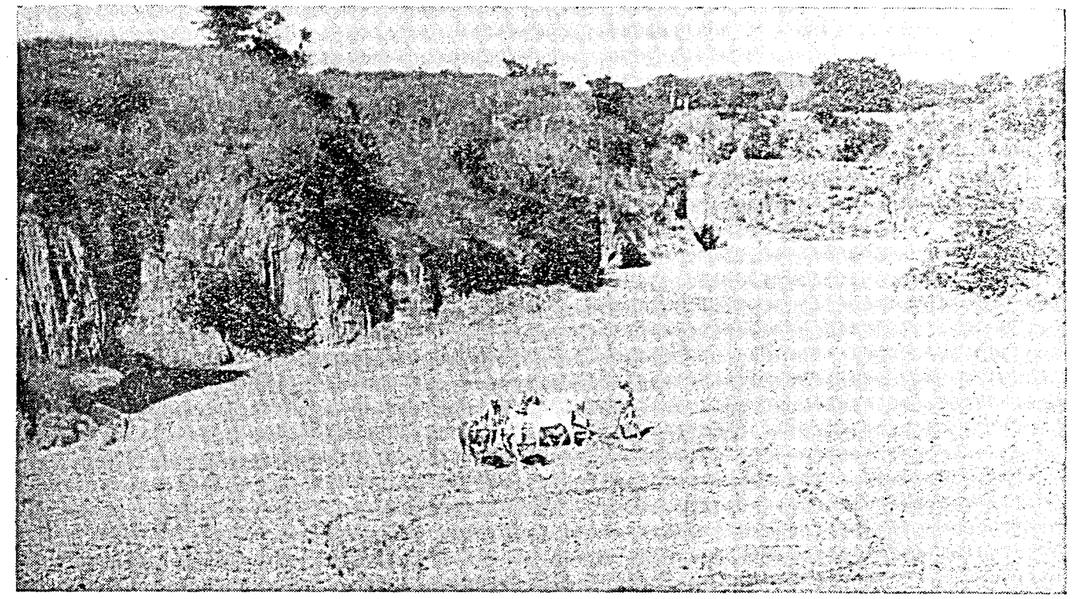
It is against this background of the State's economy with its heavy dependence on agriculture that the Fourth Plan has been drawn up. Obviously the plan's emphasis is on the expansion of agricultural production and an accelerated growth in industrialisation. The current rising trend in prices has further focused attention on development programmes which can yield quick results—particularly in the production of agricultural and consumer commodities. What the Government proposes to do during the Fourth Plan period has not yet been finalised in all its details; only the framework has been prepared. But what is significant, however, even in this preliminary stage, is the order of priorities which the State Government proposes to accord to its several programmes of development. Broadly speaking, the subjects which will receive priority of attention are those that concern speedier outputs in the fields of agriculture and industry, stepping up investment in economic overheads like minor irrigation works, power, communications and technical training facilities. Family planning, too, finds an important place in this scheme of things. A stage has come





FOOD AND JOBS FOR 1.6 CRORE MORE IN FOURTH PLAN

WASTE LANDS TO BE RECLAIMED; MORE IRRIGATION FACILITIES



now when problems of economic development in U.P. demand a far more imaginative and bolder approach than was possible under the earlier five year plans. The Fourth Plan has to pave the way for self-generating growth of the State's economy.

OUTLAYS

The tentative outline of the Fourth Plan envisages an investment of about Rs 2,200 crore made up of about Rs 1,000 crore in the public sector, Rs 650 to Rs 700 crore in the private sector, besides another Rs 550 to Rs 600 crore to be spent by the Union Government on projects to be sponsored by it. This investment would account for only 10 per cent of the total investment of Rs 21,500 crore proposed for the whole country during the plan period. When we take the total of investment in the country's private sector, U.P.'s share would amount to only 1/10th of it, while in the Central sector, the State's share would be about eight per cent.

Agriculture

The highest priority is being given to agricultural programmes which, together with programmes of Community Development, Co-operation, Panchayati Raj, Irrigation and Flood Control etc. account for as much as Rs 555 crore. This outlay includes also investments on minor irrigation projects on which the State Government proposes to spend about Rs 275 crore.

It is the objective of the State plan to step up production of food grains from 152 lakh tons (estimate for 1965-66) to about 200 lakh tons by 1970-71. The Government anticipates an increase in the area under irrigation by about 82 lakh acres—12 lakh acres through major and medium irrigation works and about 70 lakh acres through minor irrigation works. The use of fertilisers is expected to go up to 12 lakh tons of nitrogenous fertiliser (ammonium sulphate) and five lakh tons of phosphatic fertiliser (superphosphate).

The plan outline also provides for sizable programmes for green manuring, rural composts and double cropping. It is proposed to take up an additional area of 22 lakh acres during 1966-71 under the soil conservation programme.

Power

In the scheme of priorities provisionally fixed, next to agriculture comes power on which the State Government proposes to invest almost Rs 450 crore. By the end of the Third Plan, the installed power capacity in public undertakings is expected to reach about 1,100 megawatts. The stage is now set for a really striking expansion of power output in the State in the Fourth Plan period. The aim is to increase power output by about 1,900 megawatts. Additional requirements of power in the industrial sector alone is estimated to total 1,400 megawatts. A major objective of the power programme is to bring

(*Continued on Page 22*)

Books

Education & Research in China

Education in China by K.E. Priestley. 79 pages. Rs. 2; Literature in China by Y.H. Su. 101 pages. Rs. 2; China's Urban Communes by Henry J. Lethbridge. 74 pages; The Invisible Conflict by U.T. Hsu. 191 pages. Rs. 2.50; Moslem Unrest in China. 68 pages. Re. 1. All published by Eurasia Publishing House, New Delhi.

J. P. Chaturvedi

THESE five books are reprints of Hong Kong Publications. *Education in China* and *China's Urban Communes* have been written by British professors stationed in Hong Kong. *Literature in China* and *The Invisible Conflict* are works of Chinese writers now settled there. *Moslem Unrest in China* is an anonymous publication, although very ably written. They are to be welcomed because they enable us in India to understand the political and social developments in China.

The writers do not basically agree with the Chinese communism, but the books on education and literature have still been written with academic objectivity. They enable us to realise how education has been geared to productive labour and educational institutions have become productive units. According to Mr Priestley, the curriculum of half-work half-study is a distinctive mark of modern Chinese educational development. He is not wholly disapproving of this unorthodoxy, for he asserts that the peculiarity of Chinese education is "an intimate reflection of Chinese peculiar history." The main purpose of the system of course is to make the students complete communists. The Ministry of Higher Education has been abolished and its place has been taken by Communist Party ideologists. The result has been a singular deterioration in academic standards. Mr Priestley confesses: "Faced with stresses in economy the Party's reaction has been to dilute academics in favour of ideological study and physical labour." In January 1960 there were 840 universities in China and 8,10,000 students in institutions of higher learning. The curriculum stressed productive labour. Students in the colleges of science, foreign languages and literature in Peking University, for example, were required to spend two months a year doing labour, and students in other arts courses were expected to spend three months. And what of the regular academic work itself? Listen to a report of Peking University: "During the year more than 6,400 scientific research works were written. Compared with the past eight years, the increase was 6.4 times. Scientific research was no longer carried out by a small number of people but by the masses. Over 90 per cent of the teachers and students took part in scientific research work. The most universally studied problems were the theoretical and practical problems posed by the universal establishment of people's communes."

Mr. Priestley has done a fine job in systemstically informing of and analysing the main currents of Chinese education.

Mr. Su's book on literature gives a clear account of the ill-fated slogan "Let a hundred flowers bloom, let a hundred schools of thought contend." Many Chinese took the slogan literally and wanted to express their independent views. Within a month the Communist Party started action against so-called Rightists. The reaction of some scholars was quietly to do research and critical studies in classical literature—so as to avoid all occasions to 'go wrong'. The book gives succinct histories of famous writers like Hu Feng, Ting Ling and others.

China's Urban Communes gives a very vivid description of two communes, Yangchuan and Chengcho. *The Invisible Conflict* is a story of Communist underground tactics and the battle between the Kuomintang and the Communists from 1930 to 1944. Its author, Mr. Hsu, was chief of the Security Department of Marshal Chiang Kai-Shek's Kuomintang Central Headquarters from 1930 to 1941 and is in a position to say many things although for that very reason his version might be exaggerated and one-sided.

Moslem Unrest in China gives us in a nutshell the story of how one crore of Chinese Muslims are being systematically exterminated and predominantly Muslim area is being filled up with Han Chinese. Although the minority regions have only one-sixteenth of the population of China, they are spread over 60 per cent of the land area of China. These regions have been the borderland of China for centuries, and it has been an age-old policy of China to fill them up with Han emigrants and "absorb" the Muslims. The process of exterminating Turks is nothing new in China. Kalmuks were exterminated and so were Tanguts. The Huns, Mongols and Manchu Tartars were amalgamated into the Chinese complex. We hear these days of reports of revolt in Sinkiang. *Moslem Unrest in China* gives vivid description of how the unrest started with the plans of Chinese emigration to Sinkiang. Sinkiang has atomic installations, big uranium deposits and a desert to try atomic explosions. It provides oil to China. But the Uighurs of Sinkiang have always blocked Chinese expansion to the West. What is happening in Sinkiang today is a repetition of past history. China on the one hand is trying to secure friendship of Pakistan and other Muslim countries like Indonesia, Iraq, Yemen and Algeria. On the other hand it is trying to see that its Muslim community is completely converted to Chinese communism so that after some period there may be no traces left of the past history. Even the Uighur language has been given the Roman script so that the new generation may be completely cut off from the old literature. *Moslem Unrest in China* is a useful publication, and helps us to understand the struggle of ten million Muslims of China.

Distribution of Industries

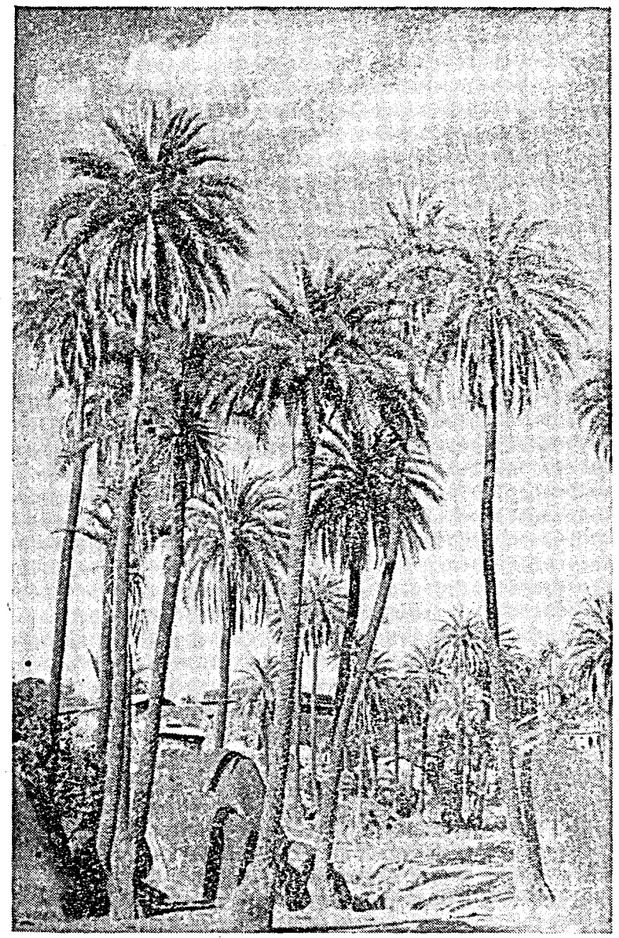
Study in Regional Differences in Industrial Pattern: The National Council of Applied Economic Research, New Delhi. 76 pages. Rs 4.50.

M.K.R.

AN occasional paper prepared by the National Council of Applied Economic Research, this study deals with the distribution of industries in 1960. It explains regional disparities by reference to capital employed and the natural advantages. The study's conclusions from available statistics make it plain that establishments of varying sizes and age have labour forces of differing magnitude. The employment aspect rests on the business tradition. And backwardness in Andhra Pradesh and Kerala can always be set down to the lack of an entrepreneur class that is ready to take a long range view. The progress of industry in Madras with some major firms incorporated with foreign aid calls for mention as a result of the change in economic climate during the Second Plan.

In a sense, the study measures the effects of nine years of planning. And if it is plain that oil refineries are possible only at the main ports, the headway made by the South in respect of sugar is not so obvious. In Orissa backwardness has been broken by the influx of capital from outside for cement manufacture and mineral development. The study reveals the predominance of textiles and the relative immaturity of heavy industry even in 1960. It is made clear that progress so far is uneven and the backward regions are still pleading for more attention by reference to needs more than deserts.

THE WILD TREE



That Yields Nectar

It takes and expects nothing from man; it gives of its best

By DINA NATH DUBE

SUGAR has of late become a scarce commodity in our domestic market, and though India is one of the important sugar producers in the world, there is not enough to go round after meeting our export commitments, which are none too high. Why do we not produce sugar enough to meet the country's needs?

A Good Alternative Source

We in India get all our supply of sugar from sugarcane. Year after year more and more acres of land, particularly in the irrigated areas are being diverted to the cultivation of sugarcane from food grains because sugarcane yields higher profits to the cultivator. This tendency to divert lands from food crops to cash crops is ultimately bound to affect production of food grains and defeat our objective of national self-sufficiency in farm output. Under these circumstances, is it not necessary to find an alternative source of sugar so that we can halt the tendency for food-producing lands to come more and more under sugarcane cultivation?

In our country, the potentialities of the palm tree as a source of sugar have not been fully exploited. The extraction of sugar from palms is yet in its primitive stage of development. Making sugar and *gur* from palm juice has been a traditional industry in our countryside. In the seventeenth century there was considerable demand for Indian palm products in foreign countries. A palm sugar factory is known to have been installed by an Englishman named Blake in 1837 in the Burdwan district. Following the successful working of this factory, four more factories were set up in Bengal and Madras, and by 1911 the production of palm sugar went up to three lakh tons. With the development of indigenous cane-sugar industry in India and increasing imports of cheap sugar, our palm sugar industry declined rapidly. It was not in the interests of the colonial government to encourage its growth.

In recent times, it was Mahatma Gandhi who first focused public attention on the economic potentialities of the palm and he succeeded in giving it an important place in his scheme of rural development. The All India Village Industries Association brought the manufacture of palm gur under the purview of its activities and gave wide publicity to its potentialities as a cottage industry. In 1947, a programme of development for the palm sugar industry was undertaken by the Food and Agriculture Ministry. Later the programme, in an expanded form, was taken up for implementation by the Khadi and Village Industries Commission and it is still being handled by this Commission.

Dr J.C. Kumarappa who had worked like a missionary in the cause of village industries had observed, in his characteristically picturesque language, that millions of palm trees in India, from Himachal to Cape Comorin, cry out plaintively, "We are storing up an *amrit kalash* (pot of nectar); you are welcome to it." We all know that palm trees grow wild, with absolutely no effort on our part to cultivative them. They can yield, depending on our choice, health-destroying toddy or health-giving sugar. The sugar they yield is of very good quality, with far greater nutritional value than any other kind of sugar. The table below gives the relative nutritional properties of the various kinds of sugar that India produces.

	Protein, sucrose, glucose	Calcium	Phosph.
Cane sugar	0.62	—	—
Cane *gur*	1.00	—	—
Palm *gur*	3.15	0.861	0.052
Date palm *gur*	2.60	0.363	0.052

India now produces about eight lakh quintals of palm *gur* as against 35 lakh tonnes of cane *gur*, and 1,324 quintals of palm sugar as against 25 lakh tonnes of cane sugar.

Yields Wealth Without Investment

The Agrarian Reforms Committee of the Congress Party has observed: "If we are to make *gur* from sugarcane we shall have to place thousands of acres of highly fertile and irrigated lands under sugarcane." About 40 lakh acres of land suitable for raising food grains is under sugarcane cultivation. Of this land about 50 per cent is irrigated. Dieticians say that the present per capita consumption of *gur* and sugar, which is 12-13 kilograms a year, ought to be increased to 20 kilograms. If we are to raise per capita consumption to this level, we shall have to bring an additional 30 lakh acres of land under sugarcane. Can we afford to do this? We need not have to think for an answer. The date and other palms growing wild in India are estimated to number about 8 crore, and their number can easily be raised without the need for irrigation or fertilisers because this plant can flourish only in arid areas where nothing else that is edible can grow. Like cactii or Lantana palms will not encroach on fertile lands if allowed to grow wild. They are extremely considerate to man. We could be far more imaginative than we are now in exploiting their potential wealth. It is not as though we need to experiment now on this. The manufacture of palm *gur* is already an industry in many villages.

In 1963-64 several village industries based on the palm yielded products of the total value of Rs.7.74 crore, and provided employment to 3.54 lakh persons. But this is far from encouraging. If all the eight crore palm trees in the country were to be utilised for the manufacture of *gur*, we would be having 15 lakh tonnes of *gur* from this source alone. As against this, we are producing only 75,000 tonnes. A full utilisation of this source of industry and wealth could provide employment to 25 lakh persons and release 10 lakh acres of fertile land under sugarcane for cereals which we need so badly.

QUOTATION BOX

On Wednesday, Dr V.K.R.V. Rao asked: What is yours? and, with three others, expertly whipped up a cocktail of contraceptives, intra-uterine devices and sterilisation, all for family planning.

—Vigilante in "The Statesman"

Many came hoping to see Kama Sutra enacted on the silver screen but were invariably disappointed though hope kept springing eternal in the breast.

—From an editorial in "The Hindustan Times" on the Film Festival

Kamaraj attends every wedding, even uninvited, and sits like a child in an obscure corner, left to his private thoughts and sorrows. What does Kamaraj know about marriage?

—Mr A.S. Raman in "The Illustrated Weekly of India"

Avoidance of waste and economy are basic in our people and our standards are fairly high.

—Mr Manubhai Shah

One thing which I am really sorry to have missed is walking to France on the sea bottom, which incidentally would have involved some interesting physiological research before.....

I have tried morphine, heroin and bhang and ganja (hemp prepared for eating and smoking). The alterations of my consciousness due to these drugs were trivial compared with those produced in the course of my work.

J.B.S. Haldane

Hindi was India's national language even at the time of saints and great men like Ramdas, Namdev, Dayanand, Tilak, Gandhiji and Tagore.

—Mr Bhagirath Mishra, of the department of Hindi in Poona University

A couple of million years ago, when man crossed from the sub-human to the human order in this continent, he wandered in search of a house here and there and settled finally in Punjab.

—Mr Kishore Kumar Saxena in "The Sunday Standard"

Think of the hundreds of crores of rupees which are spent annually in the name of agricultural development. Is it the fault of the Government or of the people that so many individuals at so many levels have sticky fingers, which the cash simply refuses to trickle through?

—ABC in "The Economic Weekly"

Films meant "for adults only" are not to be shown to Members of Parliament in the special preview arranged here. One official explained: "You know, these movies have too much of sex, and they may evoke all kinds of questions."

—News report

Agriculture, animal husbandry, social education, industry, these are the sinews of India, but the men and women who tend them get less than receptionists in the metropolis.

—Mr Chanchal Sarkar in "The Hindustan Times"

Industry and Planned Marketing

Better Distribution Methods, a Major Problem in Emergency

T.A.A. LATIF

IN our recent plan discussions we do not seem to have given sufficient importance to the problem of marketing. It is possible that this attitude is derived from a wrong notion that the problem of marketing arises only when economy suffers from over production.

The requirements of defence and the problems of development have necessitated a new approach to industrial and business management. One good thing that the present Emergency has done is to expand the conventional concept of marketing to emphasise the importance of the distribution of goods and services. Theoretically, marketing implies conforming to the standards and specifications of the buyer, and avoiding delay in the movement of goods, which is the same as good warehousing and transport. In a national emergency, marketing should result in the avoidance of waste and delay and cutting down of distribution costs

Though marketing and defence problems do not always go together, the needs of an economy geared to the purpose of defence mobilisation have given to marketing a new emphasis. The old concept of marketing as "the job that ensures the flow of the right goods at the right time to the right places and in the right volume" becomes significant in the present context.

The current requirements of national emergency have meant for the businessman a ready market which amounts to production against orders.

In our current discussions on economic and industrial development, we continue to concentrate on problems of finance and of raw materials, and marketing problems come in only incidentally. So far as our industries, big and small, are concerned we do not seem to have an organised marketing policy; we seem to be satisfied with a development policy. This will be most injurious for a country which is planning for long-term economic growth.

If our industries have grown during the last 15 years or so, it is because of the special efforts made by the Government for their development. If our industries are to develop further, both in terms of internal marketing and international marketing, the Government has to match its development programmes with corresponding marketing programmes. While the marketing of consumer goods is being effectively handled by private industry, industrial marketing is a field where Government action, initiative and help are required.

Small industries have to compete with the stronger, better organised and more resourceful larger units. Marketing therefore is much more important for them. The need for small industries to develop is much greater and more immediate, and no industry can expand unless its sales go up. Our industrialists have to be not only licence-profit-and-quota conscious but also more consumer conscious. Industrialists have to be encouraged to look beyond the immediate present, out into the large expanding markets within the country and overseas.

Marketing, it would appear, does not lie very much in the sensitive area. Problems of finance and raw materials continue to dominate other problems. No particular industry presents any major problem in regard to its marketing but what we need is the use of planned marketing programme if small industry is to grow into medium and large units. The formation of marketing companies either on a co-operative basis or on government initiative to provide specialised marketing assistance to small industries will be a major help. One of the immediate needs of small industry is the establishment of smaller marketing companies which will relieve the small manufacturer of a good deal of his burden. He cannot go to the big marketing companies.

Industrial marketing in India is assuming a new importance. The Emergency has no doubt given it a new edge in the sense that there is an urgency for the production of certain goods and that has made industry subject itself to a quick and purposive reorganisation. Not only has the Emergency made industry conscious of its own crucial importance in the economy but the momentum of development that it has generated is also going to mean increased production in the coming years. Once we give to industry a more-than-normal growth impetus, it has to be sustained by a sound marketing strategy. We have to prepare ourselves for that.

New Administrative Set-up

The Emergency has also emphasised that the change required in our attitude to marketing programmes is more psychological than physical; if this is to be effective, only Government can initiate the movement. It may not be necessary to bring into existence an elaborate official machinery immediately to tackle marketing problems but some sort of organisational measures corresponding perhaps to the machinery for agricultural marketing is a necessity.

At the moment, it seems the industries officers pay no particular attention to the marketing aspects of industries. They confine themselves largely to administrative and development aspects of their work. A directorate of industrial marketing with an adviser assisted by district industrial marketing officers could certainly give to industrial units, particularly the small ones, a new spurt in their development programmes. Further, we have

also to see that all new units are allowed to go ahead only with a specific marketing plan and with an eye on exports. The formation of industrial marketing cooperatives and marketing companies can considerably economise the marketing costs of individual firms. Specific incentives for better marketing and facilities for the small industrialists will be major steps for industrial efficiency.

The approach of the small industrialist to marketing has to be broadened. If small industries are to play a more important role in the economy, we have to provide marketing help considerably beyond the government's purchasing programmes. We provide a lot of technical know-how and new management skills; we don't provide any corresponding marketing skills to improve their prospects. Intensive marketing assistance programmes to supplement the existing marketing aids both at the Centre and in the States are necessary.

Role of Advertising

In the context of the Emergency, no mobilisation of the economy is possible without a well organised control over industrial marketing.

We should also disabuse our minds of the idea that marketing concepts are appropriate only for affluent economies. We continue to think that marketing and marketing aids are necessary only in the field of consumer goods. A little thoughtful advertising and public relations can contribute much in making an industry, however small, to function in an atmosphere conducive to its growth. Advertising and publicity can be an effective means of directing the policy and programmes in the Emergency. Its application to the requirements of industry and business could greatly influence our industrial scene for the better.

Industry by itself does not provide the solution for the needs of Emergency. During the inter-war years following contraction in world trade, British industry faced the most severe period of trial because of the loss of foreign markets. This is something we can drive a lesson from. Good marketing should sustain industry both in good and bad times. It is towards that end that we should increasingly direct our development programmes. ●

U.P.'S FOURTH PLAN

(*from Page 17*)

electricity to over 16,000 localities in the State where intensive irrigation and industrial development programmes are proposed to be taken up.

Communications

The tentative plan proposals have set aside 5.4 per cent of total plan spending or Rs 75 crore for development of communications. This is expected to add 3,350 miles of metalled roads, increasing the total mileage from 16,600 (in 1966) to 19,950 by 1970-71.

Social Services

The plan frame has accorded high priority to the expansion of social services by setting apart 18 per cent of the total outlay for this purpose. This includes programmes of technical education, training for craftsmen, family planning and primary education. A substantial part of this expenditure will be devoted to the training of technical personnel. Three new engineering colleges and five additional institutions offering diploma courses in engineering will be established, each of the degree colleges having an ultimate intake capacity of 360 students and the diploma institutions 300 each. In addition, the capacity of the existing degree and diploma institutions will be increased. Under the craftsman training programmes, the Government proposes to establish 21 new industrial training centres and at the same time increase the intake capacity of the existing institutions by 16,000 by 1970-71.

The shortage of doctors in U.P. is acute and the plan has tentatively provided for the establishment of four new medical colleges. The benefits from the new engineering and medical colleges can be felt only by the end of the Fourth Plan.

Industries

The Planning and Research Division of the State Directorate of Industries has drawn up a programme for an investment of almost Rs 750 crore on industries. This would include Rs 300 crore which the Union Government is expected to invest, and an investment of about Rs 350 crore from industrialists. The balance of about Rs 100 crore would be met from the sectoral outlays in the State Plan. The industrial programme in the State sector would largely concentrate on strengthening the existing institutions like the U.P. State Industrial Corporation and providing assistance and incentives for investment in the private sector.

The plan programmes envisaged are largely of a promotional nature and are aimed at expanding the small enterprises run on modern scientific lines. By and large, the State Government's own efforts would have to be confined to providing the necessary infra-structure for the industrialisation of the State in the shape of land, power, water supply, skilled personnel, etc. together with incentives for private entrepreneurs.

The State Government proposes to set up one or two cement factories in the public sector, and is seriously considering the possibility of establishing certain consumer's goods industries as recommended by the National Development Council.

It is obvious that industrial projects to be started by the Central Government in the State would have a salutary effect on the economy of several districts which are as yet very backward. The absence of important mineral deposits like iron, coal, oil etc. is a great handicap to Uttar Pradesh but what it lacks in this field, it proposes to make good by building up other industries like fertiliser and pesticides, machine building and engineering, intermediate and consumer goods.

The types of major industrial projects that may be set up in U.P. by the Centre are metallurgical, chemical and other allied industries, pulp and paper, ceramics, transport equipment, electrical equipment, industrial machinery and telephones. Experts are busy preparing feasibility reports on some of these projects and these will eventually be incorporated in the plan in some form.

Alternative PLAN FRAMES

P. SRINIVASAN

Quantitative study of objectives and instruments is necessary for an internal consistency of the Plan

In his comments on the Fourth Plan Memorandum (*Yojana December 6, 1964*), Professor T. N. Srinivasan has pointed out that the Planning Commission ought to have presented a set of alternatives instead of a single plan frame to the National Development Council. Only then, according to him, the N.D.C. would know the kind of political decisions that would be necessary for implementing the plan. The relevant question to consider is whether it is not too much to expect the members of a body like the N.D.C. to choose one pattern from many alternatives posed before them, say, in the course of a two-day deliberation. Besides, it is the legitimate responsibility of an expert body like the Planning Commission to explore and exhaust the various alternatives along with their political implications and then recommend a particular plan frame for the final approval of the N.D.C. What is really important is that, since planning is an open process in India, the people should know that the Planning Commission had considered a variety of alternatives before finalising a specific frame for submission to the N.D.C.

As it is, the procedure in the Planning Commission seems to be as follows. Before formulating the plan frame, an aggregative model (not in a rigorous technical sense) in terms of income, investment etc. is worked out on a certain price level and then a plan frame is built up for consideration by the N.D.C. as well as the public. At the time of formulation of the Second Plan, three different frames were presented to the Planning Commission—one by the Panel of Economists, the second by Professor Mahalanobis, and the third by certain Divisions of the Government of India. No such frames seem to have been presented either by the Panel or any expert to the Planning Commission and the public at the time of formulation of the Third Plan. At any rate, these are not the kind of alternatives that are likely to help an efficient allocation of our scarce resources. The above mentioned frames are more or less based on qualitative judgements rather than quantitative analyses.

In Tinbergen sense, quantitative approach to economic policy assumes an indication of the relevant instruments and their quantitative significance for the objectives in question. "In this frame of thought, economic policy results from the inter-play between, on the one hand, a collective preference function expressing the desired relationships between the objectives, and, on the other hand, the possible relationships between the objectives formally determined by the working of the instruments". This approach involves formal application of programming techniques and econometric analyses before an optimum programme of economic policy in terms of a plan could be formulated. Only on the basis of quantitative study of relationships of objectives and instruments can we speak of "an internal consistency" of a plan frame or a model. So it is clear that the alternatives needed for the formulation of a plan should be based on scientific and empirical work rather than on normative judgements. In the absence of such quantitative approach, it would be difficult for specialists to judge the soundness and even the rationale of a plan.

In the following paragraphs, an attempt is made to set out a procedure for formulating alternative plan frames. The suggestion is made in broad terms for its usefulness and even its feasibility can become clear only after a careful consideration of the relevant statistical problems. The proposal relates to the forecasting of price levels which should underlie the alternative plan frames.

Before we construct models, we should carefully work out the probabilistic increases in price levels that are likely to occur in the economy as a whole in the coming five years as a result of present and future investments. To be more explicit, it is possible to anticipate a maximum and a minimum of increases and then fix a range in aggregate terms. In between the maximum and the minimum, we have a series of price levels which we can rank according to the probabilities assigned to them.

The price level for the total economy takes into account the price levels that might occur in the different sectors as a result of investments. In fact, we calculate the supply responses from the sectors like agriculture, industry etc. to anticipated price levels and then determine the investment magnitudes for them. To look at this in the reverse direction, the supply responses and investments based on them reflect the demand requirements of the economy during the Fourth Plan period. Allowance has to be made for uncertain and unforeseen situations (like shortfalls in agriculture, industry, estimated foreign aid, world situation, etc.) that might develop during the period. Thus we see that the price level envisaged at the macro-level involves price calculations at the micro-level for different sectors of the economy. Then the forecasts of price levels for the economy become meaningful and purposeful.

After having done all this, we build, say, four models based on four price levels. The four models would spell out clearly the relevant magnitudes in macro-economic terms on four different price calculations with probabilities attached to them. The next step is to construct more detailed frames based on these macro-models. Thereafter, we choose the frame based on a price level with the highest probability after carefully considering the political decisions such as taxation, foreign aid, price and distribution policies that are

necessary for implementing it. At this stage, it should be possible for the Planning Commission to choose the best and the most feasible plan frame and recommend it to the N.D.C. The Planning Commission should also give the N.D.C. some idea of the alternative patterns it had examined and the grounds on which it had based its final choice. Then the task of the N.D.C. would become a little 'more onerous in that the choice of a frame would have to be made after a clear and complete realization of the needs of the economy and the implications of the policies required for implementing it.

What has been proposed above should be treated as a brief outline rather than an analysis of the problem. There is no doubt that this approach would involve a lot of detailed calculations and studies relating to the different sectors of the economy. But if our forecasts have to be reliable, there seems to be no alternative to this.

If this design is accepted as a feasible one, the advantages mentioned below seem to follow. Adjustments in plan approximations may become easier and the policy instruments may become more flexible. Undue fluctuations in price levels may be avoided before its harmful effects are felt by the economy. Not only can we dovetail annual plans within the quinquennial plans but five year plans can be viewed against perspective plans. Long-range as well as short-range projections are likely to be based on safer empirical foundations than at present. This would enable the planners to arrive at reliable approximations for alternative frames, given the social welfare function. The net result is an optimum economic programme for optimum utilisation of our resources with a view to maximising the collective interest.

Before concluding, another point deserves to be mentioned. Professor T.N. Srinivasan's suggestion that the Memorandum should give more details to check its internal consistency is very valid indeed. If there are to be fruitful debates and discussions on the plans, then an analytical part with technical appendices should be prepared along with the descriptive part of the Report. In other words, there is need for two Reports: one for students and scholars of Development Planning and Policy, and another for the general public. ●

Decision On LICENSING POLICY

Foreign collaborators will now find it easier to invest in India

ON the 15th of this month the Government of India took an important decision on industrial licensing policy which will have a beneficial influence on the flow of private capital into India from foreign countries. This decision modifies the earlier procedure under which letters of intent could be issued only to Indian parties seeking foreign collaboration. Foreign entrepreneurs had had to find Indian partners in the first instance under the old system, and the result had not been very encouraging. There were several instances when Indian collaborators had failed to utilise the licences granted to them, and as a consequence some important industrial projects could not be taken up at all as planned. The system was also defective from the point of view of the foreign investor because he had to find an Indian partner in the first place, his choice being limited to the party which had obtained the licence from the Government.

The new policy makes it possible for the letter of intent to be issued directly to the foreign investors so that they can seek Indian partners of their choice. This will also help foreign investors to seek subscriptions from the Indian public on a wider basis. However, actual licence to start the industry will be issued by the Government only after the foreign investor has found his Indian partner. According to another decision of the Government, if the foreign investor fails to find a satisfactory collaborator in India, industrial financing institutions, particularly the Industrial Development Bank, would find the rupee financiers for such an undertaking.

These decisions are expected to provide a new incentive to foreign capital for participation in India's industrial projects in the private sector. The Third Five Year Plan had envisaged, under the earlier system of licensing, a total inflow of Rs. 300 crore during the five year period; but the actual rate of investment has not been more than Rs. 30 crore a year. These modifications in the Government's industrial licensing policy do not in any way affect the Industrial Policy Resolution. Indian capital would continue to hold a majority share in any joint undertaking except in very rare and special cases.

EXTENSION STAFF

(*From Page 12*)

The rules of procedure and the norms of efficiency are being deliberately ignored. This is partly because of lack of experience and partly due to an attitude of excessive impatience and haste for development work on the part of the elected representatives. The greatest lacuna is the procedure adopted in budgeting. I found that some of the panchayat samitis had not been preparing and submitting to the zila parishad their budgets regularly.

Most of the problems discussed above have arisen out of the policy of merger. But this is not to suggest that this policy in itself is bad. It is perfectly in keeping with the needs of the times. It is, in fact, the manner of the implementation of policy that is defective. To make panchayati raj a success, it is essential, first, to release the executive officer from the hold of the S.D.O. and, second, to institute a panchayati raj service on the lines adopted in Rajasthan. All the officials from the Gram Sevak onwards to the secretary of zila parishad should be drawn from this service.

FOOD CORPORATION

G. S. KAMAT

AN important landmark in the Government's food policy was the setting up of the Food Corporation early this month. Parliament had already enacted legislation making this event possible.

The idea of an organisation of this kind was suggested by the Union Food Minister at a conference of Chief Ministers held in June last. Since then much discussion has centred on the subject and now there is better appreciation among the public of the need for such a Corporation if food prices are to be stabilised.

The Corporation, as it has been constituted, undertakes the purchase, storage, movement, transport, distribution and sale of foodgrains and other food-stuffs. It can set up, or can assist in setting up, rice mills and flour mills and undertake several other activities related to the processing of foodgrains and food-stuffs. The Act also provides for the setting up of Food Corporations at State levels. To begin with, the Corporation will start branches of its own in the four States of South India. It is also proposed to set up offices at each district headquarters so as to be in touch with the producers, traders and consumers. The State Governments, which are now procuring foodgrains, would continue to do so until the Corporation takes over the procurement and distribution work.

Organisation and Functions

The Corporation is a statutory body. Its capital of Rs. 100 crore is wholly contributed by the Government. The capital of the State Corporations would be Rs. 10 crore each. The Corporation is authorised to borrow money against stocks of foodgrains or other food-stuffs held by it, from any bank or financial institution approved by the Union Government for the purpose. The Government may guarantee the repayment of loans and advances taken by it.

The Corporation is also empowered to advance money to any farmer against foodgrains or any other security. It can enter into agreement with any cultivator for the purchase of foodgrains. Any financing agency specified in this behalf may lend money to a cultivator who is party to an agreement with the Corporation. The act also provides for guarantees, up to a period of 5 years, by the Corporation of loans taken by the producer.

The Central Corporation will be administered by a Board of Directors appointed by the Union Government. The Corporation may have an executive committee and sub-committees for such purposes as it may decide. The Board of Directors will act on business principles having regard to public interest and will be guided by instructions from the Union Government on questions of policy.

Scope for Operation

The head office of the Corporation has been located at Madras. The Corporation is the first organised attempt to take up State trading in foodgrains on an appreciable scale. It seeks to combine the virtues of free trade with those of State control on procurement and distribution. The Corporation has to function as a friend of the farmer as well as the guardian of the consumer by setting up a price stabilisation fund.

In the initial stages the Corporation will confine to procurement of rice and paddy in the southern States. It will try to build substantial buffer stocks which will act as a deterrent to price fluctuations. At a later stage the Corporation is also expected to handle the sale of imported foodgrains. The Food Corporation will also offer incentives for higher food production in various ways. For instance, it might set up model farms in every State for the benefit of farmers. The Mysore Government, it is learnt, intends to start such a farm on a plot of 30,000 acres in the Raichur district with assured irrigation from the Tungabhadra reservoir.

There is no intention whatever on the part of the Government to supplant private trade in foodgrains. If anything, the Corporation will supplement private trade. The business community, however, would have to operate within certain accepted principles of trade. The Corporation will work within the limits of prices to be fixed for the producers, wholesalers and retailers by a special committee for the present and eventually by the Agricultural Prices Commission.

Yojana Bhavan Diary

The Prime Minister presided over a meeting of the Planning Commission on January 18. Mr Gulzarilal Nanda, Minister for Home Affairs, Mr T.T. Krishnamachari, Minister of Finance and Mr C. Subramaniam, Minister for Food and Agriculture also attended.

The National Development Council sub-committees on agriculture and irrigation, industry, power and transport, resources, and social services met in the first week of January.

Mrs. Barbara Castle, British Minister for Overseas Development, met the members of the Planning Commission on January 15.

Mr D.P. Singh, Joint Secretary (Agriculture), Planning Commission, who led a five-member team to Jordan under the auspices of the United States Agency for International Development (USAID) to study the working of the East Ghor Irrigation Project has returned.

Mr John D. Rockefeller III of the Rockefeller Foundation met Mr Asoka Mehta, Deputy Chairman, and members of the Planning Commission on January 21.

RANCHI—BONDAMUNDA RAIL LINK

Opens a New Era of Progress to a Rich but Underdeveloped Region

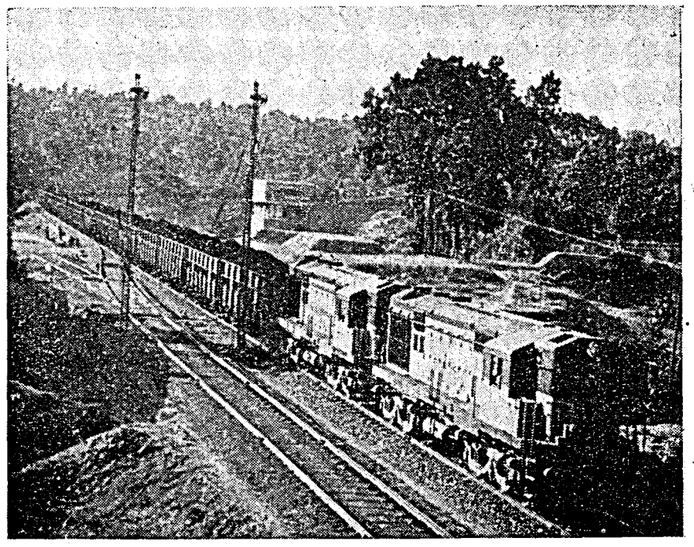
RIGHT across the high plateau of Ranchi, and passing through the wooded region of Chhotanagpur and Sundargarh with its turbulent streams, lies the 169-km long Hatia-Bondamunda line of the South Eastern Railway. As the first passenger train steamed out on December 27 last from Ranchi to Rourkela, the event not only marked the successful completion of the 299 - km - long Chandrapura - Muri-Ranchi-Hatia-Bondamunda rail link, but also ushered in a new era in the lives of lakhs of Adivasis of this area.

This new line, the construction of which was undertaken seven years ago at a cost of Rs. 27.54 crore, is destined to play a significant role in the industrial future of this country. The steel plants at Rourkela and Bhilai will draw their requirements of coal from the rich belts around Bokaro and Jharia through this new rail route which will carry about 6 million tons annually. The proposed plant at Maraphari near Bokaro will draw its iron ore requirements from Kiriburu area also through this route. The freight traffic, to start with, is likely to be about 3.9 million tons per year. The heavy engineering plant at Hatia would then be able to obtain steel ingots from Rourkela and coal from the Bokaro fields, thus ensuring a well-balanced two-way traffic between South Bihar and North Orissa.

Not long ago, the vast and picturesque Chhotanagpur plateau and, particularly, Ranchi, an important hill station, were accessible only by a narrow gauge rail from Muri. The survey for the new line, bringing Ranchi on the broad gauge map of Indian Railways, was completed in May 1957 and construction work started in November of that very year.

Progress of Work

The first phase of the project, the 71-km long Chandrapura-Muri section, built at a cost of Rs. 6.13 crore, was opened to goods traffic on November 10, 1959. In the second phase, the 65-km-long Muri-Ranchi section was opened to goods traffic on October 24, 1960 and to passenger traffic on December 22, 1960. On the same day the Chandrapura-Muri section was also opened to passenger traffic. The 7.62-km-long Ranchi-Hatia line was commissioned as a siding early last year.



Meanwhile, the other end of the link had also been taken up for construction and a 20. 59 km-long new line from Bondamunda to Nawagaon, with an 8-km extension to Purnapani for the movement of limestone, was opened to goods traffic in June 1962. When the 137-km-long Hatia-Nawagaon stretch was finally linked and opened to goods traffic early this year, the stage was set for a passenger train to forge a link between the two industrial nerve centres of Ranchi in Bihar and Rourkela in Orissa.

Over 2,200 Feet Above Sea Level

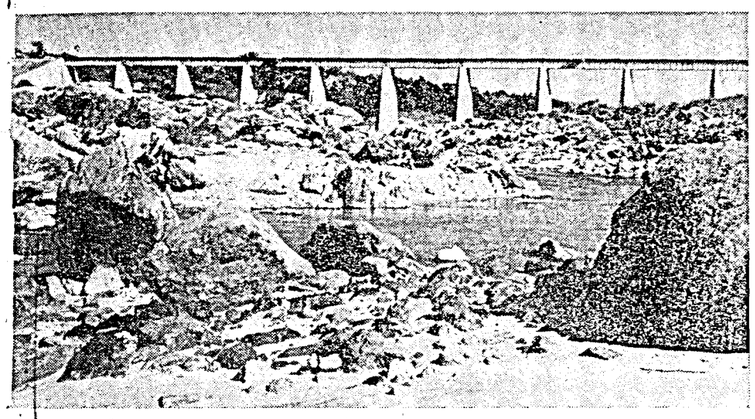
Meandering through dense forests and arid wastes, the line ascends to a height of 426.72 metres (1,400 ft.) on the Chhotanagpur plateau, intersecting on its way a number of turbulent streams. Starting near Hatia, a point south-west of Ranchi, the line cuts across the winding Subarnarekha for the second time, and zig-zagging through the Ranchi plateau, it reaches the 674-metre high summit at Lodhma. Then it descends to the Chhotanagpur plateau after crossing the rivers Karo and South Koel (a tributary of the Brahmani), and then continues across the river Deo to enter the Sundargarh district of Orissa before finally joining the South Eastern Railway's Howrah-Bombay main line at Bondamunda near the steel town of Rourkela.

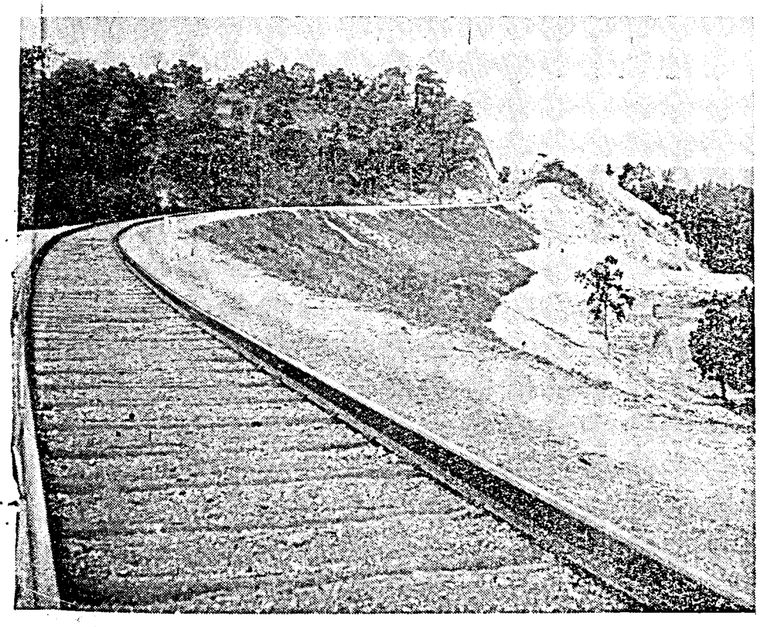
Gigantic Task

The construction of this track involved about 31 crore cubic feet of earth work and 6 crore cubic feet of rock cutting. Of the five longest bridges on the section, the one over the Subarnarekha has three spans of 60-ft. girders while the Karo bridge has nine spans of 60-ft. girders. The bridge over the Koel has seven 100 ft. and two 60-ft. girders. The first bridge across the Deo has five spans of 60-ft. while the second one has eight spans of 60-ft. girders.

There will be 22 railway stations between Ranchi and Rourkela of which 15 have so far been opened and the remaining seven will be completed soon. To serve the new industrial town at Hatia, a new station building with modern amenities is being built.

Apart from its industrial importance, the construction of the new line carries with it a deep social significance. Built in a hitherto remote and inaccessible area, the line will bring new life and opportunities to the tribal people inhabiting the region, bringing a new era of prosperity and the fulfilment of a dream.





Left: A coal train leaves Barbeta station on the new Hatia-Bondamunda line
Above: Bridge across the Koel river, which forms part of the project
Below: A view of the new track

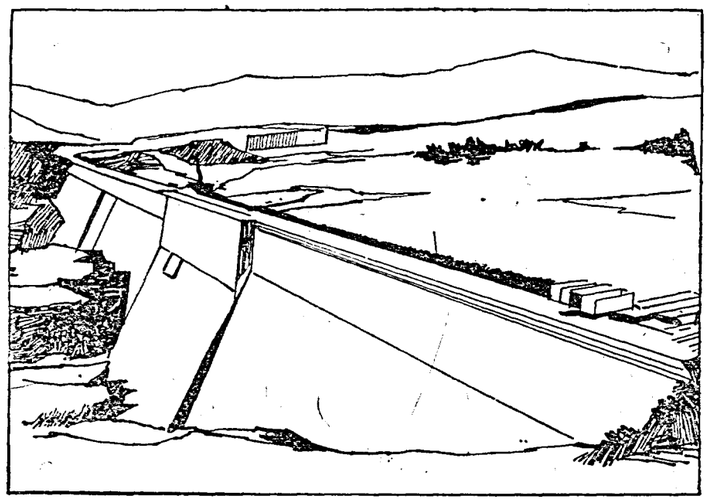
1964
RECORD EXPORTS

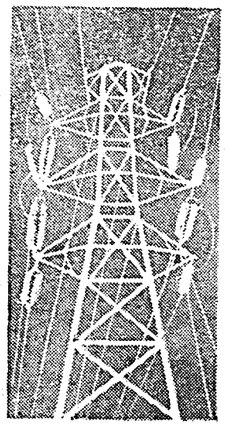
THE total exports of India in 1964 are estimated at Rs. 835 crore, an all-time high. They will be substantially larger by about Rs. 52 crore than the total exports in 1963 which stood at Rs. 783 crore.

The increase in export earnings occurred in spite of unfavourable factors like continuance of the ban on export of vegetable oils, reduced quota of sugar exports and fall in world prices of some of the major export commodities like sugar, jute goods, iron ore and essential oils like lemon grass oil and sandalwood oil. Almost all commodities have shown increases, both in quantity and in export earnings, to almost all the regions of the world.

There was a satisfactory rise in exports of a number of manufactured goods including engineering goods, chemical goods and plastics.

This is the third successive year for a marked upward trend in exports. In 1962 exports increased by Rs. 20 crore, in 1963 by Rs 87 crore and in 1964 by Rs 52 crore.





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DISCOVERY OF NEW OIL RESERVES

OIL has been struck at Navagam near Ankleshwar in Gujarat. The new reserves are estimated at 50 million tonnes.

Drillings in the Gulf of Cambay have indicated the existence of what is likely to be one of the country's best oil deposits. Drilling is also in progress in the Gulf of Mannar and the Kaveri delta.

By the end of the Third Five Year Plan, oil production in the country is expected to rise to six million tonnes a year. In the past two and a half years alone India has been able to save foreign exchange to the tune of Rs. 17 crore. When the full target of six million tonnes is reached, there will be an annual foreign exchange saving of Rs. 48 crore a year.

Dhuvaran Runs on Gas

THE first unit of the Dhuvaran thermal power station in Gujarat has been formally commissioned. It is the only thermal power station of its kind in India which can run on either natural gas or oil or coal.

The first unit, having a capacity of 63.5 MW, runs on gas brought from the Cambay gas field through a 24-km pipeline. All the four units will be in operation by April. The last two units of the project will initially operate on coal until oil is made available by the Koyali refinery.

U. S. Grant for Primary Education

The U.S.A. has released Rs. 20.8 crore from its P.L. 480 funds to aid expansion of primary education in India, particularly in the countryside. The money will be utilised for implementing various projects such as training of teachers, improving the teaching of science, production of text books, raising salaries of teachers, building 6,000 new schools in rural areas and providing midday meals for 2.4 lakh children.



SNIPPETS

THE interest on the savings bank accounts with the post offices amounted to Rs. 16.6 crore in 1963-64. The number of depositors exceeded one crore. The savings bank facilites were available at 42,500 post offices of which 34,000 were in the rural areas.

The Minerals and Metals Trading Corporation which came into being in October 1963 turned out a direct trade of Rs. 25.96 crore in the first six months. The indirect trade amounted to Rs. 5 crore.

The Union Government has constituted a Central Health Service... The Contributory Health Scheme has been extended to Government pensioners residing in Delhi.

Six modern rice mills are to be imported from West Germany to increase milling out-turn of rice from paddy.

A scheme has been prepared to provide part-time employment to beggar children to prevent them from begging.

A committee has been set up to study the present position of exports of tobacco products and recommend measures to increase the exports.

A medium wave transmitter has gone on air at Calicut (Kerala). This is the twenty-second transmitter put on medium wave service of Vividh Bharati of All India Radio.

New Inventions

Fifteen cash awards have been given for new inventions this year. The awards are given by the Inventions Production Board.

The National Development Corporation reported 33 new inventions in 1963-64, bringing the total of inventions to 681. It also negotiated 27 licences for the commercial development of various processes during the year. With the know-how made available by the Corporation, the country saved Rs. 1.82 crore in the year as against Rs. 1.3 crore in the previous year.

Help to Small Industries

The National Small Industries Corporation earned a net profit of Rs. 33.33 lakh in 1963-64, as against Rs. 14.38 lakh for 1962-63. The Corporation supplied machines worth Rs. 5.41 crore (Rs. 3.22 crore in the previous year) to the small industries under the hire-purchase scheme. It also secured orders amounting to Rs. 34 crore (Rs. 14.5 crore in 1962-63) for supplying small industries products to the Union Government and its agencies.

Milk for Children

A milk plant, with a capacity of 50,000 litres a day will soon be set up at Baroda. It will supply low-fat milk to school children. The milk will also be supplied on a subsidised basis to families earning less than Rs. 100 a month.

The plant, costing Rs. 11.5 lakh, will be donated by the UNICEF, and the required technical assistance will come from the FAO.

The project will be managed for the present by the Kaira District Co-operative Milk Producers' Union. A board of administration will be set up to take over this function.

New Cable Factory at Ernakulam

The cable factory near Ernakulam, recently set up in collaboration with Canada, has been formally commissioned. Although the initial investment is only Rs. 40 lakh, the factory will produce every year 360 lakh crore yards of VIR and PVC cables of all grades up to 1,100 volts, both in copper and aluminium, of a total value of Rs. one crore.

The United States of America has given a loan of 11.8 million dollars (Rs. 5.62 crore) to the Tata Engineering and Locomotive Company for the expansion of the production of truck chassis to 24,000 from 18,000 per year at the Jamshedpur factory.

Regd. No. D—876

YOJANA

FEBRUARY 14, 1965
NINTH YEAR 3
25 PAISE

PRIDE OF PLACE
109

KULU CAPS



Of late KULU tailors have started making caps

THE picturesque Kulu Valley in Punjab, popularly known as the 'Valley of Gods', is celebrated for its enchanting Himalayan landscape, colourful Dusserah festival, attractive shawls and delicious apples. To this list may be added the Kulu cap, which for generations has been, like the pugri of Maharashtra or the laced turban of Coorg, the unique headwear of the people of Himachal Pradesh.

Kulu caps are made of white woollen cloth. Unlike the pyramidal caps of Kashmir, the Kulu cap is flat, its upper portion resting firmly on the head.

Traditionally, it has been the woman's job in Kulu to make these caps. That is how most of them engage themselves in spare time, making of it a source of extra income. In recent years tailors have stepped into this business, but the demand for hand-made caps is still large. To begin with, they make a stiff band, usually of cloth, which provides the foundation for the cap. On the forehead portion of this band they superimpose a plain strip of black or red velvet which lends local colour to this headwear. Ideally suited for the local climate these Kulu caps are also cheap and all people, young and old, wear them. Like the shawls which Kulu produces, these caps too are popular tourist souvenirs.

CEMENT CORPORATION

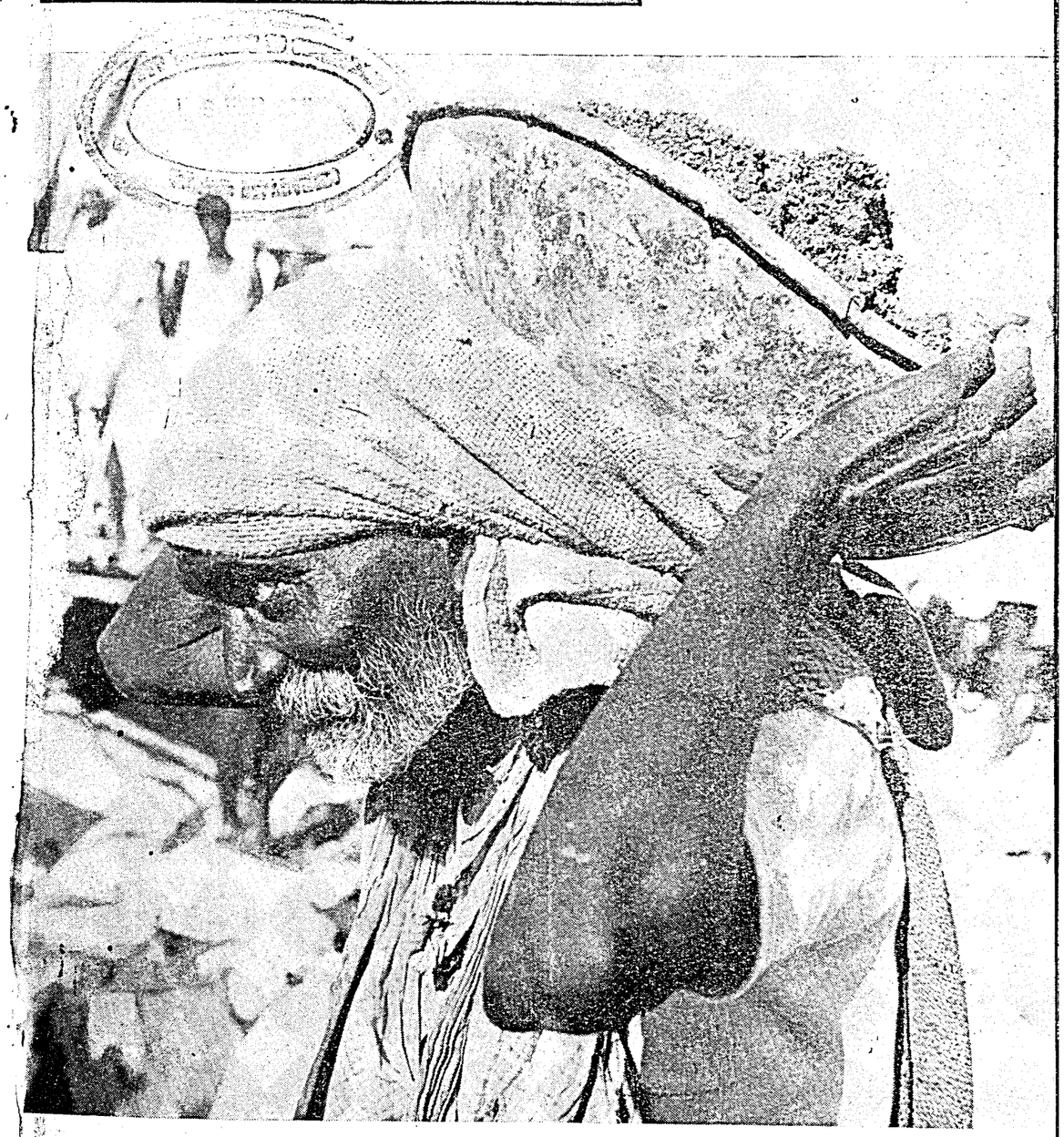
YET another public sector Corporation came into being on January 18, when the Cement Corporation of India was registered as a private limited company. This is a major step to promote the growth of cement industry in India. This is also the first time that the State has entered a major consumer goods industry. The Corporation, which is fully owned by the Government, will become one of the largest public sector concerns.

The demand for cement in India is likely to grow to 2.5 crore tons by the end of the Fourth Plan, from the present level of 1.1 crore tons. There are about thirtyfive factories in India which produce about one crore tons of cement and this will increase steadily with an expansion in the capacity of existing units. But new factories have to be erected if total production has to increase to meet the growing demand for cement on account of construction of dams, bridges, roads, houses, schools, hospitals and the like. According to the mid-term appraisal of the Third Plan, the target of 1.3 crore tons by 1966 is unlikely to be achieved, and one reason may be that the gap between supply and demand is already affecting project schedules. With the still greater tempo of construction envisaged in the Fourth Plan period the gap will grow wider unless new production capacity is created.

One difficulty in the creation of new capacity is the absence of accurate information on the reserves of limestone, the basic raw material of cement manufacture. The Corporation will address itself to the task of intensive prospecting and proving of limestone deposits.

The known deposits of limestone are estimated at five hundred crore tons, enough to meet the country's needs for the next 75 years. The deposits are also fairly evenly distributed throughout the country. This, however, is not true of gypsum which forms about five per cent of cement. Gypsum is chiefly found in Rajasthan from where it has to be transported over long distances to factories in different parts of the country.

Blast furnace slag, an important by-product of the iron and steel industry, is not being fully utilised in India for cement manufacture. A fuller utilisation of the slag produced by the steel plants will augment cement production and also improve the finances of the plants.



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Letters

WANTED COMMONSENSE

UGLY sentiments rooted in unreason can assume hideous proportions when a community fails to grasp the full significance of what is truly a democratic measure. This has been amply illustrated by recent events in Madras which had no reason to occur except that a handful of misguided people were able to present before the youth a distoretd picture of the Union Government's decision to introduce Hindi as the main official language.

What is it that prevented, for fifteen years after the Republican Constitution came into existence, a correct popular appraisal of the role that the English language should play in our life? Was it beyond the persuasive abilities of our social leaders, at local and regional levels, to eradicate the mistaken notion that a language of which 98.5 per cent of the population are ignorant, can, even in a remote future, function as a national medium? Shorn of its bizarre consequences, what the recent occurrences have demonstrated is the fact that the youth of India are a vibrant and dynamic force, capable of making the supreme sacrifice for a cause. What they still need, seventeen years after independence, is proper ideological direction. Of this there seems to be very little realisation.

New Delhi C.S. SRINIVASAN

SCIENCE, CULTURE AND MAN

THIS is about a review by the learned "HCS" in *Yojana* of September 27, 1964. I have not had the pleasure or privilege of reading *Science, Culture and Man* but what interested me most and prompted me to write this letter was the toplofty critique.

The learned gentleman even found it necessary to step out of his orb and scoff self-conceitedly at the "utopianism" of Dr. Radhakrishnan, the "helplessness" of Dr. V.K.R.V. Rao and above all at the writings of Leadbeater which he called "theosophical inanities". With one stroke of his pen my learned brother has tried to belittle these great men and establish his own on something of which he is obviously ignorant.

Somebody said that the face of India is changing but I see that in actual fact her heart is changing with her ancient spiritual inheritance being cast adrift. Recent arrests made in India of men who are not hesitant to yoke India to Peking reveals that men of the calibre of HCS are not few.

Why ask the opinion of a medical doctor on engineering problems? It is worthless.

D. KUMARASWAMY

N. Sumatra, Indonesia.

Shri D. Kumaraswamy is obviously talking through his hat. He has not read the book I reviewed and yet he dashes off a letter to the editor. I cannot blame him for the language he uses for he, perhaps, knows no better. But when he brackets me with "men who are not hesitant to yoke India to Peking" he is not only irrelevant but absurd.

For Shri Kumaraswamy's information I may add that it was not a case of a doctor giving his opinion on engineering problems. The review was done by one who is an ardent Theosophist schooled in the doctrines of H.P. Blavatsky, the founder of the movement.

H. C. S.

MANAGEMENT STUDIES

IN your 'You Ask Us' column (*Yojana* December 6) you have given a list of institutions which offer courses on management studies I am surprised that the list does no include the Indian Institute o Science where management educa tion is given on part-time basis t supervisors in the factories. Th scheme was started by the All Ind Council for Technical Educati and it is proposed to convert it in full-time course.

Indian Institute of Science
Bangalore A. HAFI

YOJANA

Vol. IX No. 3 Fortnightly Journal Published on behalf of the Planning Commission Magha 25, 1886

NEW STAGE IN STEEL

So many things happen in times of rapid social and economic change that many an event of high importance is apt to go unnoticed by the people at large. The week of the Republic Day this year is illustrative of this; it marked not only the entry of the Republic into its fifteenth year but also a major strengthening of the sinews of development. It was a week in which the largest hydro-electric installation in India began to yield its first fruits at Sharavathi. Simultaneously, an ultra-modern plutonium plant, built by Indian talent, was inaugurated at Trombay, taking the country miles forward in the atomic field. Of a different texture, and perhaps of more significance, was the confirmation of the basic outline of the Fourth Five Year Plan contained in the Planning Commission's Memorandum; and topping it all was the signing of the agreement on Bokaro with the Soviet Union and the preliminary understanding reached with the Anglo-American Consortium for the establishment of a fifth steel plant.

These are events of major import to the future of the country. In a sense, the matter-of-fact acceptance of such forward steps is evidence of the country's coming of age. What at one time would have been considered as a major break-through now takes on the aspect of familiar things. It is good that it is so; and yet it would be better if we played this up, not in the manner of somebody whistling in the dark for self-assurance but a corrective to some of the unsavoury concomitants of change that have come in the way of enlarging the country's confidence.

There is need for this because, large as past achievements have been, the tasks yet to be done are even greater. That these tasks have to be done quickly has been strongly brought up in the field of agriculture and food policy. In a country such as ours, it is but natural that the most urgent attention should be given to achievement of an agricultural revolution. But the recognition of such a need should go along with an equally clear recognition of what is required to be done for that purpose.

Considered rationally, transformation of Indian agriculture becomes essentially a matter of accelerating industrial change. There is nothing paradoxical about it, because agriculture and manufacturing industry are not two different compartments of economic activity. A little reflection will show that even as Indian industry has to depend on agriculture for its raw materials, Indian agriculture has to depend on industry for fertilisers, power, construction materials, pesticides, preservatives and so forth. Rapid agricultural development is predicated on an enlargement of the country's capacity to manufacture these basic requirements for better cultivation; and if these are to be produced indigenously, no purpose will be served by confusing priority for agriculture with degradation of the plans for industrial development.

In the centre of industry stands steel, no matter how one looks at it. India has probably the world's finest deposits of iron ore; she has enough metallurgical coal, limestone and dolomite needed for steel manufacture. In the last seven years and more she has taken big strides in steel-making and enlarged the supply of necessary skilled labour. In the process, new techniques of steel production have been introduced and new varieties of steel produced. These advances have of course been facilitated by the generous assistance in men and materials received from many countries. But it is not as if the effects of monumental investments in steel-making so far are confined to the increase in the tonnage of steel produced domestically. Of great importance to the future is the fact that there has been a big increase in the knowledge of steel technology and of the technology of metal fabrication. These are permanent assets available to us and ought to instil greater confidence in the country's own ability to build mammoth steel plants in the future.

There is little doubt that each new steel plant will have proportionately larger Indian contribution than the one preceding it. In the case of Bokaro, for instance, something like 40 per cent of the material required will be fabricated in India. The capacity for manufacture of steel equipment so built up obviously enables the next plant to start with a bigger domestic component. Given a determination on our part, the pattern of using equipment imports as supplements to rather than substitutes for domestic manufactures adopted in Bokaro can be made a common one to other activities besides steel production. In essence, we have to recognise the opportunities that are opening up and make the effort to seize them.

Those who can produce steel and similar things are not born but created through a social process. Just as there is an almost insatiable demand for steel, there is a very large demand for trained people who can design, construct and operate steel plants, fertiliser factories, oil refineries and all the rest of it. And unless we develop the agencies for doing these tasks, we shall find technical change terribly expensive in time as in foreign exchange.

While Indian participation in Bokaro is not as large or as varied as many would wish it to be, it nevertheless opens up a new stage in steel development. The Soviet Union is amongst the most advanced in the techniques of steel-making; and many of the innovations adopted in that country will be incorporated in the Bokaro plant. And because of this, those who fabricate domestic equipment for the Bokaro plant in India will also move on to a higher plane technologically.

Education is Nation's Problem. It calls for Co-ordinated Policy and Central Direction

M. C. CHAGLA ON

EDUCATION

TODAY AND TOMORROW

Interview

Based on a recent A.I.R. discussion in which the Education Minister answered questions from CHANCHAL SARKAR, B.K.R. KABAD and SHAM LAL.

QUESTION: Well, Mr Chagla, the first question I want to ask you is about the Education Commission. As you know, this is the third Commission after Independence, and it seems to me that the Radhakrishnan and the Lakshmanaswamy Mudaliar Commissions had gone fairly deeply into the question of preparing a blueprint of a national system of education—the subject you have already referred to in your inaugural speech. You spoke about the diversification of secondary education, the setting up of post-graduate institutions and an independent educational service. You had been talking recently about wastage through failures in our schools and colleges. I should have thought that these commissions which have already reported, not to speak of the various committees of the University Grants Commission, have gone into this question fairly deeply. What is the need now for another Commission on education?

ANSWER: You see, we had the Radhakrishnan Commission which dealt with only university education. Then we had the Mudaliar Commission which dealt with only secondary education. So far, no commission has been appointed in India to look at education closely and consider its problems in all its aspects. You cannot treat education in compartments. Education is and should be looked upon as a whole, as an integrated whole and therefore, I wanted a commission which would tell us what we have achieved in these 17 years, where we have gone wrong, whether we could change our policy and how we could set things right. I therefore invited foreign experts to be on this commission. Education is a national problem and that was why this commission was appointed. But there is no intention to delay the carrying out of our policies. I have asked the commission to give me interim reports from time to time and the implementation of educational policy would not be held up till the commission produces its final report.

Q. Well, this is a point that I want you to clarify because the commission would report in two years and thereafter the Government would take some time to examine the report. By then the Fourth Five Year Plan would already be 18 or 20 months old.

A. Of course, when the report is prepared, we shall certainly have to consider it, and we would have to ask the States also to study it because they are affected directly. But I give you the assurance that I shall see that it is implemented as soon as possible.

Q. I think there is a contradiction in what you say. You just said that education is a national problem but our Constitution gives the States the right to determine educational policies. How will the Centre be able to exercise that right and implement the recommendations of the Commission?

A. I am glad you asked me that question. It is perfectly true that primary, secondary and even university education are State subjects but there is Article 66, concerning the Union List in the Constitution which gives us the right to determine standards and bring about co-ordination. True, this gives only a limited scope for the Union Government. But to my agreeable surprise I found that in the Education Ministers' Conference which I had called recently, most of the States were prepared to accept concurrence in substance. I am making a distinction here between concurrence in law and concurrence in substance. You see, the States, because of the financial burdens involved, are prepared to leave it to us to implement most of the important educational policies. Take, for instance, secondary education. I have attached the greatest importance to improvement in quality in this sector and the States have agreed that the Centre should take up that task and meet the financial commitments thereof.

Q. But is the Centre prepared to take the entire responsibility? You want matching grants from the States. If the secondary school teachers' salaries are to be raised with Central Government's help, the States having to bear 50 or 75 per cent of the expenditure, they may not be prepared for it.

A. I am entirely opposed to matching grants. In my experience the scheme of matching grants has failed. We say that we shall give 50 per cent, but the States say they cannot afford to pay the balance of 50 per cent. If we give 50 per cent, say, for five years, even this will become a committed expenditure on the part of the States after that period. Therefore, I have come to the conclusion that we should bear 100 per cent of the expenditure so that the entire expense involved, in both the carrying out of the policy and in the financing of it, would rest with us and not with the States.

Q. But do you think that in the Fourth Plan there will be sufficiently large allocations for general education and also for expanding technical and other education?

A. There are certain sectors like primary education which we cannot touch because the expenses are huge. Today there are 60 million students in primary schools and their number is increasing. But we can undertake other schemes for improving education as: teacher training, science education, improvement of technical education, laboratory equipment, universities and the like. Of course, even this is expensive, but the number of schools, and the number of students involved are much less than in the primary schools. We can certainly improve the quality of higher education.

Q. You have been speaking about the need to make education a concurrent subject. Now if one looks at the broad pattern of Indian education today—whether it is primary education or basic education or secondary education, the lead in matters of policy is already being given by the Centre, and, so far as funds are concerned, the U.G.C. has been doing it for the universities. More or less it is a concurrent subject now. So concurrence would not be a magic wand in our hands to make education more amenable to Central direction. What do you hope to achieve by making it a concurrent subject?

A. Well, we would then have a legal right. Today we exercise our right only with the consent of the States.

Q. What is the kind of improvement you envisage in secondary education, improvement in the quality of textbooks, standards of syllabus and so on? What are the particular directions which you envisaged for improving the quality of secondary education?

A. Better trained teachers, introduction of science in a more intensive way, equipping the schools with laboratories, introducing text-books which we are now already busy preparing, improvements in the system of examinations on which we are working and most important of all, we want to set up certain Central schools which will be entirely guided by us, financed by us and which will act as models for other schools.

Q. This programme is likely to be upset if, for instance, a State Government insists on its right to nationalise text-books. The text-books will affect the course of studies, curriculum and so on.

A. That is why I said that we do not have the legal right now on these matters. We are producing text-books written by experts on various subjects some of which are already out. They are in English. We shall send these books to the States and ask them to translate them into the regional languages with such adaptations as they think proper. Take one more subject on which, I am afraid, we have been very backward, namely, text-books in history. If you really want national integration in our country we must think again on our old ideas. History, as you know, is still being written from the British point of view. Our history books are full of wars and battles as if India did nothing else. Therefore it is very important that history text-books should be written to emphasise the unity of India and that is what we are working on and I hope the States will accept these history text-books.

Q. That means you are preparing basic text-books which will be translated into all the languages.

A. That's right.

Q. There is a fairly widespread criticism that the national laboratories are not turning out much original work, that junior scientists are not being encouraged to turn out much work. I think that much of this criticism is justified.

A. Have you seen the brochure we have brought out? It was sent to all Members of Parliament. It gives you an idea of what work our national laboratories are doing. This has not received, I am afraid, sufficient publicity. But if you look at that brochure you will find how much money we have saved in foreign exchange by producing things locally, making the best possible use of our indigenous materials, by helping export drive and so on. Now as regards junior scientists let me tell you what we have been doing. We have abolished the hierarchy system among scientists. This is the one branch of knowledge where there should not be hierarchy or protocol. There should be a *camaraderie* among scientists. Instead of having a director or assistant director we have now classified them as A.B. and C. Then we have a scheme known as 'merit promotion' which again is designed to help promising junior scientists. If a scientist has been in a particular grade for five years we assess him. If we find that he has been doing good work, we promote him to the next grade whether there is a post or not. So no scientist remains in the same post, suffering from lack of incentive to do better work.

Q. Is the assessment done by a selection committee?

A. Yes. It is not left to an individual. We are against nepotism or patronage and therefore we have set up a high-powered selection committee.

Q. I wanted to ask you two small questions. One is that in the field of research we have the CSIR laboratory, we have the Atomic Energy Commission, we have the

universities, and other Government and private laboratories. Now it seems there is no body to co-ordinate, no body to identify the scientific problems of national importance and to farm them out between these various laboratories. The other thing is, that, as you know, the salaries offered by these national and other laboratories are so high that they tend to seduce people from the universities which ought really to be also progenitors of scientific research. They are being denuded of their scientific talents. What are you doing about it?

A. I am glad you raised these questions because these are the very two questions which we discussed at the governing body of the CSIR over which the Prime Minister presided. Let me answer the first question about universities being denuded of scientific talent because the laboratories pay better salaries. Now this is exactly the note of warning that the reviewing committee has sounded and I also had briefly pointed out that we have to carefully consider this problem. We have now decided to set up a Committee to consider ways and means of collaboration between the laboratories and universities. I have found that there is not sufficient collaboration between universities and laboratories as you have, for example, in the U.S.S.R or U.S.A. The idea is that we must have professors in the university doing research work in the laboratory and scientists in laboratories who go to lecture in the universities. Then we also want more collaboration between the industry and the laboratories.

More co-ordination is necessary between the various agencies. Principally, for this reason, the scientists in India should be told what the country needs or what industry needs or what our defence needs are. We have also emphasised the fact that we rely too much on foreign know-how. Before any scientific collaboration agreement is entered into with foreigners our own scientists should be consulted on whether they are in a position to supply the know-how.

Q. I wanted to know about the scientific text-books. I think this is a very essential point particularly in a country where teaching standards are low. In subjects like physics and chemistry and so on, can we not standardise text-books prepared by the Centre and then have them distributed to all States?

A. We are doing that for secondary education. As far as universities are concerned, we now have three schemes for text-book production. One is with British collaboration, the second with American collaboration and the third is the one we have just set up after my recent visit to USSR. The Board will be meeting very shortly. Our idea is to standardise books on science and technology and get them translated. In the case of U.K. and U.S.A. there is no need for translation but text-books prepared with collaboration from U.S.S.R will be translated into English and sold to our students at one-third of the price at which they are selling elsewhere.

Q. We all feel that technical education and technological education should progress more than it has done in the past. After 17 years of expansion it is now time for consolidation rather than further expansion because educational standards should not decline for dearth of enough teachers. What is your view?

A. There are three stages involved in achieving this objective. I think we should not stop expanding because we are urgently in need of more technicians. Our education standards are high and admissions are strict. We have five Indian Institutes of Technology which are first class by any standards. What we need is more technical education at lower levels—polytechnics, for instance, and ultimately, in the secondary schools. We have now succeeded in our main task—call it what you like—in making our education 'production-oriented'.

Q. What do you think is the reason for the failure of basic education?

A. It has not been given a fair trial. Our Vice-President has said that what we have is a mockery of basic education. We swear in the name of basic education because that is associated with the name of Gandhiji.

Q. You know that even today persons who hold a key position in universities are the vice-chancellors and that there is a lot of dissatisfaction at the way vice-chancellors are chosen. Now what is your view about the best method of choosing a Vice-Chancellor? What do you think of the Chancellors? Should they really continue to be the rubber stamps of the Government, or should they function independently? There is this proliferation of deliberative and executive bodies within universities—you know that senates, syndicates and governing councils often overlap and you often have non-government persons having a fairly definitive and decisive voice in university affairs. How do you think we could streamline university administration?

A. First I shall take the question of vice-chancellors. It is my view that no university can attain high standards unless you have first-class vice-chancellors to provide the leadership. A Vice-Chancellor should be a person at the helm and one for whom students have great respect. If you look round the university scene you will find that those universities who have good Vice-Chancellors have done extremely well. There is hardly any indiscipline and the standards are maintained. So far as selection of Vice-Chancellors is concerned I can exercise my voice only in the Central universities. In matters affecting State universities, every State has its own legislation. Of course the Model Act Committee has just submitted its report and they have suggested one or two methods, but it is very difficult to arrive at a method which is foolproof. Ultimately it must depend upon the determination of the State Government to avoid politics completely in the selection of a Vice-Chancellor. You see, two or three things are necessary. One, you must select a Vice-Chancellor from whatever part of India he might come from. Regional considerations should not apply. Secondly, he must have the requisite academic qualifications, and thirdly, he must not be associated with any party politics. With regard to the Chancellors, I hold a firm opinion. I myself acted as a Chancellor for 2½ months. I know something about it and whenever university questions came up to me I took the view that although it was my duty to consult the Education Minister or the Chief Minister, the decision must ultimately be mine. Unfortunately, the prevalent view is that the Chancellor is a constitutional head like the Governor and that he must act on the advice of his ministry. This, to my mind, stultifies his position. Why should we have a Chancellor then? The idea of a Chancellor is that he should be able to control the working of the administration of universities. Therefore, if necessary, legislation should be passed to make it clear that the Chancellor is independent. Of course, he must consult his ministry, but he should not become a mere rubber-stamp.

Q. How about streamlining the deliberative and executive bodies?

A. There, again, I agree that in university matters the preponderant voice must be of the academicians. It is necessary to have some outsiders also because they take a more objective view, a more detached view.

Q. One more question. It has been said that one reason why our co-operative farming, panchayats, family planning, agriculture and the allied industries have really not gone ahead is because adult education has not gone ahead far enough. Do you agree with this and, if so, what do you think can be done?

A. My view is that the problem of adult education can only be solved provided the people at large participate in it. It can never be solved by Government alone. I shall give you one instance from Maharashtra. What they are doing is a wonderful experiment and it has succeeded. I have requested other States to follow this example. What they are doing in Maharashtra is just this. They select a village and ask the students who attend primary schools to teach their parents what they have learnt at the school. So the parents become their children's students. The result is that a whole village has been made literate as a result. Then they arrange a ceremonial function at which they present an award to the village. This method does not cost extra money to the State because the Government is in any case spending on primary education. These school students become in turn agents for the spread of literacy all over the village. This is an instance which shows that the participation of the people is the only effective way. The same thing happened in Russia. They also had widespread illiteracy, but the people felt ashamed of it. They set up literacy classes on their own and did voluntary work. When such a consciousness comes to our people and they set up voluntary organisations, we can go far in solving these problems.

QUOTATION BOX

In India, at least, they have the courage to let you see what's going on.

—Mr David Potts, an Australian student writing in "Overland"

It was interesting to note during my recent visit that despite all that had happened in the world and in India in the intervening years, the greatest Indian poet was still Shakespeare.

—Mr Malcolm Muggeridge in "The Listener"

But unfortunately there is very little worth knowing about the Indian stars, apart from what they unconsciously disclose about themselves whenever they appear on the screen.

—A.S.R. in the "Weekly"

At present, the world expenditure on arms is 140,000 million dollars annually. This means an expenditure of 400 million dollars daily and 16 million dollars each hour.

—Mr Bertrand Russell in "Mainstream"

I have six children. It is very easy to advise others now.

—Mr Lal Bahadur Shastri

The Language Department of the Punjab Government has sent a circular to all Government offices in the Hindi region instructing them to conduct their work in Hindi. The Deputy Commissioner of Rohtak has also issued similar instruction to all offices in the district. Both circulars are in English.

—"The Statesman"

Hospitals to insist on blood for blood.

—A newspaper headline

What type of hunger do these people have in their minds? If it is related to the stomach, then I do not feel that they should take their stomachs inside out and make it a matter of expression.....If it is the hunger of the sex then they should know the object that comes in their way.

—Letter in "Link" magazine

Skin-tight dresses, worn by girls, constitute a potential threat to peace, according to the district (Meerut) authorities.

—News report

Delhi's festival, perhaps, did not have the fashionable label of Cannes with scantily-clad starlets but Delhi had Agra and the Taj nearby to show and lovely folk dances in the morning.

—Mr Attenborough, delegate to the Delhi film festival

Mahatma Gandhi, the only great man of the century who doesn't have a single word he ever uttered in Bartlett's *Familiar Quotations*, but whose message was heard plain and clear by millions.

—From an article in "Look" magazine

To the question "Where is India going?" one can only answer, for the present, that it is pottering along with no clear destination yet in mind.

—Mr Selig Harrison in an article on India, in "Foreign Affairs"

It seems to me that a saint is almost necessarily, by the state of his condition, politically an ass.

— Dom Moraes

The day the membership of the Sahitya Akademi becomes as prestigious (and therefore as difficult to attain) as that of the Academy Francaise, there will be no need to offer a Padma Shri to a distinguished litterateur.

—Mr Inder Malhotra in "The Statesman"

Planning continues to have priority in Moscow—not Pragmatism.

—Paul Wohl in "The Christian Science Monitor"

Sixteen (Calcutta) women who begot 88 children, 69 of whom were surviving, have pledged to popularise family planning.

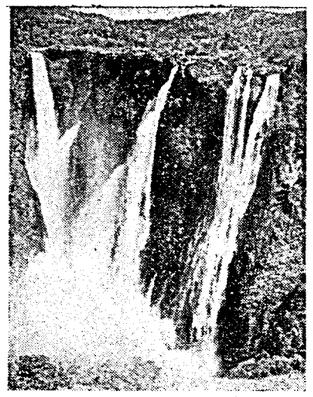
—"Hindusthan Standard"

Mr Mehr Chand Khanna, Union Minister for Works and Housing, warned here today that unless the housing problem was tackled in "right earnest" by both the Centre and the States "it might get out of hand one day as in the case of food"

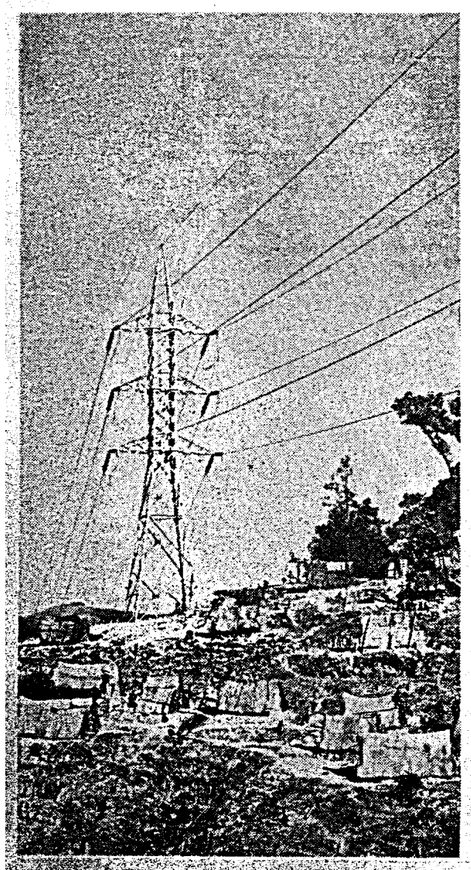
—P.T.I. report

SHARAVATHI

The Small River That Holds



MIGHTY HIDDEN POWER



TWENTY years ago you could have gone to the Jog Falls, as many have done for unremembered years, and returned, treasuring but one experience—the memory of an awe-inspiring spectacle. If the overwhelming aesthetic delight at this grand and majestic sight had spared you of your imagination, you would also have perhaps remarked, as the late Dr Viswesvariah did, in sorrow, "What a waste of power!"

Left : **The transmission lines to Bangalore over a distance of 408 kilometres have been erected.**
Top : **The Jog Falls, the source of power.**
Right : **The Linganmakki dam. Its spillway is 195 metres wide.**

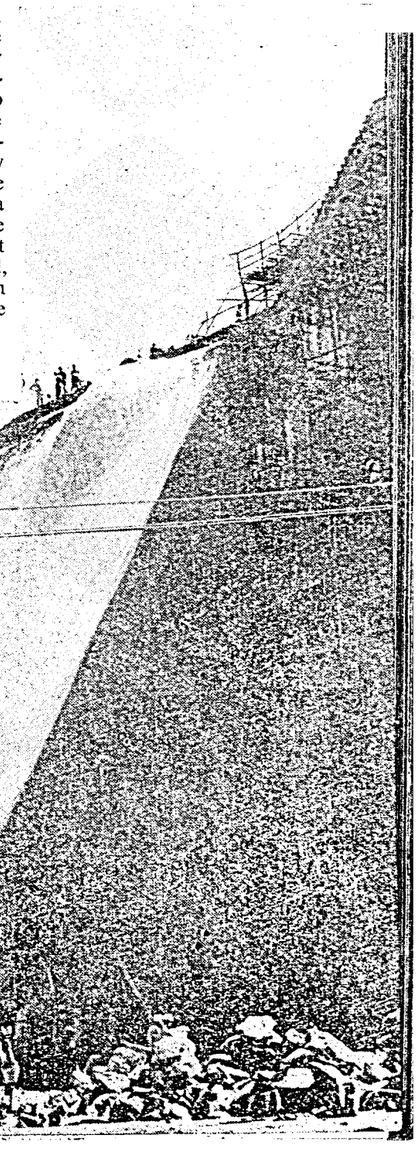
Pictures Courtesy USIS

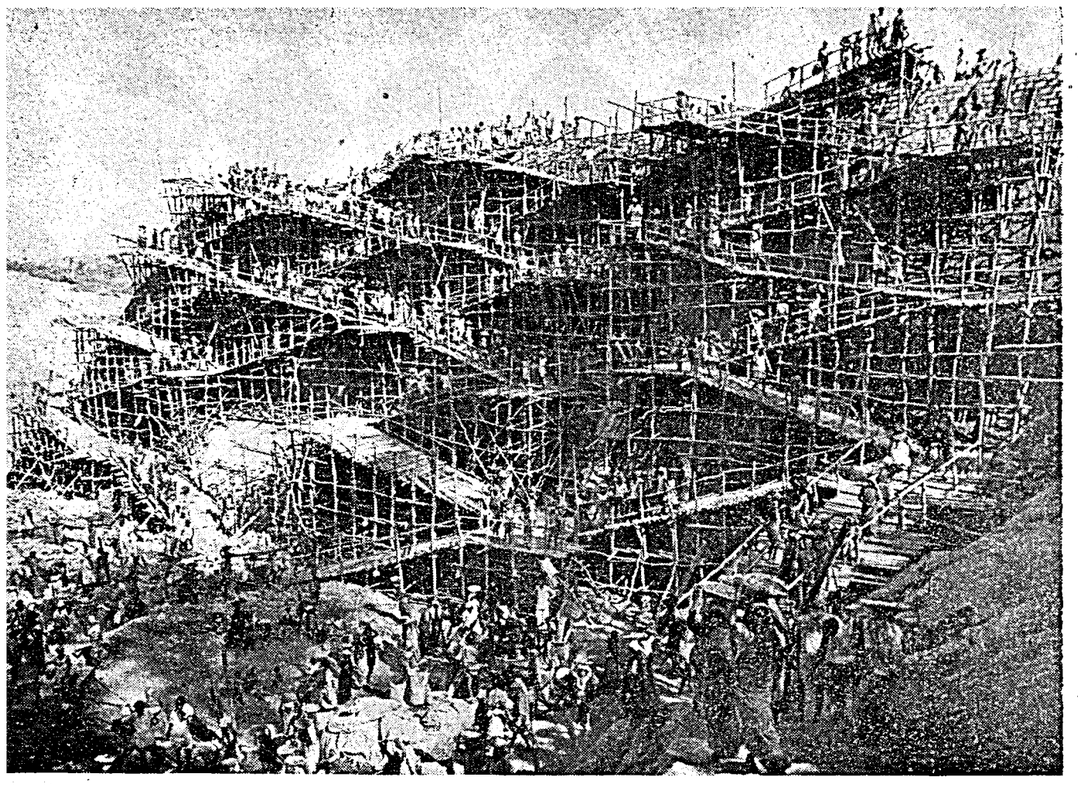
Waste indeed it was, but few realised its enormity. Those who did, like Viswesvariah, could hardly do anything about it. The technique of hydel power generation was first introduced into India in 1873, and into Mysore in 1902; but Sharavathi was left untouched, to run its turbulent, unbridled journey through the green wilderness. Year after year its tremendous potential, like that of many other rivers, was allowed to run to waste. There was none with the will and courage to capture its hidden power for the benefit of man. The first major attempt was made in 1950 to utilise a part of its immense potential when the Mahatma Gandhi hydro-electric station was commissioned. But the 125,000 kilowatts of energy being produced by this plant represents but a fraction of what the river can yield.

On January 24 last, one more milestone was added on the road to prosperity when the Prime Minister dedicated a gigantic new power project at the Jog Falls to the nation by switching on its first 89,100 kilowatt generator. Nine more generators of equal capacity, which together compose the project, will be switched on, one after another, at intervals of four to six months. In about four years from now the Sharavathi project alone would be supplying well over ten lakh kilowatts of energy, making it the biggest hydro-electric project in Asia. The second generating unit, now undergoing tests, will be commissioned in three or four months' time.

As rivers go, Sharavathi is small. It rises on the Sahyadri Hills in Western Ghats at a point called Ambutirtha about 416 kilometres north-west of Bangalore, and after traversing a distance of 131 kilometres through hills, dense forests and plains, it joins the Arabian Sea near Honavar. For its short span it carries an amazingly large quantity of water—about four million acre feet annually—because its catchment area is laid in the Western Ghats where the average rainfall exceeds 625 centimetres. From its place of origin Sharavathi darts forward, like an arrow in flight, for about 80 kilometres, and at a place called Jog it plunges into a chasm 252 metres below, creating a thunderous roar. During the monsoon when the river overflows its banks, the size of this nature's spectacle is truly breathtaking. The luxuriance of surrounding forests adds splendour to the majesty of the falls. There are few sights more beautiful and inspiring than the Jog Falls when they are bathed in moonlight. Jog's place as a tourist highlight of South India will not be affected, even in the slightest degree, by the power project now taking shape. On the other hand, its attraction will be enhanced when new amenities are provided for the visitors.

The Sharavathi project is a gigantic undertaking by any standard. It will cost Rs 86 crore when completed, and will stand as an example of Indo-U.S. co-operation in a vital sector of India's economy. The United States has provided about 30 million dollars to cover the greater portion of its foreign exchange cost. This is in addition to Rs 34.5 crore which the project has received from the PL-480 funds.





The Linganmakki Dam in 1961. At one stage about 40,000 workers were engaged on the project.

For over seven years since the work in the project commenced, the hills and the forests around have reverberated to the sound of thousands of labourers who hacked away the trees, broke the stones and dumped the earth. At a certain stage there were as many as forty thousand workers engaged in the act of construction. The salient features of the Sharavathi project are two dams, one across the Sharavathi, 9.6 kilometres upstream from the power-house, and the other across Talkalale, a tributary of the Sharavathi. The main dam at Linganmakki, across the Sharavathi, is 2,706 metres long and 20 metres high and impounds 4,446 million cubic mertres of water in a reservoir 322 square kilometers in area. The Linganmakki is a stone-massonry and earthfill dam, with a 195 metres long overflow spillway, outlet gates for feeding water into the power channel, sluices for discharging water into the river to maintain a flow over the Jog Falls during summer, and penstock pipes which will carry water to a 60,000-kW power-house which will be built at a later stage at the foot of the dam.



The dam across the Talkalale, 450 metres long and 61 metres high, which was completed a year ago, will act as a balancing reservoir to the Linganmakki lake with a water storage capacity of 130 million cubic metres. Water from Linganmakki will flow into the Talkalale through a three-mile long conducting system before passing on to the power station. Part of this link, 600 metres long, is a tunnel bored through a ridge, and the rest is an open channel to which a roof has been provided.

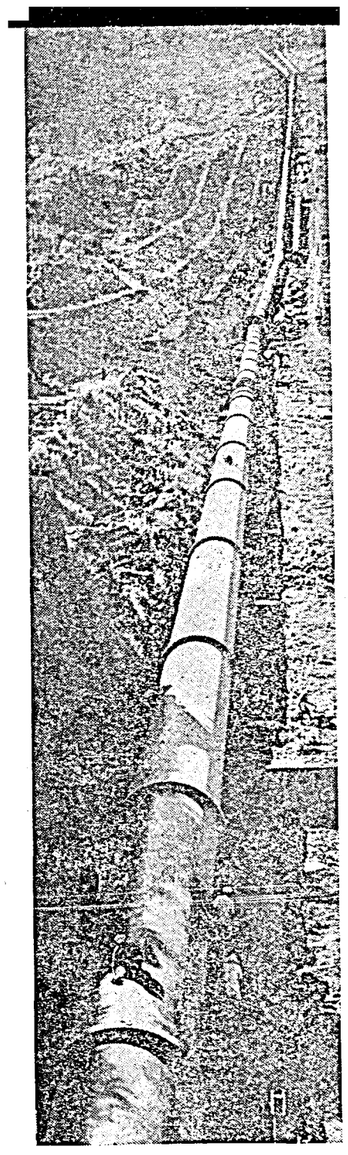
A Story of Adventure

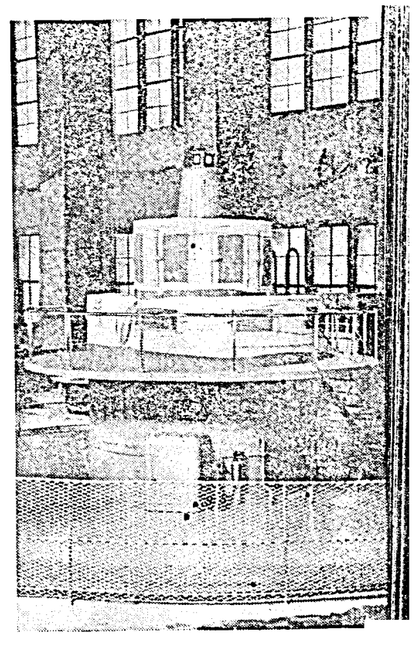
The story of Sharavathi project is a story of adventure. It has entailed grim battles against the forces of nature. Thick, dark jungles had to be cleared and communications laid in difficult terrain. The heavy rainfall during monsoon makes construction work impossible for six months

in the year. Seven years ago when the foundation was laid, there were only a few temporary roads and half finished staff quarters. Today the scene has changed. In this enchanting wilderness Indian engineers and workers have planted a mighty instrument of power which will feed numerous industries, big and small, and drive lift pumps to irrigate thousands of parched acres in far away districts. Besides the 8.91 lakh kW of energy which the new project will produce, the existing 120,000-kilowatt Mahatma Gandhi hydro-electric station will continue to operate; and additional generating units capable of producing 225,000 kilowatts are being planned to utilise the waterflow downstream of the main power station. When all this is completed, by 1970 or 1971, Sharavathi will be yielding nearly one and a quarter million kilowatts of energy. This is more than the total capacity of Bhakra and much more than the existing total power output of Mysore State. The Sharavathi project in its completed form will produce an equivalent of 15 per cent of the present generating capacity of the country as a whole.

The charging of the transmission lines to Bangalore over a distance of 408 kilometres is complete. Several industrial establishments in the State, some of which are vital to the country's defence, will no more suffer from power shortage. Mysore's rich bauxite deposits can hereafter be exploited for the manufacture of aluminium which is a particularly heavy consumer of power.

The Sharavathi project will be one of the most economical power projects in the country. Its cost will work out to less than Rs 1,000 a kilowatt of installed capacity. This compares favourably with the cost per kilowatt of power from Kundah in Madras or Bhakra in Punjab or even Hirakud in Orissa. Mysore State alone is expected to consume over fifty per cent of the power to be generated from Sharavathi.





Penstock for a 60,000 kW power house to be built later. *Right:* The first 89,100 kW generator switched on by the Prime Minister on January 24.

This project with its two dams has affected 154 villages of which 70 will be permanently submerged. The Mysore Government has taken up the rehabilitation of 2,500 families, affected by this project, simultaneously with its construction. They have been given lands and compensation in cash to help them build their houses and continue to engage themselves in their traditional occupations.

The story of Sharavathi has just begun. The full impact of this project on the economy of Mysore and the neighbouring States will take a few more years to be felt. Immediately, however, its value will be felt by the many industries located in Bangalore. A couple of years hence when the Fourth Plan goes on stream many new industries will start deriving power from Sharavathi.

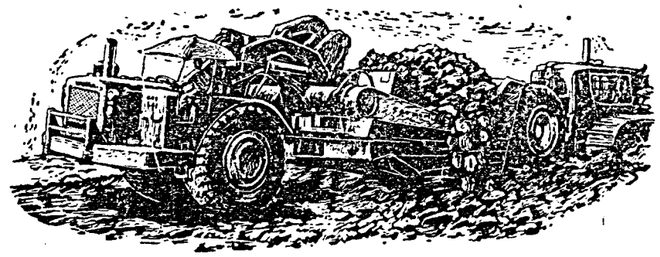
S. SRINIVASACHAR

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At New Kendah Colliery, in Burdwan, four 619C Scrapers and two D8H Tractors are engaged in Opencast Mining Operations. Also at the Colliery site are three 966 Traxcavators. One, equipped with a Hyster Grid Roller attachment, is at work sizing coal particles, which the other two load into open-type wagons. Opencast Coal Mining here—with CATERPILLAR equipment, yields 1000 tons coal per day.

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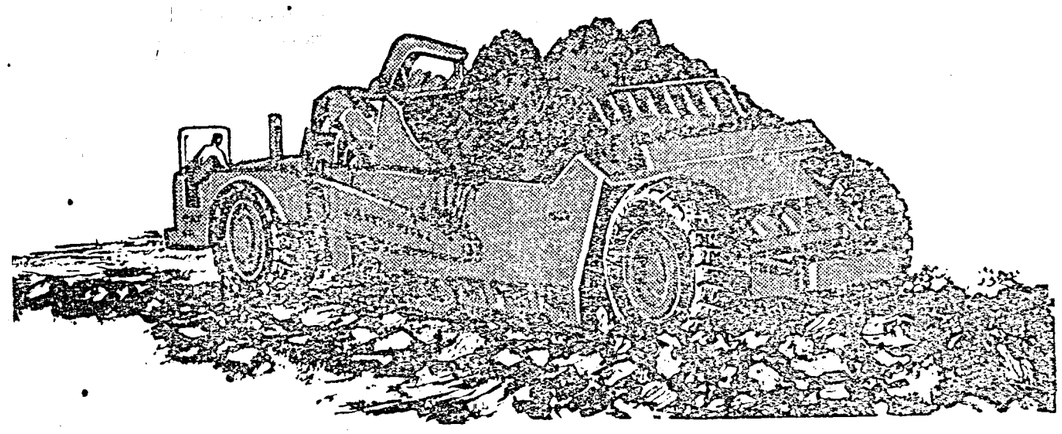
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CAT SCRAPERS ENSURE ECONOMY IN OPENCAST MINING OPERATIONS

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Two axle	4	14 to 44	250 to 500
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FARMERS DON'T KNOW THAT

CROP YIELDS CAN BE TREBLED

Extension Work Must Carry Fruits of Research to the Countryside

M.S. SWAMINATHAN

THERE has been tremendous progress in many fields of agricultural research in the last decade in the scientifically advanced countries. The yields of most crop plants have been going up at a pace that could never have been imagined before. For example, in a crop like *jowar*, the average yields have almost been doubled in the United States within a period of five years through the spread of highly productive hybrids grown in conjunction with suitable fertiliser and irrigation practices.

A Farmers' Bulletin from Nebraska says that it is not unusual to get eight thousand pounds of *jowar* per acre on irrigated lands. "Ten Thousand Pound Clubs" are appearing requiring a farmer to produce this much or more per acre to be eligible to join. Recently, some farmers in the *Sorghum* Belt of the United States are reported to be producing fifteen thousand pounds per acre over large areas. In the case of wheat, a revolution in yield took place with the introduction of dwarf and highly rust-resistant varieties. These varieties, when grown widely, can greatly increase the yield of wheat by enabling the plant to utilise solar and chemical energy more efficiently. Such wheats are known to yield as much as eight thousand pounds per acre in the United States and have helped in raising the average yield per acre of wheat in Mexico from 800 lbs to 2,000 lbs per acre within a decade. One would have thought that this is probably the end point of scientific achievement possible with regard to yield in wheat. However, it is clear from a recent report on the Hybrid Wheat Seminar sponsored by the Crop Quality Council of the United States that another major breakthrough with regard to yield in wheat is in the offing as a result of the commercial exploitation of hybrid vigour.

In the case of hybrid maize, where most workers were convinced that the maximum yield potential of the plant had been realised, a new way of doubling the yield of the best hybrids has been shown by a seed company in the United States which has developed hybrids with 5 to 6 cobs in each plant in the place of the usual 1 or 2. Equally remarkable are the advances taking place in the fields of plant pathology, entomology, plant physiology, agronomy, chemical nutrition and artificial growth control. Problems which once appeared to be incapable of solution are now being tackled successfully. For example, the spread of nematodes which are parasitic on plants has been a cause of grave concern to agricultural scientists all over the world. Recently, it has been found in the United States that this difficult problem can probably be solved by converting the entire nematode population into males by manipulating the nutritional levels in the soil. The control of some insect pests has been done effectively through the sterilisation of males either by irradiation or by the use of different chemicals. These few examples would be adequate to illustrate what can be achieved in the field of crop production by intensive research followed by a thorough exploitation of the knowledge and material gathered.

Even though research efforts in agriculture have been until recently meagre in India, we still have enough scientific knowledge to produce without difficulty yield levels of the following order in some of the major crops.

Crop	*Acreage (million acres)*	*Average in lbs/acre (1963-64)*	*Yield level in lbs/acre easily attainable through the use of the available scientific knowledge*
Rice	70	821	3,000
Jowar	43	430	3,000
Wheat	33	738	3,000
Bajra	27	250	2,000
Maize	10	800	4,000
Barley	9	730	3,000

Largely because of our failure to make a distinction between a research worker and an extension agent, until recently we made no effort to have effective and well-informed extension agencies. As a consequence, the transmission of the results of research in the field has been very poor except in the case of remunerative crops like sugarcane, cotton, jute and plantation crops where the reward stimulates initiative on the part of the farmer.

It is fortunate that the need for organising extension work on more intensive and better lines is now receiving the attention of our State and Central Governments. The following extract from the address of the Union Minister for Food and Agriculture, Mr C. Subramaniam, at the meeting of the Governing Body of the Indian Council of Agricultural Research held on September 24, 1964, provides a penetrating analysis of the prevailing situation concerning research work and its application.

"During the last five years, the research workers of India have evolved as many as eight strains of maize which can increase the yield to nearly 3,000 lbs per acre. But, we are today in a position to produce seeds to cover only 75,000 acres as against a total of nearly 10 million acres. Equally depressing is the state of affairs in regard to *jowar*. Outstanding hybrids which can give yields of over 5,000 kgs per hectare have been evolved during the last 2-3 years. But we are today in a position to cover only a few thousand acres out of 43 million acres. No research worker can derive satisfaction merely by looking at his experimental plot. There can be no greater condemnation of the present state of organisation of research than the frustration and the loss of national wealth that result from administrative failure in the application of the results of research."

While it is important that research workers are aware of the problems faced by the farmers and also orient their work largely towards the solution of the day-to-day problems of the farmers, it is clear from the tempo of modern research activity that it is not possible for one individual to be both a scientist as well as an extension agent. I understand that even in one branch of science like agricultural chemistry the number of scientific publications which are coming out from all over the world is so huge that even if one were to spend all one's time in the library one would still not be able to cover in one year the literature published in the first two months of the year. It is hence essential that the research workers are left completely free to do their job and steps taken to streamline the extension agencies in such a way that they will be very effective. Extension workers should be naturally well conversant with production techniques. They must be able to demonstrate what they advocate. Otherwise, their advice will not be heeded. There is much scope in this field for effecting improvements.

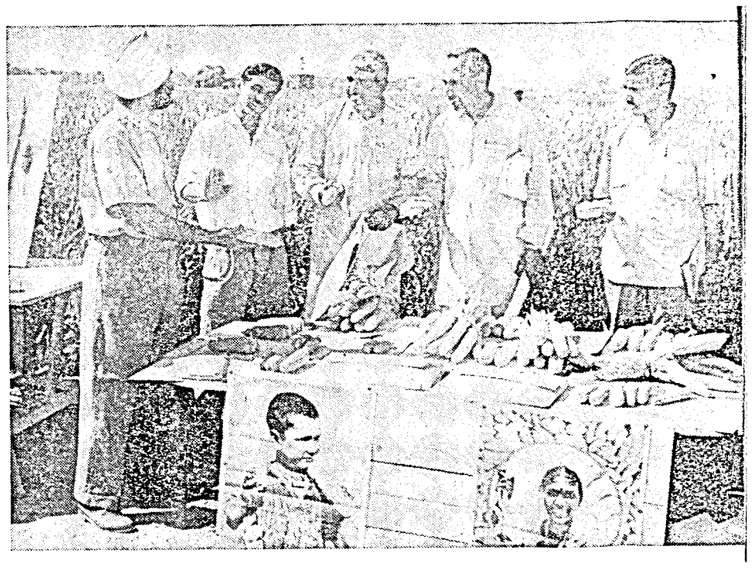
What the Agricultural Universities Should Do

Due to the comparatively poor service conditions in agriculture, only such of the young students who cannot secure admission in the other technical services or employment in the administrative services, turn to agricultural research or extension or teaching as a profession. It is obvious that in a field which requires a combination of practical wisdom, scientific know-how and above all an integrated outlook for making any worthwhile contribution, those who are not found fit for working in other fields with less stringent demands on the mind would not be able to make any contribution to progress. Since the Government is already aware of this problem, I would like to express my views concerning the types of research which the many agricultural universities which are now being established should concentrate upon:

(1) The identification of the factors limiting the yields of the important economic plants growing in the region where the university is located should find a place of prominence in its research programme. This type of activity is necessary not only for the university to win the respect and co-operation of the farmers in the area but also for playing a useful role in the agricultural development of the country. It is my view that agricultural graduates in our country learn only *about* agriculture and not agriculture. Because of this when they subsequently become research men their work seldom has roots in the basic problems facing our agriculture. The tackling of the problems relating to the factors limiting crop yields would also necessitate close co-operation and co-ordination among scientists belonging to different disciplines. This will help to promote a healthy inter-disciplinary activity within the campus.

(2) An agricultural university should be an active participant in all the major all-India co-ordinated research projects. In this way, a window will be opened to the work in progress at other

(*Continued on Page 26*)



IARI has evolved eight strains of maize capable of raising yields to nearly 3400 Kgs on a hectare. These hybrid seeds, now available for only 30,000 hectares, are being multiplied to cover 40 lakh hectares.

ANDHRA'S 4th PLAN

TO PROVIDE FOR BIG POWER OUTPUT

THE Fourth Plan of Andhra Pradesh aims at achieving a 40 per cent increase in the per capita income. The State has now decided to quicken the pace of growth so that the per capita income might rise to Rs 413, as against the national average of Rs 426, by the end of the Fourth Plan.

To achieve this rate of growth, an investment of about Rs 1,500 to 1,600 crore would become necessary. Of this amount, Rs 700 to Rs 800 crore are expected to be invested by the Centre and Rs 240 crore by private entrepreneurs. On this basis the State has prepared a plan with an outlay of Rs. 700 crore including the aid from the Centre for various schemes. (Central assistance is expected to cover 80 per cent of the total outlay.)

The strategy of the Fourth Plan will be: (1) to emphasise the role of quick yielding projects like minor irrigation, and (2) to lay the foundation for industrialisation on a significant scale.

The industrialisation programme will call for (1) the creation of considerable electric power potential, (2) the expansion of technical education, and (3) the development of potential industrial areas to attract new industries. The Plan also has in view other corollary objectives, such as removal of regional imbalances within the State, expansion of education, provision of employment opportunities and development of transport facilities.

Area Planning

Area planning, that is plan programmes for panchayat samiti blocks, districts and municipalities, drawn up with the consent of the people themselves, is the strategy which Andhra Pradesh proposes to adopt for the Fourth Plan. Basic schemes of rural and urban development falling under the purview of area planning will cost a sum of Rs 125 crore, which will be distributed among the panchayat samitis and Zila Parishads to be spent on specific development programmes such as agriculture, roads and communications, education, public health, social welfare and cottage industries.

Municipal plans which will form another part of area planning will have an allocation of Rs 45 crore. The plans will cover land development, town-planning, water supply and drainage, slum clearance, housing, communications, mechanisation of conservancy transport, primary and secondary education, improvement and construction of markets, slaughter houses and remunerative enterprises.

The different programmes and allocations envisaged under different heads in the Fourth Plan are:

Agriculture

Agriculture, including animal husbandry, gets Rs 78 crore. The tentative targets, as against likely production at the end of the Third Plan, are :

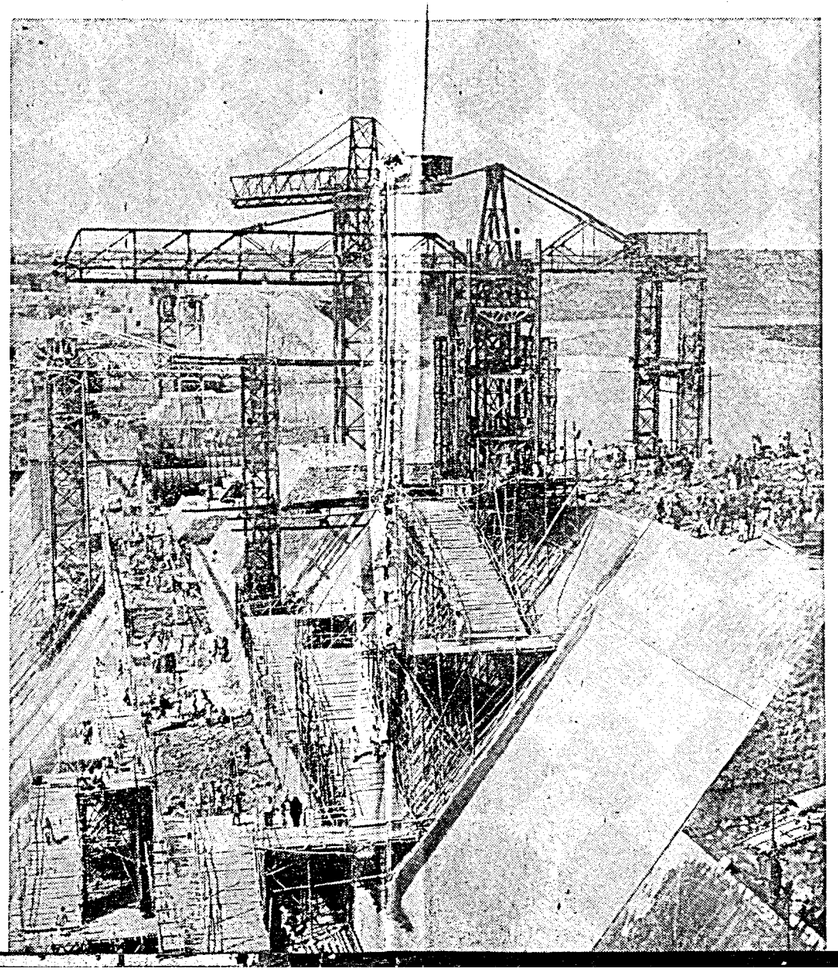
1. Food grains—118.27 lakh tonnes as compared to 90.97 lakh tonnes in 1965-66—an increase of 31.1 per cent over the five years.
2. Sugarcane (gur)—10.13 lakh tonnes as against 9.18 lakh tonnes—an increase of 10.3 per cent.
3. Oilseeds—17.23 lakh tonnes as against 12.23 lakh tonnes—a 40.8 per cent increase.
4. Cotton—2.80 lakh bales as against 2 lakh bales—40 per cent increase.
5. Fish—3,938 tonnes, as against 3,188 tonnes—23.5 per cent increase.

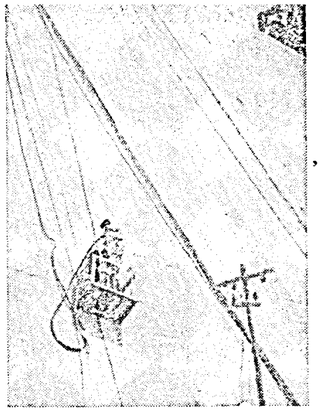
The irrigation programme is designed to provide irrigation facilities for an additional 35 lakh acres of land. Of these, the major and medium projects will be able to irrigate 25 lakh more acres bringing the total to 33.86 lakh acres by the end of the Fourth Plan. The provisional allocation for the major and medium schemes is Rs 75 crore, besides about Rs 54 crore for the Nagarjunasagar project.

The allocation for minor irrigation is Rs. 45 crore, the actual distribution of funds depending on the relative backwardness of the different districts and their needs.

OVERLEAF

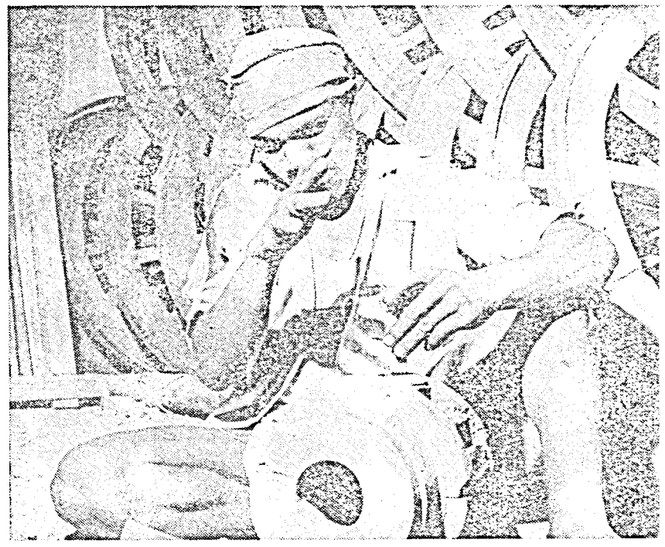
Area planning will be the main strategy for rural and urban development





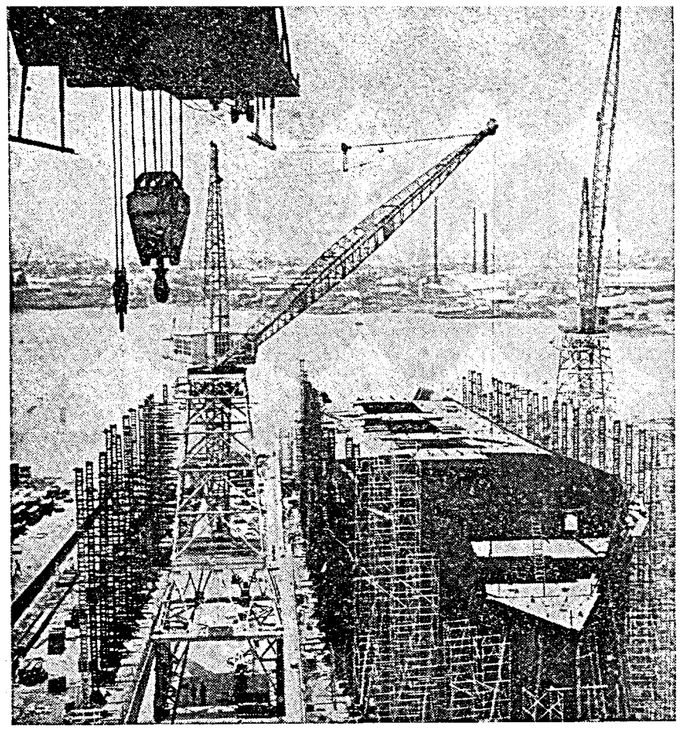
RESOURCES FROM THE STATE

Balance from current revenues Rs 7.86 crore; additional taxation and arrears Rs 52.50 crore; open market borrowings Rs 68.90 crore; share in small savings and miscellaneous capital receipts Rs 11.00 crore.





Construction of the Nagarjunasagar Dam, Andhra's biggest multi-purpose project, will continue in the Fourth Plan. This 90 metre high masonry dam will benefit 8.5 lakh hectares and help produce 100 million watts of power. *Top:* An Adivasi from the Araku valley learns a craft. *Right:* This 80-year old toy maker does not want to retire.



Visakhapatnam Shipyard plans to build ships of total tonnage of about 50,000 DWT per year by 1966.

Power

Andhra Pradesh envisages a spectacular increase in the output of power. The installed capacity would rise to 1,750 MW from the estimated 400 MW at the end of the Third Plan. Of this rise, about 500 MW would be added by the spillover schemes and 900 MW by new schemes to be taken up after 1966. The tentative allocation for the power programme is Rs 200 crore, excluding that for the Srisailam project which is likely to be Rs 35 crore.

Industries

A sum of Rs 60 crore has been set apart for the industries programme. The Andhra Pradesh Industrial Development Corporation and the Andhra Pradesh Mining Corporation will be strengthened and entrusted with the task of developing large and medium industries in the private as well as public sectors. The Industrial Development Corporation will undertake 22 industrial projects and the Mining Corporation will undertake 17 projects in collaboration with private entrepreneurs.

The co-operative sector would be particularly encouraged in the manufacture of sugar, power alcohol, tiles, jute and canned fruits.

The strategy of industrial development in the Fourth and succeeding Plans will be based on developing industrial belts in areas like Kothagudem which have assured facilities. The necessary infrastructure covering water, power, roads and other facilities has to be developed in these areas well in advance.

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at six district headquarters. An outlay of Rs 15.5 crore is proposed for these new medical services.

The objective of the public health programme is to control communicable diseases and bring down the present rate of growth in population. The allocation for the purpose in the Fourth Plan is Rs 9 crore. Malaria will be completely eradicated by the end of the Fourth Plan. A second round of general vaccination against small-pox will be organised. The B.C.G. campaign against T.B. will be extended throughout the State.

Rs 23.5 crore have been provided for water supply and drainage schemes and Rs 5.5 crore for housing and slum clearance schemes.

The State's educational programme

Social Welfare

The objective of the various welfare schemes is to intensify the efforts already initiated for the amelioration of the socio-economic conditions in the economically backward sections of the population. The total allocation is Rs 15 crore.

The programme for tribal areas will take into account the creation of marketing facilities for tribal products, prevention of Podu cultivation and the reclamation of suitable hill slopes by bench terracing and contour bunding. The Andhra Scheduled Tribes Co-operative Finance and Development Corporation will be given assistance to the tune of Rs 40 lakh and the Araku valley will be developed.



Andhra's tobacco industry will receive further boost in Fourth Plan.

A sum of Rs 60 crore has been allocated for the development of roads and transport, of which Rs 5 crore will be spent on the development of minor ports and canals. The road development programme includes works on the State highways, and the improvement and construction of district and village roads.

Medical, Technical & General Education

The existing medical colleges will be strengthened and the bed strength in teaching hospitals will be considerably increased. The number of beds in each district headquarter hospital will be increased to 250. The beds in taluka hospitals will be increased to 50 each from the existing 30. New hospitals will be built lays stress on technical education. To meet the increasing demand for craftsmen, at least 5,000 additional seats will be created in the industrial training institutes over and above the 7,140 seats which are expected to be available at the end of the Third Plan. Four new industrial training institutes will be set up—three for men and one for women—besides strengthening the existing ones. The programme will cost Rs 4.67 crore.

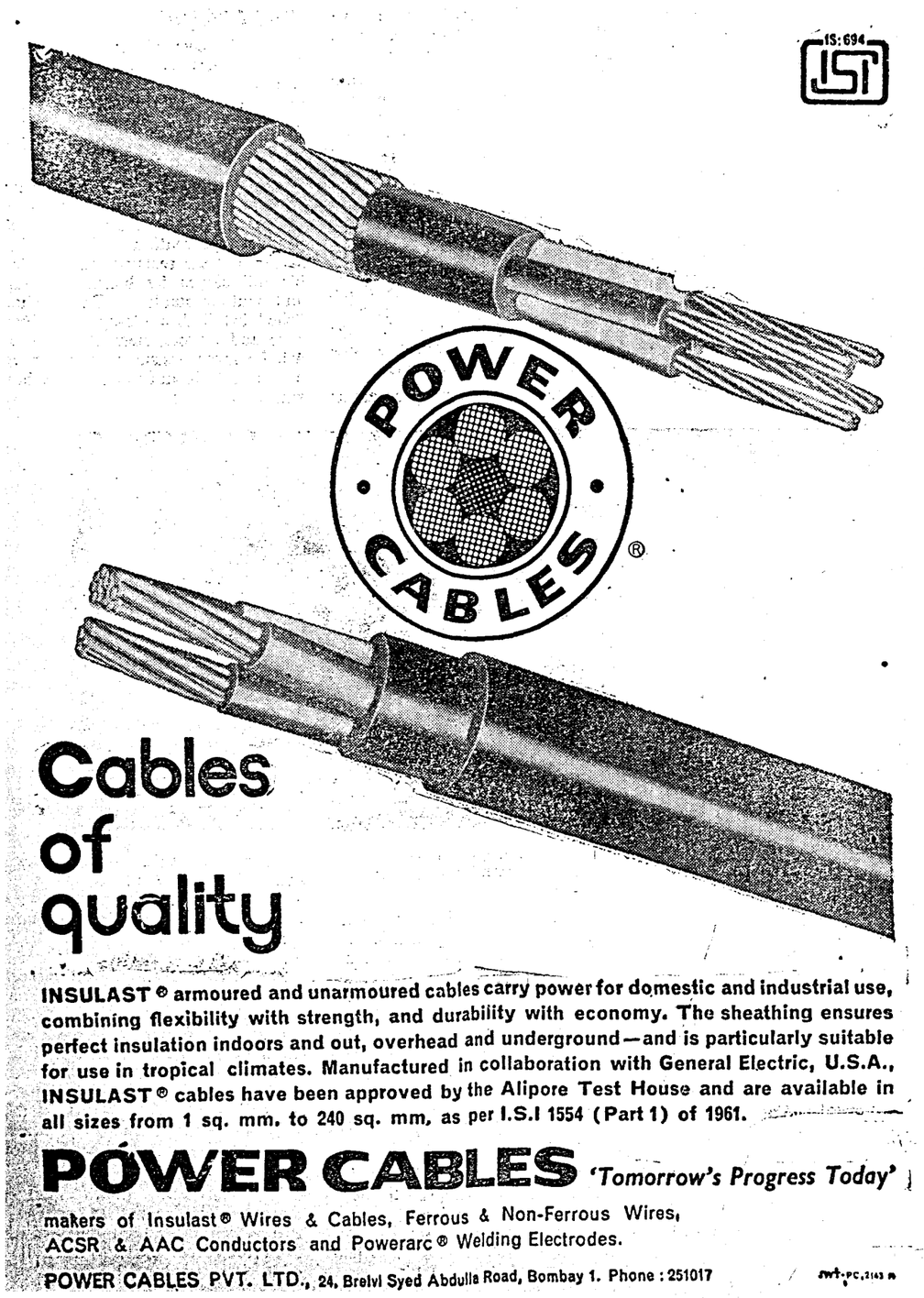
A provision of Rs 64.50 crore has been made for general and technical education. The enrolment in primary and secondary schools will increase to 67 lakh from 46.40 lakh at the end of the Third Plan.

The welfare of the scheduled castes and other backward classes gives priority to education, and drinking water problems. New hostels, numbering 176, will be opened and 3,750 new wells constructed.

Sheltered workshops will be set up for the handicapped and three homes built for the aged.

Under the welfare of women and children, children's homes will be opened where children will live and be educated. Fifteen such homes are expected to be opened in the Third Plan period, and one of them is exclusively for the children of leprosy patients.

The size of the Fourth Plan is more than double that of the Third Plan which had a total outlay of Rs 313 crore as compared to the outlay of Rs 189 crore for the Second Plan.



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How BIG BANKS Can HELP FARMERS

U. S. System Deserves Study

• SATWANT SINGH

DURING the last two decades a series of legislation on rural moneylending has been enacted. It has helped to curb malpractices by the private money lenders, but at the same time has narrowed down the scope of private investment in rural financing. Recent agrarian reforms, which aim at social justice, have eliminated the bigger land owner who had great creditworthiness and have further shrunk the credit resourcefulness of the small cultivator. For acquiring proprietary rights in land, a tenant has to pay a certain amount to the landlord. In addition, he has to find adequate finances for buying implements and other essential things for developing his land.

An average farmer needs a continuous and dependable source of credit at reasonable interest rates to meet his seasonal and long-term requirements. The State does not have the resources to meet all the credit requirements of farmers which will add up to a colossal magnitude. Even in the U.S.A. with its affluent economy, hardly ten per cent of the agricultural requirements are met by the Governmental agencies.

River valley projects and agricultural development schemes should be capable of inspiring confidence in the money market to the extent that they stimulate the supply of credit to farmers.

In the U.S.A. commercial banks provide 40 per cent of the total rural credit as against 0.9 per cent in India; Government and co-operative institutions in U.S.A. account for 0 per cent as against 6 per cent in India.

The problem of rural credit in India can be solved satisfactorily if the requisite machinery is created so that the scheduled banks and co-operative institutions increasingly shoulder the rural financing responsibilities. For, by providing a substantial portion of the rural finances, these institutions would act as pace setters for determining the service charges, and efficiency in finance, administration and supervision, by pooling the wisdom and experience of farmers, bankers and financiers.

Through organisations of their own, farmers could become instrumental in setting up affiliated concerns dealing with their economic, business and financial requirements. But it is important that these farm associations should themselves keep aloof from economic functions, and lend their full support to the development and execution of policies which promote rural banking.

U. S. Model

It would perhaps be advantageous to take some lessons from the U.S.A. in respect of organisation of rural credit. The U.S.A. has established a network of farm loan associations. Twelve federal land banks provide long-term farm mortgage credit. Similarly twelve federal intermediate credit banks provide disbursing facilities to local lending organisations. The farm credit administration has knit together these loaning organisations and the boards' functions for financing the co-operatives. Twelve district banks for co-operatives have brought the service closer to the farmers' business co-operatives.

Farmers have built their co-operative short-term and long-term lending system on strong locally owned and locally controlled lending organisations, which are known as Production Credit Associations and Farm Loan Associations. The borrowers own and control the lending organisations by purchasing class B stock in proportion to the amount borrowed (5 per cent of the amount borrowed). This class B, or the voting, stock can be owned only by the borrower farmers. If a member does not borrow from his association for two consecutive years, his class B stock is converted into class A non-voting stock. Each member has only one vote regardless of his amount of stock owned. A member must be present at the meeting to vote. Only the owner of B stock can be a director.

To start with, the initial capital was provided by the Government in the form of A stock. Although class A stock is non-voting, any losses in excess of reserves would come first from B stock owned by farmer members. This places on the directors the responsibility of giving loans to sound borrowers only. A member, who no longer needs to borrow, exchanges his class B stock for class A stock and purchases additional stock to help in reducing the Government capital. Usually a farmer who operates his business successfully is placed on a board of directors. Such farmer directors determine the policies of the associations, hire the employees, select the loan committees and pass the applications for loans.

Loans are given for agricultural purposes including breeding, raising and fattening of livestock and poultry, the growing and harvesting and marketing of crops, repairs of farm machinery, refinancing of debts, and improvement of houses and other family needs. The loans are used for the purchase of seeds, fertilisers, spray materials, farm machinery, livestock, household equipment and labour.

In addition to the reputation and honesty which the farmer has built up, a reasonable amount of life insurance or ownership of a good security bond enables a farmer to get credit at a relatively lower cost.

Federal land banks with their chain of the two systems of co-operative credit associations are supervised by the farm credit administration. The two systems are: (1) the national farm loan associations which give long-term farm credit loans, and (2) the production credit associations which meet about all

the credit needs of a farmer's family. The two often operate in the same or in connected offices.

The farmers' co-operative associations, which are engaged in marketing farm products, purchasing farm supplies and furnishing farm business services, secure their credit requirements from the Farm Credit Administration which operates through the twelve district banks.

Types of Loans

Loans given to the farmers' co-operative associations are divided into three categories: (1) commodity loans which are generally of the shortest term, seldom over nine months, and which are made on the security of staple commodities, (2) operating capital loans, which generally are short or medium term loans to enable co-operative associations to own capital funds during times of peak seasonal activity, and (3) facility loans which are long-term loans given for financing or refinancing the acquisition of land, buildings and equipment used in the business activities of co-operative associations. The security generally consists of a first lien on the property itself with such additional collateral as may be required. By law, no loan on physical facilities may be made in excess of 60 per cent of the appraised value of the security offered, and no loan may be made unless the purchase or the lease price is considered reasonable. The statute limits the terms of facility loans to 20 years but generally they are made to mature in two years.

Interest rates are determined by law and differ according to the category of loan. Commodity loans carry the lowest interest rate and facility loans the highest.

A loan is given by a bank only to a co-operative association which has an organisation, management and business policies of such character as to ensure reasonable safety of the loan. Before a loan is granted the bank for co-operatives investigates the economic needs, membership, capital structure, and operating efficiency of the association.

By example and by competition this co-operative credit system has led other creditors to give loans on more liberal terms.

While attending a refresher course at a State agricultural college, I learnt that 90 per cent of the credit requirements of the farmers are met by private interests including individuals, commercial banks and insurance companies; however, it is the State agencies which determine the pace of facilities in the matter of the rate of interest and period suitable to the farmer communities.

Where from do the co-operative and other agricultural lenders get the funds to maintain the enormous volume of production and marketing credit which is several times the amount of their capital? The answer lies with the twelve federal intermediate credit banks. These banks are charged with the function of borrowing the investors' money, which they, in turn, lend in smaller amounts to other units of the two credit systems and to privately capitalised credit institutions. They are owned by federal banks.

Investors in large money centres like New York and Chicago ordinarily would not be interested in the individual obligations of the farmers. But when repackaged into intermediate credit bank debentures by pooling their credit, the farmers obtain the necessary financing at reasonable cost, from sources which assure them of a dependable flow of funds. These debentures are purchased by several types of investors, including banks, insurance companies and industrial concerns. As all the twelve credit banks, which issue them, are jointly liable for the payment of the debentures, each investor buys a share in the farmer pool. In other words these intermediate credit banks are engaged in the marketing of farmers' credit to large industrial concerns, which ordinarily can obtain the credit at a cost much lower than what the individual farmer would otherwise have to pay. Like an endless chain of buckets in a persian wheel, the operations of these banks continuously tap areas of surplus funds and pour a steady stream of finance to meet the demand for food grains and other agricultural produces.

In India at present the investors, apart from building a costly house or purchasing urban property, have no opportunity for fruitful investment in agricultural enterprises. Due to the lack of a suitable agency, the farmers cannot pool their credit resources for selling their agricultural bonds to meet their current and development requirements. A network of centrally administered intermediate finance banks on the U.S. model would attract surplus investment from cities like Delhi, Bombay and Calcutta and channel it to rural areas. Such banks should be territorially linked with local farmers' co-operative credit, marketing and processing sccieties so that the borrowers hold stock in them and determine the lending policy and the rate of interest.

Yojana Bhavan Diary

MR Asoka Mehta, Deputy Chairman, Planning Commission, will hereafter deal with matters relating to foreign exchange and foreign aid, besides industry, which he has been looking after since the appointment of Mr T. N. Singh as Minister of Industry.

There has also been a redistribution of subjects among Members of the Planning Commission. Prof V. K. R. V. Rao will also look after Food and Agriculture and Community Development and Co-operation projects. He gives up Labour, Employment and Social Welfare which will now be under the charge of Mr Tarlok Singh.

A new composite Division for Construction Economies, Housing, Town Planning and Water Supply is also to be set up in the Planning Commission.

DR S. Ramgoolam, Prime Minister of Mauritius, met Mr Asoka Mehta, Deputy Chairman, and other officials on February 2.

A Japanese Economic Mission led by Mr S. Nakayama met Mr T.P. Singh, Secretary, Planning Commission and senior officials on February 2.

Professor M.S. Thacker, Member, Natural Resources, left for Bangkok on February 8 to attend the meeting of the Asian Group of the U.N. Advisory Committee on Application of Science and Technology to Development.

Dr S.R. Sen, Adviser (Programme Administration) left for Dacca as a member of the Indian Delegation to attend a meeting of the FAO Working Party on Jute.

Mr G. Roberts of UNESCO, Paris, came to Yojana Bhavan on January 24 for studying the Volunteer Programme in India.

OUTRAGE IN KAZIRANGA

WHERE is the end to cruelty in this land of Ahimsa? The noble and far-sighted policies of the State can be set at nought by a handful of people in whom cupidity and cleverness make an extremely sinister combination. When will our people develop a respect and love for God's own creatures? The sleek and beautiful cheetah has practically disappeared from our forests. The lion, which once roamed all the north Indian forests is now confined to a small patch of jungle in Gir. Even now the threat from sneaky villagers who poison these kings of the jungle is not over. Perennial vigilance has to be exercised by the game preservation authorities of Gujarat. Tigers too, are disappearing fast.

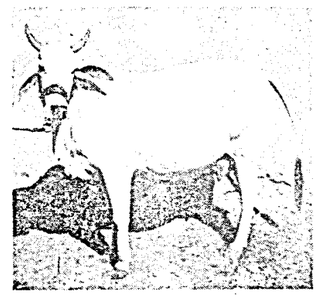
On top of this sad record of our dealings with wild life comes a report that some unknown criminals have killed thirteen rhinos in Assam's Kaziranga for their horns. The rhinoceros horn is credited with some special medicinal properties and they are greatly valued in the drug market, specially in Nepal, Tibet and China. The crime, which appears to have been perpetrated some time in December last, came to light only a few days ago. To lose thirteen rhinos when Kaziranga's rhino population is barely 180, is not a small loss. Rhinos, unfortunately, do not multiply like homo sapiens. When the perpetrators of this crime are caught, one hopes that punishment given to them will be sufficiently deterrent.

Long Live Putli !

PUTLI is no more. Cows or for that matter members of the bovine family do not usually make newspaper headlines. Putli however, was an exception. She had earned the distinction of being the highest yielder of milk in the All-India Milk Yield Competition for four successive years ending 1962-63, winning each year a prize worth Rs. 2,000. Last year also she was adjudged the best yielder and awarded a prize of Rs. 5,000 and a medal. Her average yield was 63 lb. a day.

Yojana had seen Putli a year ago when its staff visited the Satguru Hari Singh Animal Breeding Farm at Sri Jewan Nagar (See *Yojana* December 8, 1963). She was enjoying the winter sun with Miran, her Shahiwal farmyard companion. A pair of short horns, white body coat, a long narrow face, a flat forehead with a bony prominence at the centre of the poll and an average yield of 59 lb. a day—that was how Putli looked then. She had all the characteristics of the Hariyana breed to which she belonged.

She had always received doting affection. In fact Putli's performance depended to a large extent on the care His Holiness Sri Jagjit Singh Ji, Spiritual Head of Namdari Sikhs, takes in the livestock of the farm and



the scientific lines on which he runs it. In recognition of his valuable contribution towards improvement of cattle wealth the Government have conferred 'Gopal Ratna' on his Holiness.

Yojana's condolences to His Holiness on the death of Putli.

Too Good to be Indian !

THE new Aerogramme introduced by the P & T Department looks extremely good.

But, it seems that some P & T employees cannot yet believe that their Department can produce such beautiful aerogrammes.

A Delhi journalist used one of these new aerogrammes to write to a friend in Washington DC. Instead of travelling to USA, it promptly came back to him after two days!

Greatly perplexed, he telephoned an officer in the department about this unexpected change in his letter's destination. The officer's reply was "The new aerogramme is so good and so strange that the sorter must have thought that it must have been mailed to you from America and not India. You can claim a refund of its cost and we will pay you."

He did claim a refund and was promptly paid by the department who apologised for the inconvenience caused.



IGNORAMAN

Wants to Know

Why We Celebrate
Wild Life Preservation
WEEK
And Not
Wild Life Preservation
YEAR ?

No Two Ways To It

OBSERVATION from an American newspaperwoman who had been in India during the war years and revisited Bombay during the Pope's visit:

"My surprise was not at how much things had changed—they had—but at how much they were the same. Then people used to grumble, against the British. Now they grumble against their own Government. But they grumble in exactly the same way!"

Collector's Item

Seen in a radio office:

"He who thinks by an inch and talks by a yard ought to be moved by a foot."

Books

Fertiliser Survey

Factors Affecting Fertiliser Consumption—Problems and Policies. National Council of Applied Economic Research, New Delhi. 104 pages. Rs. 7.50.

C.V.S. Sastry

THIS publication of the National Council of Applied Economic Research embodies the results of its investigation of the various factors which impede the use of fertilisers, conducted at the request of the Fertiliser Association of India. Opinions and factual information on an extensive collection through interviews with users and non-users of fertiliser as well as others administratively and commercially concerned with the use of fertilisers provided the study material.

Prepared in the traditional way, it takes note of a number of statistical principles and offers explanations and suggestions, and cites, among the disincentives, the high cost of fertiliser, defects in the present-day distribution and marketing system, inadequate credit and, lastly, the apathy of the farmers. A lot of effort to make it a scientific study appears to have, however, gone unrewarded. As the authors were compelled to own, an important limitation imposed by the method was that the scope for statistical generalisation of findings was restricted. All the same, statistical generalisations do find their place, and high price of fertiliser and inadequate credit facilities were noted as the main impediments. In the context of the very tempting prospect that one unit of plant nutrient would produce an additional yield of ten units of food grains which means considerable additional income, the high cost should not deter the economically-minded farmer from making the best use of available fertilisers. The answer may be found in the view that the risk involved in the use of fertilisers makes its use uneconomic. If favourable conditions do not obtain the user of fertiliser may be worse off than a non-user.

An attempt has been made in the report to show probablistically that in the long run, the user will not lose. But the real challenge is in the statements attributed to a fairly high proportion of users in ten districts that they are not fully convinced about the utility of continued use of fertilisers and the economic benefits. The farmer is now talking in economic terms and it will not be convincing to dismiss his attitudes as this report does. If the purpose of the study was to unearth a mystery it appears that the mystery has eluded the study.

Union Budgets

Union Budgets—A Factual Study of Finances of Government of India (1950-51 to 1964-65). The Indian Merchants Chamber Economic Research and Training Foundation, Bombay. 380 pages. Rs. 17.50

N. K. Chandekar

The book consists of three parts and a statistical appendix. Part I relates to the Revenue Budget and narrates trends in gross revenue, composition of the revenue, commoditywise details in respect of important taxes, indices of growth of major components of expenditure and variations between budgeted and actual figures of receipts and expenditure. Part II relates to the Capital Budget and deals with trends in receipts and disbursements under major heads, details of public debt and its division into internal and external debts and investments in industrial and commercial undertakings. Part III analyses the general budget trends.

The utility of such a study based merely on figures as given in the budgets is limited. Without an adequate analysis or reclassification of the budgetary trends, it is difficult for one to understand the economic significance of the magnitudes involved. The sifting of data should have been done more meticulously. For example, all accounting transactions should have been excluded so as to bring to focus the real magnitudes of government transactions. Similarly payments of States' share of excise duties should have been excluded from government expenditure. For studying the grants paid to State Governments, only statutory grants, which are readily available at one place, are taken into account leaving out the major portion of grants merely because before 1961-62 these were included under relevant major heads of accounts at different places in the budgets. For an analysis to be useful, all these grants should have been culled out from the various account heads and put them all together, although it involved quite a bit of effort. Again, expenditure on community development' has been put under 'extraordinary items' instead of under 'social and developmental expenditure' just because this was done in the budget documents for years prior to 1961-62.

The book makes an attempt to classify expenditure into developmental and non-developmental. But the classification is arbitrary and not much useful for economic studies. The obvious solution, as suggested, is to bring out an economic and functional classification of the budget. The book stresses the need for expanding the scope of the budget and makes useful suggestions towards it.

PUBLICATIONS RECEIVED

Changing Pattern of Indian Villages by G.R. Madan. S. Chand & Co. New Delhi. 509 pages. Rs 15.

Growth, Change and Planning Economies of Developing Countries by Maurice Zinkin. Asia Publishing House, Bombay. 51 pages. Rs 5.

On Historiography—A Study of Methods of Historical Research and Narration of J. N. Sarkar, G. S. Sardesai and P. K. Gode by S.R. Tikekar. Popular Prakashan, Bombay. 79 pages. Rs. 6.

NPC Productivity (Preventive Maintenance) Vol. V No. 4. The National Productivity Council, New Delhi. Rs 3.

Some Criterion

Three gentlemen whose mother-tongue is not Hindi and who failed to secure official invitations for the Republic Day Parade started a discussion on Hindi as the official language and this is how it proceeded.

A. And now on top of everything comes this decision on Hindi.

B. Can you force a language down the throat of everybody?

C. Listen. I think we are going a little too far. What is your objection? Is it your love of English or hatred of Hindi that makes you say so?

A & B. We don't hate any language.

C. Then is it your love for the English language?

A. Yes, I do love it. Because it is a powerful language, widely spoken and understood in many parts of the world. It has become now a part of our heritage. Why should we replace it with Hindi which is still not a developed language?

C. True, English is a far more developed language. But do you expect to make English a national language of India in the sense in which Hindi can be?

B. Yes, why not?

C. How many in India do you think can speak or even understand this language?

A. Why, many people can.

C. Many means how many? Do you know that hardly 1.5 per cent of the population in India can understand English? Even less can speak it; and how many, do you think, can write good English in this country?

A. Well, that is no criterion.

C. There must be some criterion when we sit in judgment over so important a matter as this.

A & B. You are on the wrong track, my dear friend. You cannot defend this hasty step of the Government.

C. Look, I may not be good at arguing. I am not a lawyer. But we shall at least be objective. Look at us, the so-called educated people. We studied English for at least 11 years in our schools and colleges. For the past 150 years at least, English has been the official language in this country. That is how you say it is now a part of our heritage. The result is that hardly seven million of our 450 millions of countrymen can claim to understand English.

B. But you want India to become industrialised, to become progressive. How can you do it by studying Hindi?

C. Then do you mean that if English is not the official language you cannot become industrialised or progressive? Did Japan adopt English as its national language before it decided to become modern? Did the Soviet Union give up its Russian? Did China give up its Mandarin at any time?

A. But India is not like that.

C. Why not? How is India different? The Government decision does not prohibit the study of English. It has conceded its importance for higher technical education, in research institutions and in all places where it matters.

B. But now they want us to do our office notings in Hindi.

C. Not necessarily. If you can't do it, no one will compel you to do it unless you know the language. There is no circular which says that you should not write in English if you are ignorant of Hindi.

A. That's true. But we are all at a disadvantage. I can't understand notings made in Hindi when they come to me.

C. That is possible. But you can always have the English version of it. Look. Please do not make of your personal difficulty a national problem. People like you and me who know English better than Hindi and who are too old to master Hindi do not constitute the nation. Tell me, do you honestly think that English can for ever be the official language of India?

A. I never said so.

C. Then what exactly do you object to?

B. This was the most inopportune time for this decision on Hindi.

A. They could have postponed it to a better day.

C. Better day means what? They have postponed it by 15 years.

B. What he means is, Hindi should not be introduced until he retires.

A. No. That is not it. What with soaring prices, popular discontent and all that, this was not the time to enforce Hindi.

C. So you think it should have been done when food grain prices were low?

A. Not exactly.

B. But why Hindi? Why this tyranny of the majority? Why not Tamil or Bengali or Marathi?

C. Then, do you advocate the tyranny of a minority? Do you realise the significance of what you say? Supposing it was not Hindi but Marathi. Would you have been satisfied? Hindi has been chosen as the link language because it is spoken by the largest number of people in this country. It is common to U.P., Rajasthan, Bihar and Madhya Pradesh and many people in Maharashtra, Punjab, Himachal Pradesh and even Andhra Pradesh can understand it.

A. But why should they introduce it now?

B. The Government should have made Hindi the official language in January 1950.

A. If they had done that, we would have mastered Hindi by now, and would have taught many others how to write good Hindi.

C. I think that is what the Government wants you to do now.

S.S.

It was late afternoon.
Mohan and his wife were having tea. Outside, they could hear Rakesh, their son, playing with his friends.



Suddenly, a screeching sound of brakes. Then silence. A boy came running in. "Rakesh is hit...a car..." The tea-pot crashed to the floor. "Where is he? What happened?..." cried Rakesh's mother. He was being carried towards the house. His eyes were closed, his limp form was covered with blood.



The hospital was still. The boy was in a coma. Mohan and his wife spent three days and nights at his bedside. A continuing nightmare. All they could do was wait and pray. Mohan vowed to give blankets to the poor when Rakesh recovered.



The fourth morning, Rakesh opened his eyes. Mohan's prayers were answered. Now he had to fulfil his vow. Not being wealthy made this difficult. Mohan was in a quandary —but not for long.

Like a gift came the first instalment of Rs. 2,000 on his Anticipated Endowment Policy.

A NEW LIFE FOR RAKESH



For five years Rakesh remained an invalid, until the doctors could operate on his leg. These were anxious days. Ahead lay the problem of hospital expenses. Fortunately, the second instalment of Rs. 2,000 from Mohan's policy came right in time to take care of this.

Yet Mohan's problems seemed endless. The accident had left Rakesh with a limp. It made it difficult for him to walk 4 miles to the nearest college, so he had to give it up. His future appeared bleak. But Mohan had Rs. 6,000—the last instalment of his insurance policy. With this he installed a flour-mill for his son.

Today Rakesh runs the flour-mill and looks after his parents.



LIFE INSURANCE CORPORATION OF INDIA

ASP/LIC/Z-28

AGREEMENT ON BOKARO STEEL PLANT

INDIA has signed an agreement with the Soviet Union for co-operation in the construction of an integrated iron and steel works at Bokaro, the fourth in the public sector.

The Bokaro plant will have an initial capacity of 1.5 to 2 million tonnes with provision for expansion to 4 million tonnes.

The Soviet Union will extend a credit up to 190 million roubles (Rs. 100.5 crore) for meeting the foreign exchange cost of the plant. The terms and conditions of the credit are similar to those for Bhilai. The credit bears an interest of 2.5 per cent and is repayable in twelve years.

Like Bhilai, Bokaro also will be built by Indian engineers with the help of Soviet specialists. Soviet organisations will train Indian specialists and workers both in the Soviet Union and in India. Indian organisations will be given a substantial share in the designing of the works, and in the supply of equipment and materials. The Ranchi plant and other Indian plants like the Heavy Electricals are expected to contribute significantly to the construction of Bokaro. A detailed project report will soon be prepared to define the exact scope of Indian and Soviet participation in the designing and construction of the project.

Bokaro will produce hot and cold rolled strips and sheets and galvanised sheets. The mill complex consists of a 1250-mm slabbing mill capable of rolling ingots over 30 tonnes, and 2,000-mm wide continuous hot and cold rolling mills. Steel is to be made by the basic oxygen converter process. Iron is to be made in 2,000 cu.m. furnaces which will be among the largest in Asia. The plant will also incorporate the latest technological developments in steel production and a large-scale use of automation.

The Soviet Union will supply equipment which is not available in India. The plant will be commissioned early in 1970.



SHIPYARD AT COCHIN

WORK has begun on the Rs 10 crore ship building yard project at Cochin. Though the shipyard will take 8 years to be completed, partial ship building activity is expected to start within two years.

The shipyard will be designed for building ships of a total capacity of 63,000 GRT every year. They will be mostly large vessels like tramps, bulk carriers and oil tankers, different from those built at the Visakhapatnam shipyard.

The Mitsubishi Heavy Industries Limited of Japan is collaborating in the project. The Company will provide the necessary foreign exchange (worth Rs 3 crore), and technical assistance to complete the project.

FIFTH STEEL PLANT

INDIA has begun preparations for the fifth steel plant in the public sector. An agreement has recently been signed with an Anglo-American consortium consisting of four U.S. and three British firms, to make a study and a project report for the fifth plant.

The proposed plant will have a capacity initially of 1.5 million tonnes of steel, which will be later developed to 4 million tonnes.

Under the agreement, the consortium will recommend the site and give proposals for Indian engineering participation.

Alloy and Special Steel Plant

INDIA's first alloy and special stee plant at Durgapur has gone int production. Set up in the publi sector at a cost of Rs. 80 crore, th plant is designed to produce on lakh tonnes of alloy and specia steels every year. Full productio will be reached by 1967.

The plant has been built in colla boration with Japan which als supplied the main plant and equip ment. The technical know-how an training facilities have been mad available by Canada.

Hotel and Tourist Corporations

TWO Corporations have been se up in the public sector t promote tourism. The India Tourist Hotel Corporation which will hav an authorised capital of Rs. 4 cro will build hotels at thirteen differer places of tourist interest. These hote will add 2,200 rooms to the existin hotel accommodation in the countr

The second Corporation which called the India Tourism Corpora tion will have an authorised capita of Rs. 50 lakh. Its function is to s up and manage shops in leadin cities and at the international ai ports to make available to touris imported articles against payment i foreign exchange and also manag special transport facilities for foreig tourists. The India Tourism Tran port Undertaking which was s up in November last will be a subs diary organisation of the Touris Corporation. The Undertaking wi import 50 big air-conditioned ca at a cost of Rs. 15 lakh for providin transport to sight-seeing visitor

A Transport Development Fun will also be set up with a capital Rs. 30 lakh to give loans to registere transport operators.

LINING RAJASTHAN CANAL

The first stage of lining of a 19 kilometre stretch of the Rajasth Canal has been taken in hand. Th is in addition to the lining 222 kilometre of the Rajasth feeder which has been completed.

CROP YIELDS

from Page 13

places in the country on the same crop, and a sense of cohesive endeavour can be generated.

(3) The university is a place where the minds of the students have to be developed and an element of depth introduced into the thinking capacity of the research students. If we are to provide the student with the ability to integrate information from diverse fields of study, it is very essential for some amount of basic research to be promoted in the different disciplines. High quality basic research alone should be encouraged and for this purpose some of the modern equipment should be obtained. In a field like genetics, for example, some amount of work should be done on diverse organisms such as bacteria, fungi, plants, mouse and man. This will bring home to the students an understanding of the basic unity of the living world and inculcate in him a curiosity for the mechanisms underlying the rich diversity of forms.

(4) In addition to developing the above lines of research each university should try to build up one or two schools of specialisation where more effort and money could be expended. The utility of these specialised schools will naturally depend upon the competence and specialisation of the scientists employed by the university. A conscious attempt can, however, be made to develop some special areas of advanced research so that the university becomes known all over the country as the right place to go to for doing a particular type of work.

Research on Solar Energy, Very Important

A field of study to which we should evote more attention is the extent f utilisation of solar energy by lants for the production of carohydrates. Blessed as we are with undant sunlight throughout the ear, any increase we can bring about the efficiency of the processes elating to the conversion of solar energy into chemical energy will have an enormous impact on the productivity of our crop plants. This is particularly important in view of the fact that for many years to come we will not be able to provide the fertilisers our crops will need for producing yields of the order indicated in this article.

Cause for Low Yields

Scarcity of resources in the form of seeds, fertilisers, pesticides, fungicides and implements is the basic cause for the low yields of our farms. Improvements in the tempo of agricultural research, extension and education are necessary but they alone will have only a marginal effect on production so long as the inputs necessary for scientific agriculture remain scarce. In a recent study of the financial implications of the proposals that the United States should feed the entire underdeveloped world, it has been estimated that an annual outlay of 4 billion dollars would be necessary for increasing in the United States (a) wheat production by one-third, (b) milk output by 50 per cent, (c) the production of soyabeans by 25 per cent and (d) the yield of vegetable oils by a third. The pale green or light yellow colour of the leaves which we see in most of our crop plants when they are young is an indication of their hunger. The plants will look dark green and healthy when enough nutrients are put into the soil. Without supplying the requisite quantities of fertilisers and water it is futile to expect even an improved variety to yield big crops. The resources allocated to agriculture should therefore be commensurate with the physical targets of production.

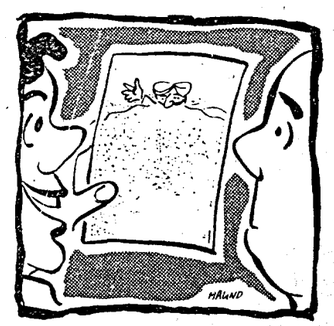
With our limited resources in funds, inputs and technical manpower, it is exceedingly important that they are deployed in such a way that they will yield sure results. There is much scope for re-examining the methods followed at present in achieving our targets in a basic input like the seed of improved variety. Seed production is a job which is best done in a concentrated way. If a village which is agriculturally the most progressive in the district is converted into a "Seed Village", it will be possible to meet the entire seed needs of that district within two years. For example, we have chosen a village in the Delhi State and have grown this year seeds of the highest yielding wheat varieties in 60 acres. We have chosen the farmers who agreed to work for 40 maunds or more per acre. The seeds produced this year will be sufficient to cover the 1,200 acres under wheat in this village during the *rabi* season of 1965-66. During *rabi* 1966, the entire needs of the Delhi State for wheat seeds can be met from this village. By establishing rigorous standards of quality from the beginning and by starting seed co-operatives for grading and cleaning seeds and treating them with insecticides and fungicides, we can satisfy our requirements of good seeds in a very short time.

Concentration of resources rather than their diffusion on a wide front may alone lead to results which can spark off "chain reactions" in the application of science to agriculture. This applies to both research and extension. We can make rapid progress in our thinking if we adopt Saint Thyagaraja's advice contained in the song:

Chakkani Raja Margamu Lundaka
Chandula Dura Nela O Manasa

(When there is a right royal road, why do you want to take uncertain bye-lanes to reach your goal?).

Dr. M. S. Swaminathan, who is Head of the Division of Botany at the Indian Agricultural Research Institute, New Delhi, was a recipient of the Shanti Swarup Bhatnagar Award for 1961 for research in biological sciences.



He was so proud of his produce that he insisted on getting himself photographed with the crop !

FORUM EVENTS
Reporting the Activities of College Planning Forums

AN ENQUIRY INTO

STUDENTS' ATTITUDES

In May last the Planning Forum of the Government College, Rajamundhry, (Madras), conducted an attitude survey among the students. A number of questions were asked on the social and economic background of the students to elicit their attitudes to some of the controversial problems of the day.

On the question of the official language of India, 75 per cent favoured continuance of English. The rest of them thought that Hindi should replace this foreign language. On the related question of the medium of instruction for higher education, there was near-unanimity among the students in favour of retaining English for an indefinite period. Only a meagre 5 per cent voted for either Hindi or Telugu as the more desirable medium of instruction.

About 60 per cent of the boy students were found addicted to smoking. What was their honest opinion on the merits or demerits of smoking? Seventy per cent of the boys admitted that smoking was harmful to health. For 20 per cent, smoking was just a matter of pleasure. Eight per cent considered it a part of civilised living and the rest favoured it as being "essential for good health". Girl students to whom also this question was put, however, unanimously condemned it as a bad practice.

On the much discussed question of the desirability or otherwise of co-education, 60 per cent of both boys and girls voted in favour of it.

In regard to the dowry system, the majority of students denounced it as a social evil. As many as 80 per cent of the boys and 95 per cent of the girls were against this 'pernicious' custom.

Asked about the ideal time for marriage, 70 per cent of the boys thought that one should not get married before one got properly employed after completing his studies. An interesting—somewhat amusing—point that emerged from this query was the reported preference of 15 per cent of the girls and 20 per cent of the boys for remaining unmarried throughout life.

Answering the question on the type of government they liked best, almost all the students voted for the democratic type of government.

As for the reasons for taking up the particular courses of study, about 35 per cent said that they were guided by their 'aptitudes'. For 20 per cent it was due to their failure to get a seat in the course they had liked. The rest of the 45 per cent stated that they had no choice in this matter and that their economic background left them with no alternative.

As to the career they would like to follow after leaving the college, about 60 per cent said they wanted to take up "some job" to earn their livelihood, nearly 20 per cent expressed their desire to become doctors, lawyers and professors, about 8 per cent wanted to join the armed forces and the remaining 4 per cent did not have any ambitions at all "for the present".

In regard to the prevailing system of examination 60 per cent expressed satisfaction, 40 per cent considered it inadequate and defective. Apart from the usual written examination, they preferred an oral or *viva voce* test system introduced at the degree level.

The tutorial system which has now been adopted by some colleges was described by 90 per cent of the students as beneficial. The survey revealed that in the matter of "personal contact between the teacher and the taught" there was still a great leeway to be made. This drawback, according to the survey, could be attributed mainly to the "unwieldy numbers in the class room" in present day colleges.

It was found that only 25 per cent showed interest in extra-curricular literary pursuits like debates, essay writing, etc. On the other hand 60 per cent showed greater interest in activities like social service and Planning Forum discussions. It is not unlikely that this attitude was due to a prevailing notion that certificates obtained from these associations might help them in their career.

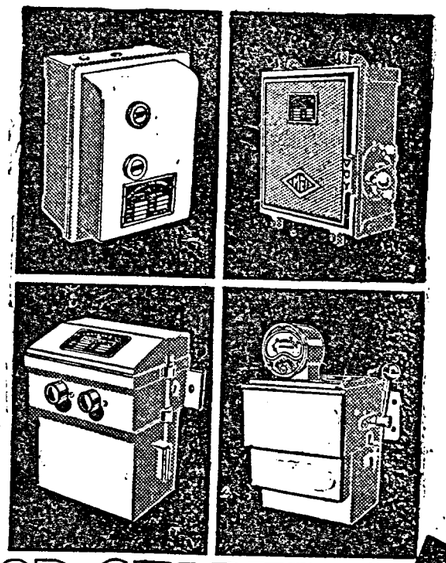
The survey revealed that more than 50 per cent of students were in the habit of reading newspapers regularly. About 35 per cent said that they read them occasionally. Among those who read newspapers only 20 per cent claimed to be going through the editorials. A great majority of students (75 per cent) were interested in reading general books also. The order of preference was: novels, dramas, short stories.

Despite the existence of facilities for a large number of games and sports, only 30 to 40 per cent of the students showed an inclination to play either indoor or outdoor games. The others did not care to avail of the facilities despite the fact that they regularlly paid the 'games fees'.

The enquiry revealed that 70 per cent of the students had some kind of hobbies like gardening, painting, philately and photography. Many students showed lively interest in fine arts also. About 50 per cent had interest in music and had developed a taste for dance, or drama or painting.

As for the economic background of the students, it was found that 75 per cent of them came from comparatively poor families with annual incomes ranging from Rs 500 to Rs 4,000. About 10 per cent came from very poor families with an annual income of less than Rs 500. Excepting a few students from affluent families the majority did not enjoy amenities like living space, furniture, study facilities etc. or the proper environment required for a student's physical and mental development.

Regarding study habits, it was found that 50 per cent spent 3 to 6 hours a day at studies and about 30 per cent of them devoted more than 6 hours a day.



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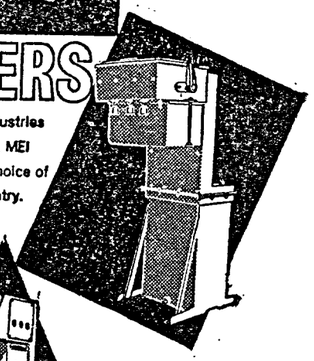
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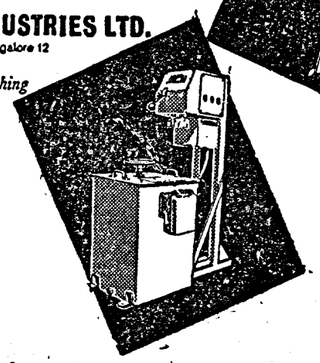
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YOU ASK WE TELL YOU US

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

FOURTH PLAN STRATEGY

GORELAL PRASAD YADAVA, Patna :

1. *What steps does the Planning Commission propose to curb the inflationary situation during the Fourth Plan period?*

2. *Will agriculture and consumer goods industries be given priority over the capital goods industries and long-term projects in the Fourth Plan?*

ANSWERS: 1. The Fourth Plan is yet in the process of being finalised. However, the Planning Commission has suggested a provisional outline of the Plan, its objectives and strategy. The Memorandum published recently says, "The crucial problem for the Fourth Plan is of accelerating the tempo of development without accelerating inflationary trends."

The prevailing inflationary trends are the result of imbalances in the economy—between supply and demand. Two important factors have helped to accentuate the inflationary trend. Agricultural production has more or less stagnated at the 1962-63 level, and past investments in projects have not resulted in quick returns. In final analysis, neither relative price stability nor adequate development will be possible if we fail to make maximum possible savings from the current national income for investment in plan projects. This would mean that those whose incomes are relatively larger should be prepared to accept smaller increases in income and consumption. The magnitude of the plan has to bear relation to the magnitude of the nation's development needs, and the resources required have necessarily to be contributed from income-earners.

There is no doubt that price rises in recent years have brought large incomes to primary producers as well as traders. A good part of these incomes will have to be converted into savings and investments. The disparities in income and consumption will also have to be reduced.

In view of this general strategy to check the inflation and stabilise the economy, the Planning Commission has been trying its best to keep deficit financing at the minimum level. The Third Plan also had made an effort in this direction. The Fourth Plan proposes to set apart a sum of Rs 500 crore to meet normal, i.e. non-inflationary, expansion of money supply.

Some of the other measures suggested are: (a) to discourage such projects as are likely to have a longer gestation period and take up those which will yield results quicker, (b) to increase agricultural production, and (c) to avoid wasteful expenditure.

2. The priorities in the Fourth Plan have not yet been finalised. However, the strategy of the Plan indicates that agriculture and consumer goods industries will be given a high priority, without detriment to such of those capital-goods industries as are absolutely necessary to strengthen the foundations of the nation's economy.

SHAMBU by Malinda Topa



Terms Explained

SURYANARAYAN RAO, Hyderabad

What is the difference between multiplier and capital output ratio in terms of Fourth Plan projections?

ANSWER: Multiplier, if related to investment, is the ratio of an increase in income to a given increase in *new investment*. It shows that the initial investment multiplies several times in course of time.

Capital output ratio determines the rate at which output grows as a result of a given capital investment.

Quantity of multiplier depends upon the marginal propensity to consume, while capital output ratio depends upon the technical conditions of production e.g. degree of technological development associated with capital investment, the efficiency of handling new types of investment, quality of managerial and organisational skill, investment pattern, etc.

In the case of multiplier the initial investment must come from outside the economy, e.g. deficit finance, bank credit, foreign loan or hoarded wealth. The capital output ratio suggests the amount of capital needed to produce a given output.

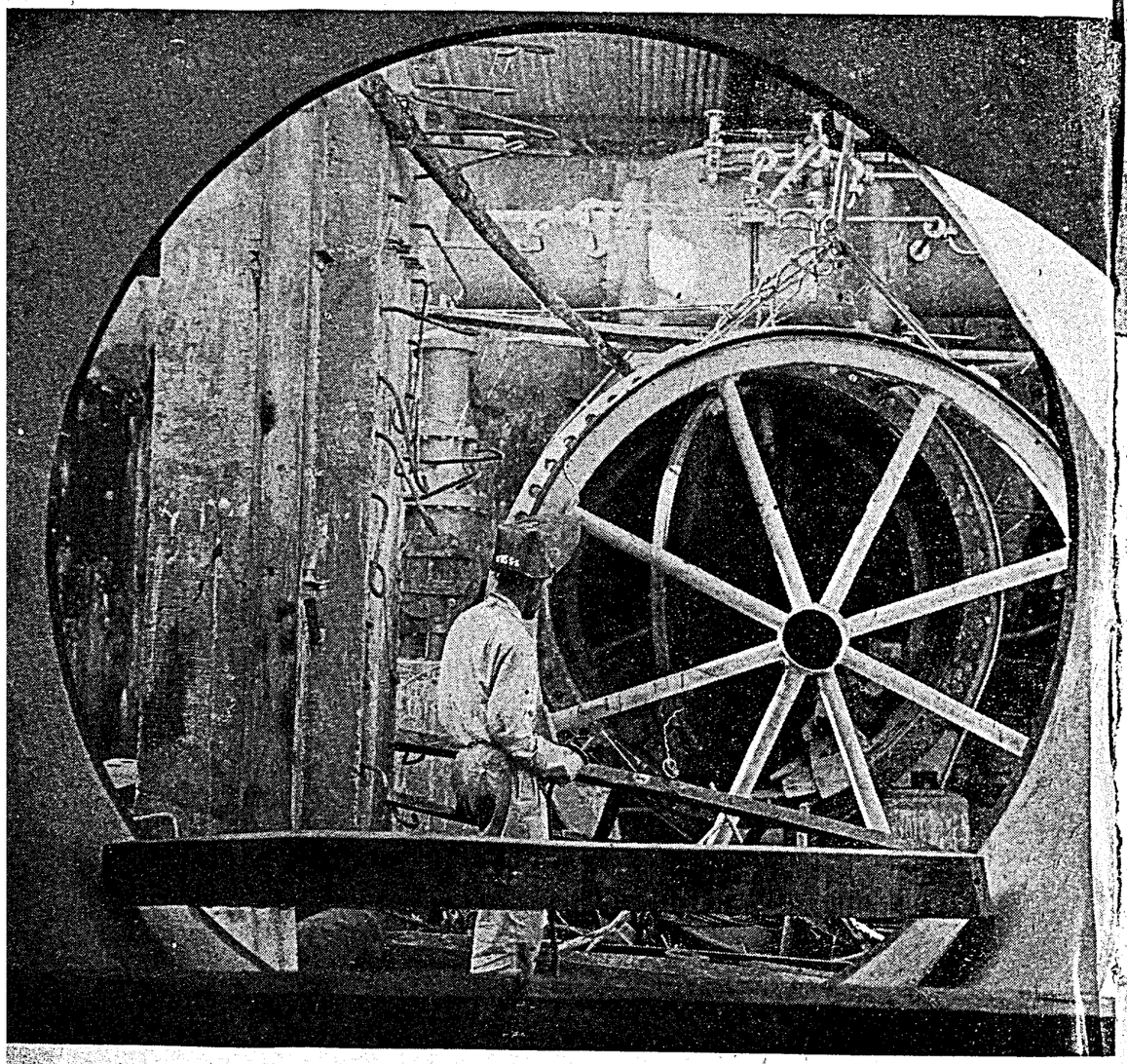
Multiple of income depends upon the injection of investment and refers to successive rounds of expenditure, savings and investment. It stops after having completed the cycle. The capital output ratio indicates the relationship between capital investment and output at a specified point of time.

The multiplier is not very effective in India because of leakages, agricultural character of the economy and self-employed producer-consumers etc. The capital output ratio has been used in formulating plans in India. The Fourth Plan is still in the formulation stage.

REG. NO. D-876

YOJANA

FEBRUARY 28, 1965
NINTH YEAR 4
25 PAISE



BRIDLES TO A TURBULENT RIVER

Ten new generators will churn the racing waters of Sharavathi to produce most of the electricity that Mysore State needs.

See Page Six



LIFE-SAVERS FROM RISHIKESH — Pages 2-5

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ABOUT YOJANA

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COVER : A. C. Okunev, one of the Russian engineers at the Rishikesh Antibiotics Plant explains a point about the production fermentor to N. Chaubey, his Indian counterpart. The Rishikesh Project has Soviet collaboration. See pages 2-5

NEXT FORTNIGHT

VILLAGE LITERACY MOVEMENT OF MAHARASHTRA
Pictorial Feature

ANALYSIS OF UNION BUDGET

BLACK MONEY, WHITE MONEY

Over to You

WHAT STUDENTS CAN DO FOR VILLAGES

THERE are more than 700 Planning Forums in the country and the number is increasing every year. Each Planning Forum may adopt a village of its choice as its "project" for development. A small team of 15 to 20 students led by one or two professors may take up the task of developing the selected villages. The student-members may be drawn, as far as possible, from various faculties like agriculture, medicine, engineering, veterinary science and arts. The problems of our villagers are numerous and varied and the specialised knowledge of our students will help in solving them.

Each Planning Forum should prepare a list beforehand of the tasks it proposes to undertake and complete within a specified period of time. The programme may be drawn on the following lines: (a) conducting adult literacy classes in the evening, (b) building roads, schools, dispensaries, youth clubs, drinking water tanks etc., (c) digging *nallahs* and minor irrigation channels, (d) advising on family planning and first-aid, and (e) slum clearance.

To bring down the building costs of schools, dispensaries and youth clubs raw materials available locally may be used and villagers may also be persuaded to offer shramdan.

In the field of agriculture and animal husbandry, students may give advice to the villagers on improved methods of cultivation, bunding and poultry farming. Demonstration and actual participation in these programmes by the students will result in higher output.

Thirdly, importance of co-operation, particularly co-operative credit societies and co-operative farming should be explained to villagers. Our farmers do not usually get loans in full and even the share they manage to get is not fully used for specific purposes. The Planning Forums can play an important role in this respect. They can help the farmers in getting the loan and ensure proper utilisation of Plan funds in the rural areas. The ultimate aim of the Planning Forums should be to transform the "adopted" villages into India's "model villages", inspiring neighbouring villages to follow the example.

M.K. College, Udgir R.P. KURULKAR

SCIENCE IN INDIA

Mr A. Rahman of the Survey and Planning of Scientific Research Unit, Council of Scientific and Industrial Research, whose article on the state of science in India was published in the Republic Day Special Number of *Yojana* (pages 53-56) has, in a communication to us, expressed his unhappiness with the way the article was edited at some places in preparing it for publication. He has also disapproved of the heading given by us ('What is Really Wrong with Indian Science?') and the photographs that accompanied the article. We would not here go into the reasons for making the changes, which, for the large part, were actuated by a desire to conserve space; but we readily accede to Mr Rahman's suggestion that we should make it clear to the readers that the choice of the heading, the photographs and the captions under the photographs was ours and not his.

As regards the heading, Mr. Rahman has said in his letter: "I abhor judgements like: What is Really Wrong with Indian Science? I am not competent to answer that question and I would not like to raise it. Secondly, I do not think that there is anything really wrong with the Indian science."

We should only like to say that the article itself was occasioned by a broadcast by Professor Kurt Mendelssohn over B.B.C. in which he had dealt with what he thought was wrong with Indian science. Mr Rahman himself has, in the article, expressed surprise that Prof Mendelssohn's talk has evoked no discussion in Indian Scientific circles. The heading (which, in a popular journal is generally the editor's rather than the author's) reflects the spirit of the context.

—Editor, YOJANA

YOJANA

Vol. IX No. 4 Fortnightly Journal Published on behalf of the Planning Commission Phalguna 9, 1886

A GOOD YEAR AHEAD

FOR some months before the Chinese invasion in 1962 we were all greatly exercised about the problem of national integration. There is even a theory that the Chinese action itself was based on an error of judgement over the extent of our national cohesion.

National integration has again come to the centre of our attention because of the language disturbances in various parts of the country. The violence has fortunately subsided, and the issue is now being thrashed out in discussion-chambers instead of the streets. The democratic arts of debate and give-and-take are reasserting themselves.

In the midst of this concern the country has not taken adequate note of some heartening news on the economic front, namely that agricultural and industrial production in 1965-66 promises to be very much better than what it has been in the last four years. It is not that there will be no pressures and strains; but, whatever the difficulties, 1965-66 bids fair to be a good year. The present *kharif* crop has already been an unusually good one, and next year the potential for production of an additional 6 million tonnes of food grains and an 8 per cent increase in the production of other agricultural commodities will be created. In steel there will be an addition of 900,000 tonnes of ingots. Power production will be up by 2.5 million kilowatts.

1965-66 is the final year of the Third Plan, and the final year of a five-year plan has always registered a big increase. The reason is obvious: many of the investments made earlier in the five-year span begin bearing fruit. Since, in thinking of the plans, we think generally in terms of targets, it might be asked to what extent the targets of the Third Plan will have been achieved. The Deputy Chairman of the Planning Commission has indicated that at the present rate the power and cement production targets will be fulfilled in the first year of the Fourth Plan and the steel target in the second year. The weakest link in the industrial chain is nitrogenous fertilisers, in which the Third Plan target will be reached only in the third year of the Fourth Plan. (Indeed the lag in fertilisers is evidence of how it is industry that has failed agriculture).

The delays in some lines of production are somewhat offset by the remarkable advance in transport and power. In transport, the handling capacity has outstripped the demand for the first time in years. One of the prime goals of planning, the achievement of self-sustaining growth, will become a reality in the transport sector in the next few months. Not only will the demand for movement of goods be fully met; we shall be fabricating within the country all the locomotives, wagons, trucks and other equipment that we need. In electric power we shall be achieving this self-sufficiency in the course of the Fourth Plan. Indeed, of the Rs 8,000-crore-worth of capital goods needed for the Fourth Plan, nearly Rs 5,000-crore-worth will be produced within the country.

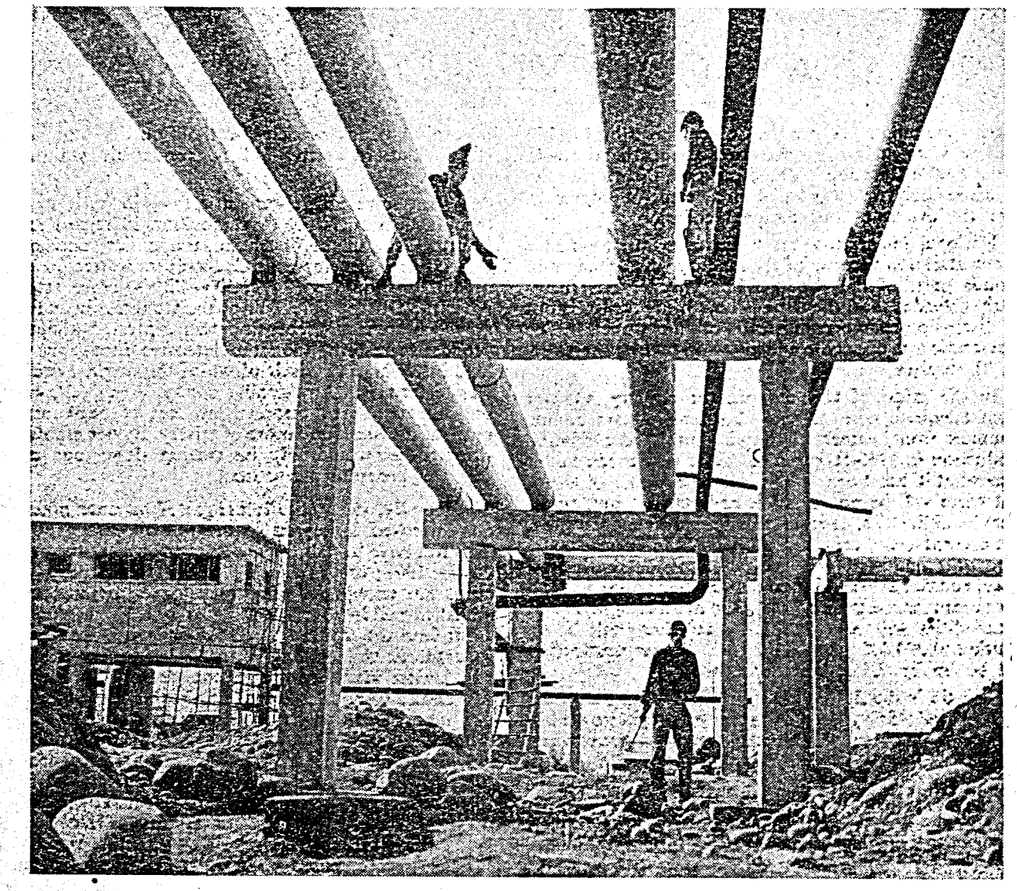
What, some might want to know, in order to have their facts neat, is the exact position in regard to the Fourth Plan. In the first place, the earlier decision of the National Development Council that its size, in terms of outlay, should be Rs 21,500—22,500 crore, stands. After the Durgapur session of the Congress in January, at which some apprehension was expressed about the proposed size being too large, intensive discussions were held in Delhi, as a result of which the original decision was reaffirmed. Any smaller outlay, it was felt, would only mean less of employment, less of development, more of pressures and more of misery. By not mobilising resources we would only be cutting down our capacity for generating resources.

Secondly, the whole technique of advance planning has improved in regard to the Fourth Plan. The bus does not have to halt, or even slow down, at the end of March 1966; the Plan road doesn't end there. The needs are anticipated; decisions for continuing action are taken well in advance, and the required funds provided. Indeed the whole time-table of planning has moved forward. In the earlier plans, the State Governments and Union Ministries undertook detailed formulation of schemes only after the Draft Outline was presented; this time the task has been undertaken six to eight months earlier. The work began with the publication of the Memorandum last year, and already the proposals of eight to ten State Governments are ready. Private industry has also been urged to present its requirements at an earlier stage. The Draft Outline of the Fourth Plan, which will be published in July, will thus provide a fuller picture than earlier Draft Outlines used to.

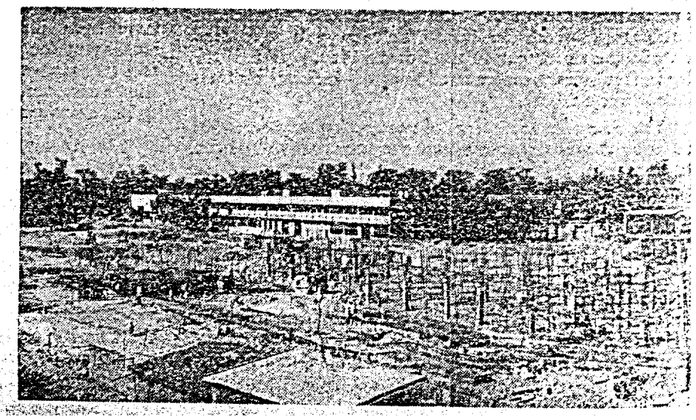
Also, negotiations with foreign governments and international organisations for financial and other aid have been initiated earlier this time. Furthermore, the making of the Fourth Plan is receiving more help from top technicians and industrialists in the country, and this assistance is of great value in achieving a basic balance between the various sectors.

Mr. Asoka Mehta said that the international bankers and industrialists who had recently been in India had given a general verdict of "subdued pessimism over the current situation and restrained optimism about the future". Bankers are about the most cautious of people. Company speeches and newspaper reports, in our country or elsewhere, would show that they can rarely be accused of gushing sentiment. If international business men view our development with "restrained optimism", then, surely, there is little justification for the unsubdued pessimism which we see so much all round.

Rishikesh Will Save Lives



ANTIBIOTICS PLANT GETS READY ON GANGA BANK



Report : Kali Biswas
Pictures : T.S. Nagarajan

THE Ganga is constantly on the lips of the devout. The belief is widely held that its waters wash away sins and confer immortality.

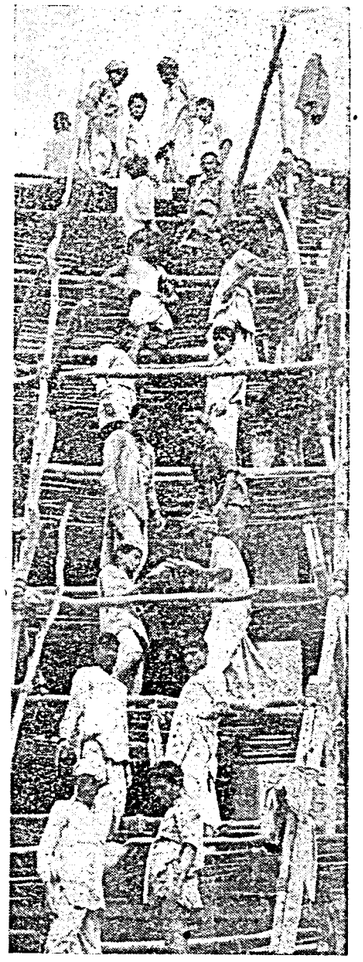
This ancient belief is becoming reality in a new way. For on one of the sacred spots along the Ganga, a place called Virbhadra, is rising a factory that will make penicillin, streptomycin and other antibiotics that will keep pain and death at bay and lengthen the life of our people.

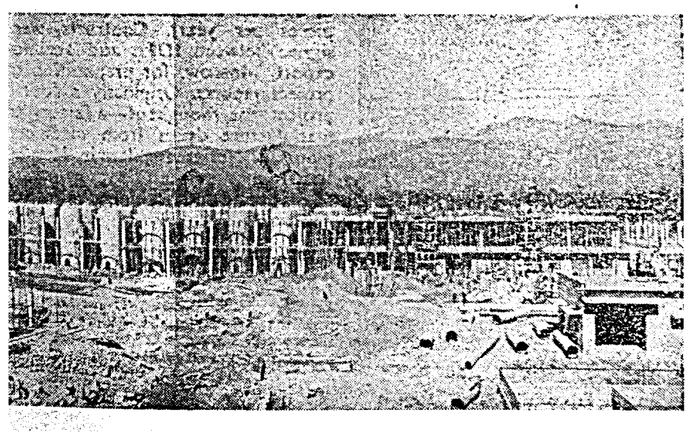
When I visited the place early this month five thousand people were at work building various units of what will be one of the largest drug factories in the world.

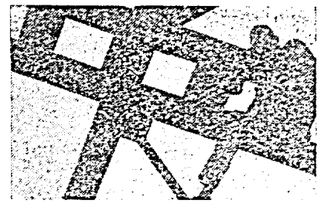
The village of Virbhadra is only four kilometres from the holy Rishikesh and twenty kilometres from the even more celebrated Hardwar.

Where only pilgrim chants were heard, there is now the heigh-ho of

strial pipelines for carrying air, water and m to the various units of the Antibiotics t at Rishikesh. RIGHT: Men at work on Fermentation Block. BELOW: The project as it looked in, October 1964. The struc- in the centre are the fermentors which have been covered by the building that houses .







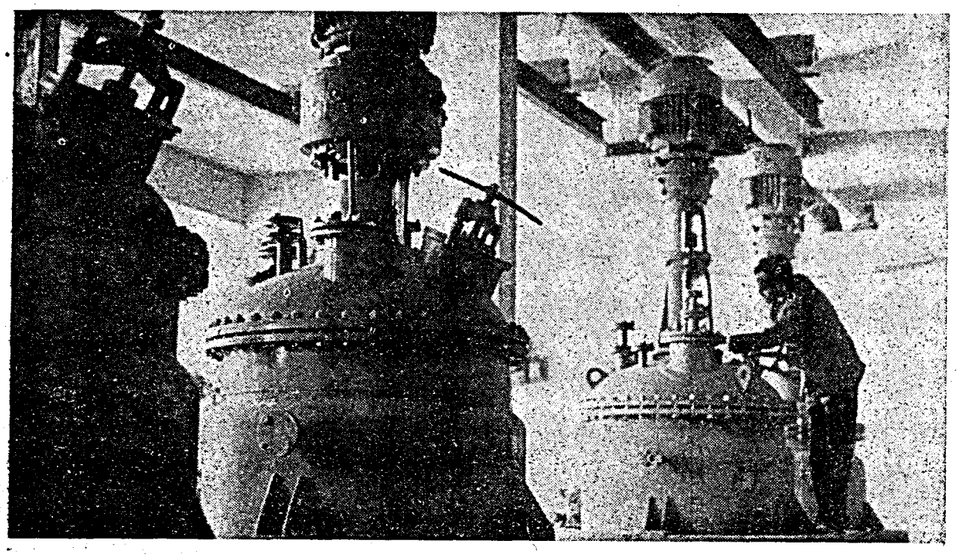
men at work and the rattle of machines of all kinds—drills, cement-mixers, cranes and trucks.

Large tracts of forest have been cleared in the valley and on the slopes of the mountains. There are new roads, electric poles and lights and hundreds of huts and homes for workers, engineers and managers. Tonnes of machinery dot the landscape and several large factory buildings are coming up.

Most of these will soon be ready and production of penicillin and other life-saving drugs will start towards the second half of next year.

FOURTEEN years ago 15 out of every 1,000 persons in our country died of one disease or another every year. Four years ago the rate had come down to ten. This drop in the number of deaths is as much due to spread of public health measures as to the use of the latest drugs, particularly antibiotics. After it was known that there are good as well as harmful bacteria (one cell organisms that can be seen only under the microscope), bacteria that cause disease and bacteria that kill disease-causing bacteria, scientists have tried to press the good bacteria into the service of man. Antibiotics are substances that injure or destroy living organisms. That they can serve man was discovered by Sir Alexander Fleming in 1929 when he made penicillin. Widespread medical use of penicillin followed the work of Florey, Chain, and their co-workers in 1940.

Antibiotics, which destroy bacteria, are themselves made from kinds of fungus. Large-scale production of penicillin began first in America and later in Great Britain. Penicillin has since been extensively used with



Production fermentors inside the Plant due to be commissioned later this year

remarkable success in the treatment of many infections. Streptomycin, another important antibiotic widely used in the fight against tuberculosis, was discovered by Dr. Selman Waksman, microbiologist at the New Jersey Agricultural Experimental Station, in 1944. An Indian, Dr. Y. Subba Rao, headed the U.S. team that discovered another valuable antibiotic, aureomycin.

Antibiotics constitute one of the outstanding advances in science and technology and a great boon to the medical world. They are of special significance to underdeveloped countries where medical aid is not widespread enough, and epidemics and endemic diseases are common.

BECAUSE of their crucial importance, the Government of India decided to enter the field of manufacture of antibiotic drugs so that they would be available in large quantities and at progressively lower prices. The Hindustan Antibiotics was established in 1954, and then in 1961 was formed the Indian Drugs and Pharmaceuticals Limited of which the authorised share capital is Rs 20 crore.

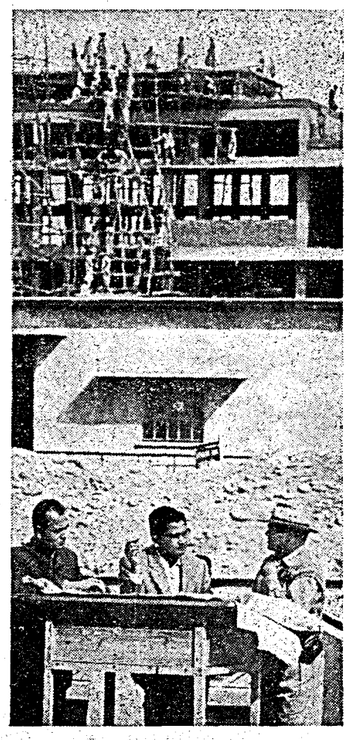
Indian Drugs and Pharmaceuticals Limited (IDPL) is assisted by the Soviet Union. According to the collaboration agreement signed in 1959, the Soviet Union gives a loan of 80 million (old) roubles (Rs 9.52 crore) for technical services including training of Indian technicians in U.S.S.R. and the cost of machinery and equipment to be imported for establishment of the plant in India.

IDPL will have three projects under it:

A plant near Rishikesh in Uttar Pradesh for manufacture of antibiotics (300 tonnes).

A plant at Sanatnagar, Hyderabad, to cost Rs 19.80 crore, for production of synthetic drugs and pharmaceutical medicines (5,410 tonnes).

A plant at Madras (estimated cost Rs 5.25 crore) for production of surgical instruments (2.5 million pieces per year). Contracts were signed between IDPL and Technoexport, Moscow, for preparation of project reports. Originally a fourth project was thought of—a factory to manufacture drugs from medicinal plants, at Neriamangalam in Kerala, but it has now been dropped owing to economic and technological considerations.



Engineers discuss construction problems. Left to Right: B.N. Chakravorty, Chemical Engineer, R.B. Saksena, Dy. Chief Engineer and S.R. Dutta, Erection Engineer of Larsen and Toubro. At back work is in progress on fermentation block.

THE Rishikesh Project is estimated to cost Rs 22.38 crore of which Rs 4.8 crore will come from the U.S.S.R. It covers an area of 900 acres of land given by the Government of Uttar Pradesh. The plant consists of eight main blocks of buildings. These are for: (1) storage of raw materials and preparation of culture media, (2) fermentation, (3) recovery and purification, (4) sterile finishing, (5) auxiliary services, (6) administration, (7) boiler house, and (8) pilot plant and central research laboratory.

Culture media will be passed on to the fermentation block. Then they have to be processed in the recovery and purification block and sent to the finishing block where they will be filled in capsules and vials. After being tested by the quality control department the drugs will be ready for despatch. All this will involve highly complicated mechanical process.

Besides, there are buildings for storing inflammable solvents, containers and furnace oil, a neutralisation station, an averaging tank, an animal house for experiments and a pump house. Water for the plant—16.5 million gallons per day—will come from the Ganga.

Most of the plant buildings have been designed by the Soviet experts and are being executed by our engineers. By the first week of February, buildings for storage of raw materials and inflammable solvents, the neutralisation station, the boiler-house and averaging tank, the pilot plant and the administrative block had been completed. The fermentation blocks, research laboratory, quality control building and animal house were nearing completion, and construction was in full swing on the recovery and purification block, the finishing building and gas plants: A team of young engineers headed by Mr. A. C. Chaturedi, Project Engineer, was doing a fine job.

A good deal of machinery and equipment had already been installed. Forty-four huge fermentors—each ten metres high, three metres in diameter, 12.8 tonnes in weight—have been placed in position in the fermentation block. Many kettles and seed vessels had also been installed. Installations on the pilot plant were nearing completion; it is expected to go into production later this year. Work on the effluent treatment plant was also proceeding. The effluents will be freed from poisonous matters, and will be used to fertilise the plots of land on which soyabean and hybrid maize, two of the key raw materials, will be grown.

The contract for technical drawings and supply of equipment was signed with Technoexport, Moscow in March, 1962, and the first instalment of machinery from the U.S.S.R. reached the site in December. Machinery and equipment worth Rs 4 crore in all have been received so far.

OF the 900 acres covered by the project, 300 are taken up by the township. Four-fifths of the 4,000 employees of the project will be provided with houses. Three hundred houses were occupied when I visited the place, and 300 more were to be completed soon. A hostel for the Soviet experts and the rest house were also ready, and 500 more houses and a trainees' hostel were under construction.

SHAMBU by Malinda Topa



The pilot plant, which will start trial production in the next few months, is a replica of the main plant on a small scale. The research laboratory attached to the plant will devote itself to continuous improvement in yield and to the discovery and development of newer and better strains. I wanted to know more about the work to be done in the laboratory and met Dr B.S. Bajaj, deputy superintendent of the laboratory and one of the scientists who have recently come back from the U.S.S.R. after six months' training. Dr Bajaj is a microbiologist. I asked him if he expected any major problems in research. "Of course we do," he said. "Our problem will be the micro-organisms. At present we are getting them from Russia. We have yet to find out how far they will suit our conditions particularly when we shall be using our raw materials." How does he propose to solve the problem? Dr Bajaj said that scientists would have to use certain genetic methods and radiation to improve the yield of micro-organisms under Indian conditions. "In fact, methods of induced mutations have already been tried on some micro-organisms in the Indian Agricultural Research Institute. They will prove useful here also."

Mr A.I. Kotov, chief of the Soviet team of experts, was all praise for our scientists. "They are good. They are quick in solving technical problems," he said. Mr Kotov was confident that Indian scientists trained in the U.S.S.R. would be able to run the plant most ably. He said he had no complaints in regard to construction or installation of machinery. "India is now busy with so many projects; yet we had no difficulty in the supply of important materials like cement and steel," he said.

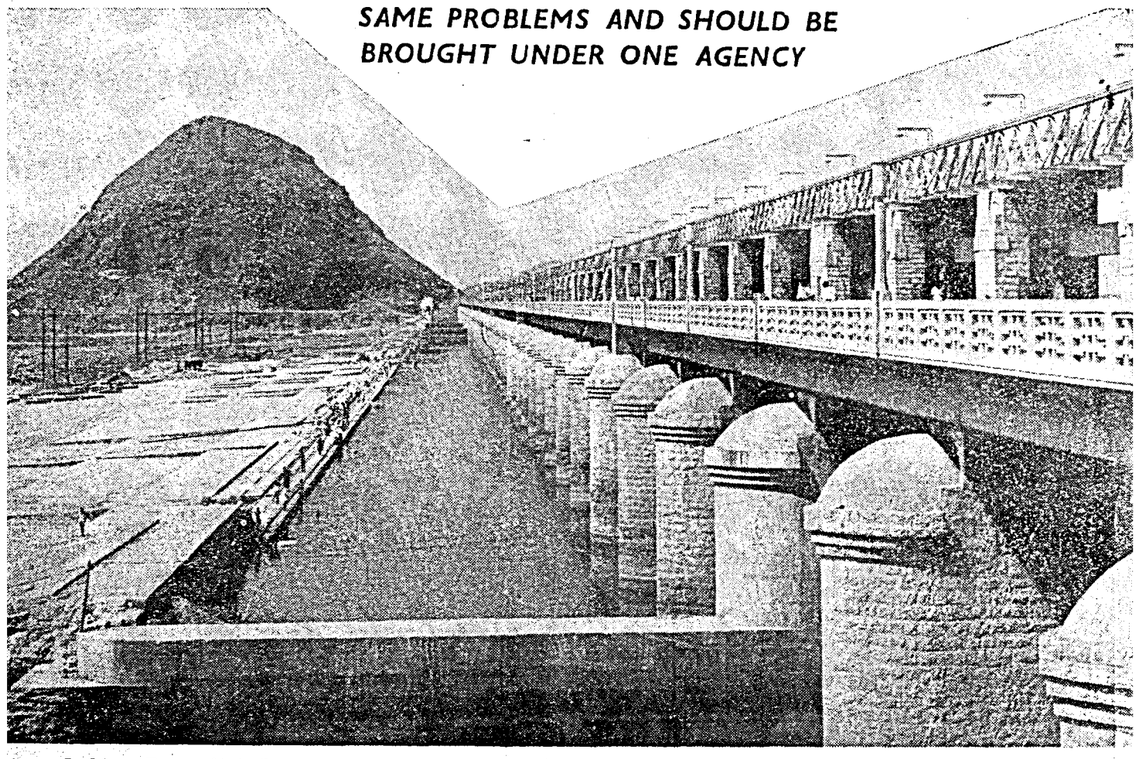
The railway siding at the plant site will soon handle an annual inward load of more than 67,000 tonnes of various raw materials and an outward load of about 17,000 tonnes of materials and finished goods from the antibiotics plant.

"We are every minute conscious of the fact that our project is so important for the life and health of our people," said Mr C. N. Chari, works manager. "You will find our workers, from top to bottom, keen on doing our job on time and in the best manner possible."

(*See also Page 26*)

MAJOR, MEDIUM, MINOR

ALL IRRIGATION PROJECTS HAVE SAME PROBLEMS AND SHOULD BE BROUGHT UNDER ONE AGENCY



Prakasam Barrage in Andhra Pradesh

BALESHWAR NATH

Mr. Baleshwar Nath is a Member of the Irrigation Team of the Committee on Plan Projects, Planning Commission.

MAJOR, medium or minor, all irrigation projects have the same aim—to make up the deficiency in moisture content of the soil, and ensure a good growth of crops. Whatever the nature and size of the source, there is no difference in the operational techniques at the field level, that is, when water is applied to crops. Bigness or smallness is a matter of definition, and does not indicate any change in irrigational technique.

Even this definition is chiefly financial. A project is major, medium, or minor, depending on the amount spent. At present, projects estimated to cost Rs 5 crore and above are classed as major, those costing less than Rs 5 crore but more than Rs 15 lakh are medium and those that cost less than Rs 15 lakh are minor.

For some time bigness was the fashion, and the planning horizon was full of multipurpose river valley projects. On the other hand, even extensive programmes of State-owned tube-wells got classified under the head 'minor'. In some cases, a chain of reservoirs on the same stream is split up under different administrative controls, and what in truth is a major project is regarded as so many minor projects. Such administrative segregation is by no means a thing of the past. If anything, co-ordination is decreasing.

Undue emphasis on big projects obscures the importance of the smaller ones, which bestow a greater dispersal benefit among the people. Small irrigation projects, however, suffer from casualness in planning and operation. Small and big projects have each their own merits and demerits. What is important to remember is that they are complementary. A unified approach towards the vast and varied subject of irrigation is urgently needed. Divergent departmental views expressed by over-enthusiastic champions of the major or the minor types confuse the issue.

Major, medium or minor—the benefit of any irrigation project should ultimately percolate to the people, and through the people to the State. If that is the end in view, planners should strike a judicial balance between different categories of schemes. Such projects should be selected as yield optimum advantages not only in agricultural production and revenue returns, but in terms of human values and overall increase of the national wealth.

To approach irrigation in a composite way, it is essential to have overall mapping of our water resources—both surface and subsoil. Without an overall idea of existing water resources in each tract, region or even district, it will not be prudent to plan for irrigation works. Sustained availability of usable water is the basis of irrigation planning. This overall mapping should be undertaken urgently. To begin with, it could be on a reconniassance basis, with detailed mapping taken up afterwards.

The total increase in irrigated area through major, medium and minor irrigation projects should therefore be 30.2 million acres. But net irrigated acreage in the country by the end of the Second Plan stood only at 61 million acres. The difference between 30.2 million acres of additional irrigated area and 9.5 million acres of actual increase in irrigated area is hard to reconcile.

Utilisation Picture

Surface and sub-surface water resources and drainage are an interlinked problem. Over-emphasis on any one type of irrigation would be harmful. Irrigation should be treated as one subject. All types of irrigation and drainage works should be grouped and brought under a unified technical and administrative control.

The performance of different categories of projects during the past decade indicates that we cannot say that any one of them is less useful than the others. It is well-known that major irrigation schemes have suffered a setback because of poor utilisation of the new potential created. The two most important reasons for it are lack of co-ordination among different agencies and unpreparedness of cultivators to change from dry to wet farming.

The lag between project potential and outlet potential is one of the unresolved problems of our development. Getting the best out of irrigation is undoubtedly a slow process. Some of the large irrigation projects of the pre-war era are yet to reach their projected irrigation acreage, although they have been in operation for decades now.

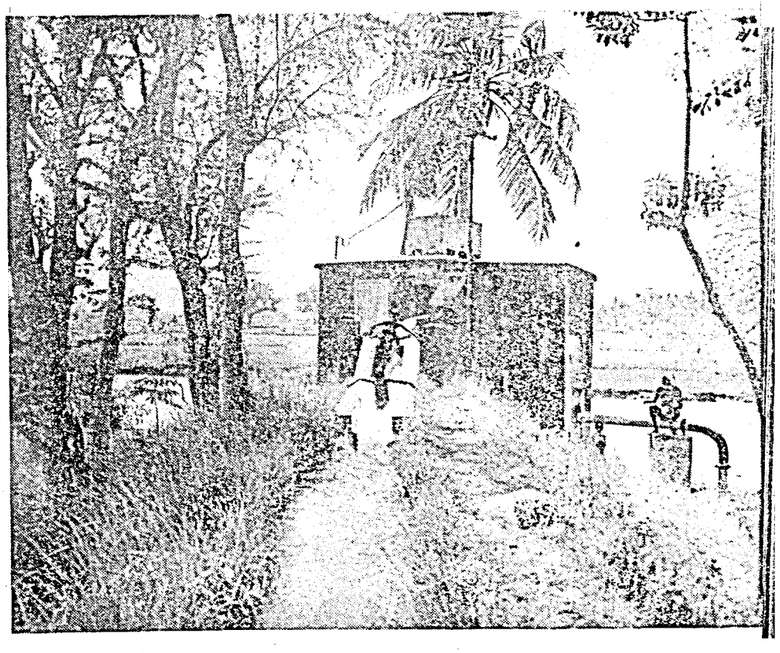
On the other hand, minor irrigation schemes do not have a better record to show in the overall utilisation than the major and medium schemes. The general assumption that the potential created by minor irrigation schemes is utilised as soon as it is created has proved wrong. Field studies in many States also show that the operation and control of minor projects is, if anything, somewhat more difficult because of their dispersed nature.

In Maharashtra, which has the lowest percentage of irrigated area among our major States, it was found in the Nagpur Irrigation Circle that in the case of minor irrigation reservoirs, utilisation worked out to only 34.5 per cent. Likewise, actual use from 146 'bandharas' in various divisions of the State averaged only 38.4 per cent. In the Vidarbha region, large quantities of water in reservoirs built at great cost are found to go waste through evaporation because winter cropping is not practised in the area. In Gujarat, a check-up showed that the irrigation potential created through Plan and pre-Plan projects yielded a utilisation percentage of only 36.3.*

Overleaf

**Reports on Study of Major Irrigation Works by the Irrigation Team, Committee on Plan Projects (1963).*

A tube-well in Madras



There are about 10,000 State-built tube-wells in the country, mostly in Punjab, Uttar Pradesh, Bihar, Bengal, Orissa and Gujarat. These, too, do not come up to the performance level set for them. On the whole their running hours do not amount to even half of the possibilities. The lag in the acreage irrigated by tube-wells is so great in some States that the Governments are unable to make up even the working expenses from the revenue earned through tube-well irrigation.

Tube-wells, promising usable water on tap, are in theory ideal for augmenting production. Yet the picture is disheartening, because the cultivator, who is the kingpin of the production process, is not pushed hard enough to produce more.

Then there are private tube-wells and percolation wells. The latter are in fact the most common irrigation source for the Indian cultivator. No systematic assessment of their performance has been made, even though the Community Development movement has spent large sums of money on the programme. The utilisation rate may be a little better than that of the public sector. Yet it will not be wrong to presume that there is great room for improvement in the performance of minor irrigation works in the private sector too.

Better Planning Needed

IN many regions of the country more particularly on the peninsular plateau, only small irrigation works are possible. Where, however, big run-off of rivers is available, or big storage is feasible, large irrigation systems offer better prospects of success than small irrigation works.

The great limitation of small irrigation works is their inability to meet demands in times of drought. If rainfall fails, they are without water. Trunk systems of irrigation, on the other hand, can transport water over long distances from water-surplus regions to deficit areas. The Rajasthan Canal project provides an excellent example. In water-deficient areas, therefore, it is desirable to have long-distance irrigation projects.

Where, however, rainfall is good, and irrigation is needed only on a supplemental basis, large irrigation projects may do more harm than good. This approach is reflected in the report of the Irrigation Commission of 1901-03. Double and triple cropping, allied to an efficient system of surface and sub-surface drainage, can minimise the element of damage and may even convert it into good. All this requires intricate technological handling, especially because irrigated agriculture brings in its train the demon of water-logging and salinity.

The net irrigated acreage in the country stood at 51.5 million acres in 1950-51. During the two Plans there was an addition of 11.7 million acres to the actual irrigation potential under major and medium schemes (*Memorandum on the Fourth Five Year Plan*). Under the minor irrigation programmes, the additional area benefited is shown as 9.5 million acres in the First Plan at a cost of Rs 85 crore, and 9 million acres in the Second Plan at a cost of Rs 140 crore.

Bifurcation of irrigational and drainage activities into different departments and ministries is not conducive to the best utilisation of our water resources. It is time that the subject of irrigation is reviewed in its entirety by a high-level commission so that water, the most vital resource needed for developing agricultural economy, is put to maximum use. It should be the business of this commission to evolve an irrigation policy that ensures the speediest and best improvement of agricultural productivity, making use of the latest scientific and technological advances in the field.

RAGI HARVESTS ARE DOUBLED

RAGI is a rain-fed crop, and is the staple diet in many parts of southern Mysore. Its cultivators shared, until recently, the traditional belief that, not being a 'wet' crop, 'ragi' would not take fertilisers.

But the steady work of extension workers has dispelled this notion. "Use fertiliser on dry ragi", has become a successful campaign.

The results can be seen on the farm of B. Veerappa of Siddlaghatta in Kolar district. Veerappa is vice-president of the Taluka Board, and is a progressive farmer. He has large holdings. Being primarily a cultivator of garden crops, he was not interested in 'ragi' very much, but hearing about the use of fertilisers in the cultivation of 'ragi', he wanted to give it a try. He placed 29 acres under the crop, and the harvest more than met his expectations.

His neighbour Nanjappa, owner of only 4½ acres of 'ragi' land, saw what had happened on Veerappa's land and decided to emulate him. He applied fertilisers on his 'ragi' land and now expects a doubling of the yield. Chikkappayya, who has an even smaller holding, only 1½ acres of land, did not like to be left behind. He applied fertilisers on his land and he too now expects a good crop.

Credit for all this should go to extension wing of the Agricultural College at Hebbal, near Bangalore. In collaboration with the Block Development staff, the College began educating farmers in the use of fertilisers. In 1959 the College set up a few trial demonstration plots, and followed it up through demonstration on farmers' plots. It also held educational field days and distributed photographs and pamphlets.

The farmers were convinced, but they wanted fertilisers free of cost. After further patient work on the part of extension workers, many villagers came forward to buy fertilisers and apply them in the manner shown. In 1963 a prolonged dry spell of 30-35 days complicated the problem. Yet the fertilised crop did not wither. It resumed growth after the rains, and a bumper harvest was recorded.

The demonstrations, as also the results actually achieved by farmers, have proved that the yield of 'ragi' can be nearly doubled with fertiliser use. The required dose is 60 kg of ammonium sulphate and 40 kg of superphosphate per acre on rain-fed crop. The cost is Rs 32. Those who used to get four *pallas* before got seven *pallas* in 1963 by using both fertilisers and manure. Investment of Rs 32 thus gave them additional income of Rs 100 per acre.

Spurred by the lead given by 15 blocks in 1963, almost every taluk in the 'ragi' area of Mysore has gone ahead to implement the programme.

Finance for Industry

By
R. G. NAYAK

The Industrial Development Bank of India, which started its operation from May 1964, is the latest in the series of specialised institutions set up in India since Independence to meet the increasing financial requirements of industries and to co-ordinate the activities of all other agencies which are concerned with the provision of finance for industrial development. The object of this brief article is to trace the history and work of the various specialised institutions that provide industrial finance leading to the establishment of the Industrial Development Bank.

An introduction to the various institutions

IN India, until recently commercial banks were not in a position to offer substantial long-term accommodation to industries for their development and expansion. Indian banks have been closely modelled on the lines of the English deposit banks which provide only short-term finance to trade and industry. Their resources consist mostly of demand or short-term deposits, and they did not therefore tie themselves up in providing long-term finance to industry.

Partly for this reason and also because of the historical tradition of British banking which joint-stock banks functioning in India had inherited, they neither participated in the floatation of companies nor collaborated with industrial concerns in the manner and to the extent to which banks on the Continent of Europe collaborated with industry. An attempt was made in 1922 by the Tata Industrial Bank to follow the practice of mixed banking, i.e. of providing long and short-term finance to industries. The Tata Bank had to be merged with the Central Bank of India, because it had combined long-term credit to industries with ordinary commercial banking business, and had financed both types of credits out of current and annual deposits instead of financing the long-term credit by issuing bonds. Since then no bank has made any attempt in this direction worth mentioning.

In the early years of industrial development in India, managing agents provided—or got together—most of the finance needed by industry. In the post-war period the managing agency system has proved itself unequal to the task of providing or arranging finance for industry. With Independence, the adoption of a planned economy, and the emphasis on rapid industrialisation, the requirements of finance by industries have increased tremendously. In the circumstances, there were two approaches open to the Government. The first consisted of encouraging commercial banks to follow the practice of mixed banking, i.e. giving both short-term and long-term accommodation. The second approach was to have independent, specialised institutions for providing finance to industries. The Government of India followed both the approaches.

The first step in providing long-term finance to industries was taken in 1948 when the Industrial Finance Corporation of India was established.

The entire capital of the Industrial Finance Corporation of India has been subscribed by the Government, co-operative institutions and other institutional investors. Its main object is to provide medium and long-term finance to public limited companies and co-operative societies engaged in the manufacturing or processing of goods, in mining, in the generation and distribution of electricity, and in shipping, particularly in circumstances where normal banking accommodation is considered inappropriate or recourse to capital issue impracticable. The maximum limit of finance to an individual concern is fixed at Rs 1 crore.

The Corporation has also been authorised to guarantee loans raised in the market or obtained from international financial institutions, to underwrite shares and debentures issued by eligible companies and guarantee deferred payment terms. The Corporation is essentially a lender and not a partner in industry. It has done a good work in providing long-term finance to big industries.

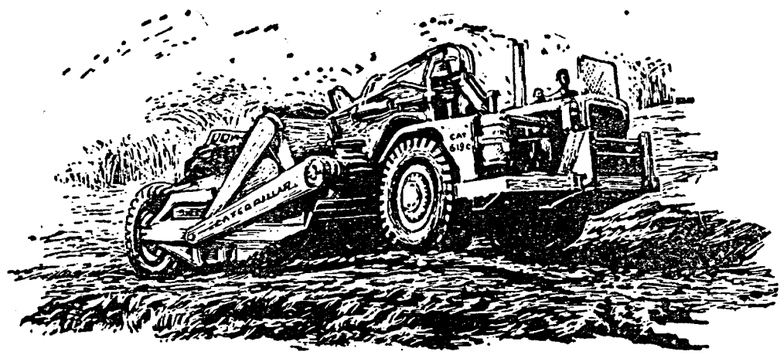
The need to provide medium industries in various States with sufficient finance for industrial development was also felt. This need was met by passing the State Financial Corporations Act, 1951, which enabled the various State Governments to establish State Financial Corporations.

Wider Agencies

The State Finance Corporations are broadly modelled on the I.F.C. and supplement the working of the Industrial Finance Corporations in different States. The limit of accommodation to individual concerns prescribed for the State Financial Corporations is Rs 10 lakh. All applications for assistance above the limit are to be referred to the Industrial Finance Corporation of India. Various State Governments have also authorised these Corporations to work as their agents for routing block loans to small-scale industries under State Aid to Industries Act.

Another financial institution established by the Government of India is the National Industrial Development Corporation Limited, founded in October 1954. Its aim is to promote, establish and operate industrial schemes likely to advance the industrial development of the country, and bring about harmonious development of industries in both the public and private sectors. Required to pay special attention to those industries which fill the gap in the industrial structure of the country, the Corporation renders assistance to any type of industrial undertaking, whether it is owned or managed by Government,

WHY PREM CONSTRUCTIONS CHOSE CATERPILLAR FOR EARTHMOVING AT MEHEKRI PROJECT



Project Manager, V.P. Anand, of Prem Constructions reports top production from CAT machines which give 95% availability, and are designed for easy maintenance and service. "This is the kind of quality machine", he adds, "which, coupled with excellent after-sales-service prompt us to buy mors CAT machines". The company has been using CATERPILLAR equipment for the past 7 years.

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Tradition often demands that Purchase Authorities "buy the lowest priced machine that meets bid specifications". Sometimes this is false economy. The purpose of low price buying is to obtain low cost performance. But this relationship is not necessarily true. Two tractor-scrapers may look alike at time of purchase...may appear to differ only in initial cost. But what about these same machines two or three years later ? Are operating costs comparable ? Has each scraper worked the same number of hours and performed the same amount of work ? Considerations like these will soon show that purchase price is only part of total machine cost. Caterpillar Quality is a measurable asset, one that means more work at less cost. It can be measured in low downtime, low repair cost and maximum productivity over long periods.

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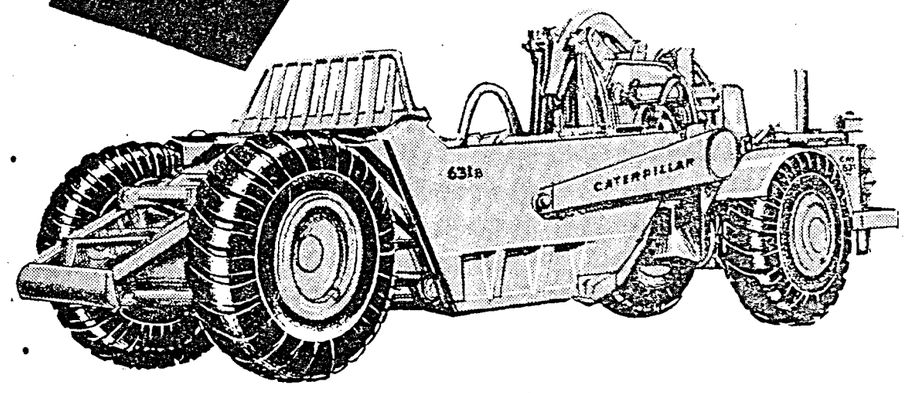
IS ON THE JOB WHEREVER THERE'S MATERIAL ON THE MOVE

TJ/G/229

CATERPILLAR LOWBOWL SCRAPERS HEAP BIGGER LOADS FASTER, EJECT FASTER

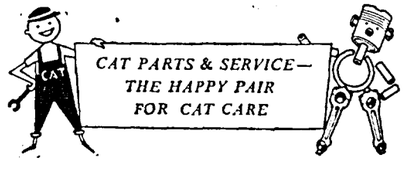
The CATERPILLAR 600 Series Positive Action Lowbowl Scrapers mean big job economy in producing more cubic yards per hour at less cost. Engineers attribute CAT Scraper Quality to features like :

- Low Wide Bowls which permit more bank yards than struck rating
- Action of Power-Closing Apron and Cutting Edge which are operated by positive hydraulic downpressure
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RANGE OF CATERPILLAR TRACTOR-SCRAPERS

Type	*Number of Models*	*Capacity in cubic yards*	*Flywheel H. P.*
Two axle	4	14 to 44	250 to 500
Three axle	3	21 to 54	360 to 500
Tandem power	2	32 to 54	785



Let your local CATERPILLAR dealer help you select the machine for your particular job requirement. If you have an earthmoving problem, remember he is only a phone call away.

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LARSEN & TOUBRO LIMITED	TRACTORS (INDIA) LIMITED	WILLCOX BUCKWELL INDIA LIMITED	TRACTOR & EQUIPMENT CORPORATION LIMITED
Bombay, Madras	Calcutta, Lucknow	New Delhi, Chandigarh	New Delhi

a statutory body, company, firm or individual. The assistance may be in the shape of capital, credit, machinery, equipment or any other type of facility.

The Corporation is also authorised to manage, control or supervise a concern and to enter into partnership or any other arrangements for joint working of a concern. The scope of operation of N.I.D.C. is thus much wider than that of I.F.C. N.I.D.C. has done good work in providing financial assistance, in its capacity as the agent of the Government of India, to cotton textile and jute textile industries for rehabilitation and modernisation and to machine tool units for expansion.

It was found that the services of the Industrial Finance Corporation, the State Financial Corporations, the National Industrial Development Corporation were not sufficient to provide long-term finance to industries in the private sector in view of the wide scope allocated to the private sector in the Second Plan. An Industrial Credit and Investment Corporation of India Limited was established in January 1955 to assist in the creation, expansion and modernisation of enterprises in the private sector. Its scope is much wider than that of IFC, and the I.C.I.C.I. is authorised to furnish managerial, technical and administrative advice and to obtain such assistance to Indian industries from abroad.

For Small Enterprise

Even these four institutions do not wholly meet the industrial credit requirements. Since it was felt that small industries had special problems of finance if they were to secure orders from Government and to increase production, a National Small Industries Corporation Limited was established in February 1955 as a private limited company. Its main object is to secure a reasonable share of Government orders for small scale units, to provide such units with loans and technical assistance necessary for fulfilling such orders and to secure co-ordination between large-scale and small-scale industries so as to enable the latter to manufacture ancillaries, components and other articles required by the former.

This Corporation is also authorised to underwrite and guarantee loans from banks and similar institutions to small industries. In pursuance of the recommendations of the Small-Scale Industries Board, the Corporation has been entrusted with certain commercial aspects of the aid programme like government purchases, marketing, hire-purchase, industrial estates etc. while the Small Industries Service Institutes look after the technical work.

In addition, there is the Government of India's credit guarantee scheme for the guarantee of advances granted by specified banks and financial institutions to small-scale industries which was started in July 1960 and for which the Reserve Bank of India works as the 'guarantee organisation' for the Government. Mention may also be made of the liberalised credit scheme for small-scale industries introduced by the State Bank of India in 1957.

Because of the foreign exchange crisis of 1957, expansion and promotion of exports got overall priority in the economic policy of the Government. In order to remove the risk of export, the Government of India established the Export Risks Insurance Corporation in July 1957. The object of this Corporation was to cover political and commercial risks involved in exports on credit.

The Corporation did a good work up to January 1964, when on the recommendation of the Study Group on Export Finance (Mathrani Committee), it was merged with the Export Credit and Guarantee Corporation.

The Export Credit and Guarantee Corporation provides insurance to exporters against any risk of loss by reason of their failure to recover any amount payable in respect of transactions involving export. It will also give guarantees to or for persons residing in or belonging to a foreign country in connection with goods exported or services rendered from India. It will further provide such supplementary finances as may be required for the promotion and development of exports and also help exporters in conducting market surveys, publicity, etc.

It was felt necessary that the commercial banks should also be encouraged to provide medium-term finance to industries. In order to provide resources to banks for this purpose, the Government of India established the Refinance Corporation of India (Private) Limited in June 1958. The scheduled banks grant medium-term credit to credit-worthy industrialists from their own funds on the basis of their personal knowledge of the parties concerned and these funds are reimbursed by the Corporation. The Refinance Corporation of India, therefore, encourages the commercial banks to give term-finance to industries.

The need was long felt for starting an institution to extend facilities of investment in equity capital of the companies to the large and growing number of small investors in the middle-income groups of the community. This has been achieved by the establishment of the Unit Trust of India in February 1964.

Co-ordination and Research

When the need was felt to co-ordinate the working of the various institutions providing finance to industries, and to have an institution that would take a broad view of industrial development and financial requirements of industries, the Industrial Development Bank of India was established in May 1964.

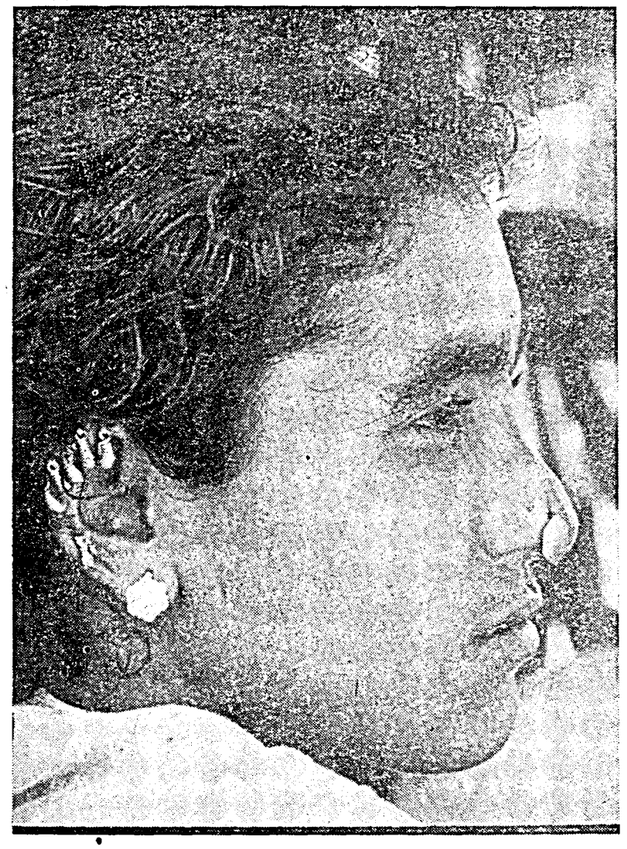
The Bank is intended to supplement and co-ordinate the activities of the other institutions in the field of industrial finance and development. It grants direct loans to industries and subscribes to the shares and debentures of industrial concerns, provides refinance facilities, underwrites new issues of shares, guarantees deferred payments of credits for exports, undertakes marketing and investment research, carries out techno-economic studies and promotes the establishment of new enterprises, especially key industries.

The scope of the Industrial Development Bank, it can be seen, is much wider than the other institutions established earlier. It is expected that at a later stage the Refinance Corporation may be transferred to the Bank. Provision has also been made for the merger of the I.F.C. with the Bank or its conversion into a wholly owned subsidiary of the Bank, if necessary.

With the establishment of the Industrial Development Bank, India now has a network of institutions providing all types of finance to industries for their rapid development.

LEPROSY

An Ancient Terror Is At Last Conquered



Chinnamma waits at Srikakulam centre.

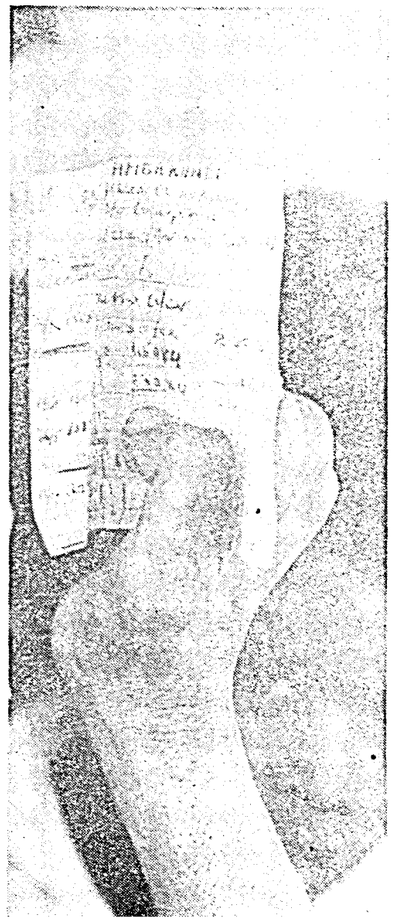
At right : Her hand holds her passport back to normal life.

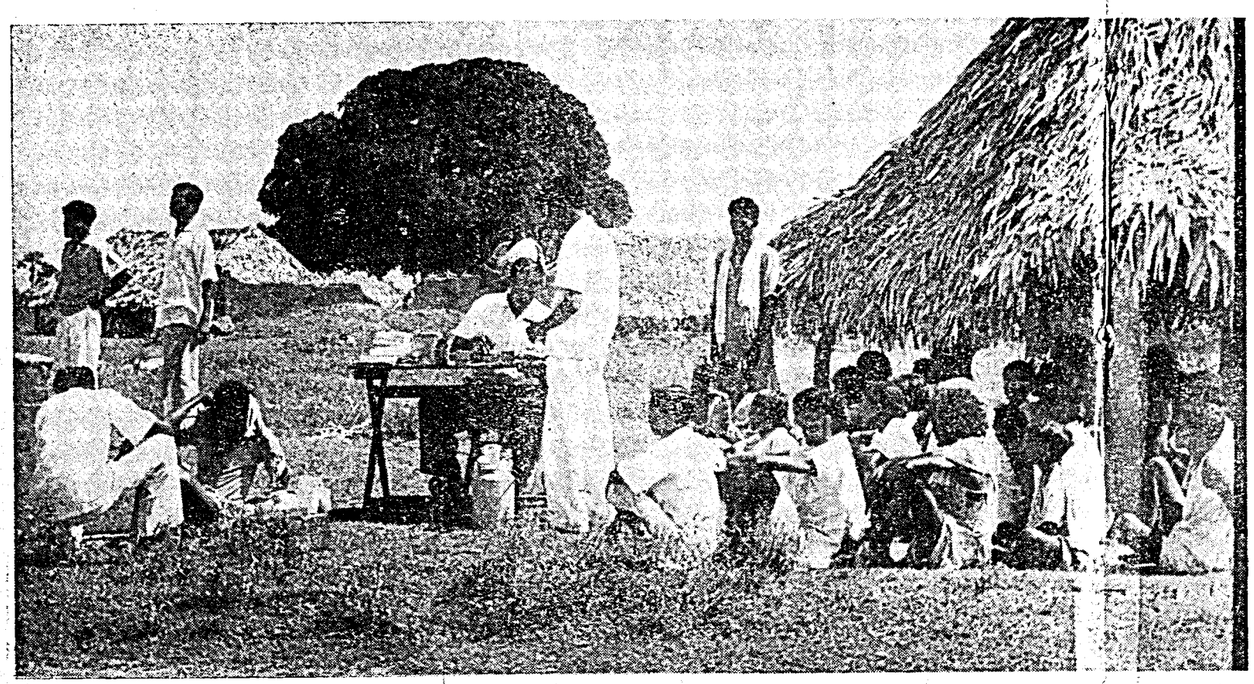
TEXT AND PICTURES

T. S. SATYAN

LEPROSY has been a dread name in history. The word "leper" has been the ultimate in abuse. Its use recently by the British Prime Minister brought forth vehement comment.

In the Middle Ages, lepers were cast out of society with the fearful invocation: "Dead to the world henceforth, now place your hope in God". After that they could not come near fellow human beings. Every sufferer was given a bell which he was supposed to tie round his neck and keep sounding as he walked. The very sound of this bell would drive all people away. The sufferers as well as his tormentors were con-





Top: Open-air clinic of the Danish leprosy centre in Srikakulam. *Left:* Dr. Keja of World Health Organisation treats the foot of a patient, *Below:* Para-medical worker examines children for possible symptoms. *Right:* A test smear is taken.

Sufferers Restored to Normal Life



vinced that the disease was incurable. Indeed leprosy was often regarded as divine punishment for sin rather than a mere disease. The victim would plod through life wearily, waiting for death. His family, if he had one, went uncared for, unprotected.

In the last few years, however, light has come into this dark world. Leprosy has gradually changed from a legendary, mystic evil, whose very name spelled fear, to a disease which is being effectively treated like any other that modern medicine understands thoroughly. Today a leprosy sufferer is a patient just like others and he can be cured.

This great change was brought about by Hansen of Norway who found that sulphone drugs, especially Dapsone, could effectively cure leprosy.

CONTRARY to the common belief, leprosy is not highly contagious; it has been shown that it is less so than tuberculosis. Treatment, too, has changed, keeping with the new findings of science. Segregation in leper colonies has been given up in favour of out-patient treatment.



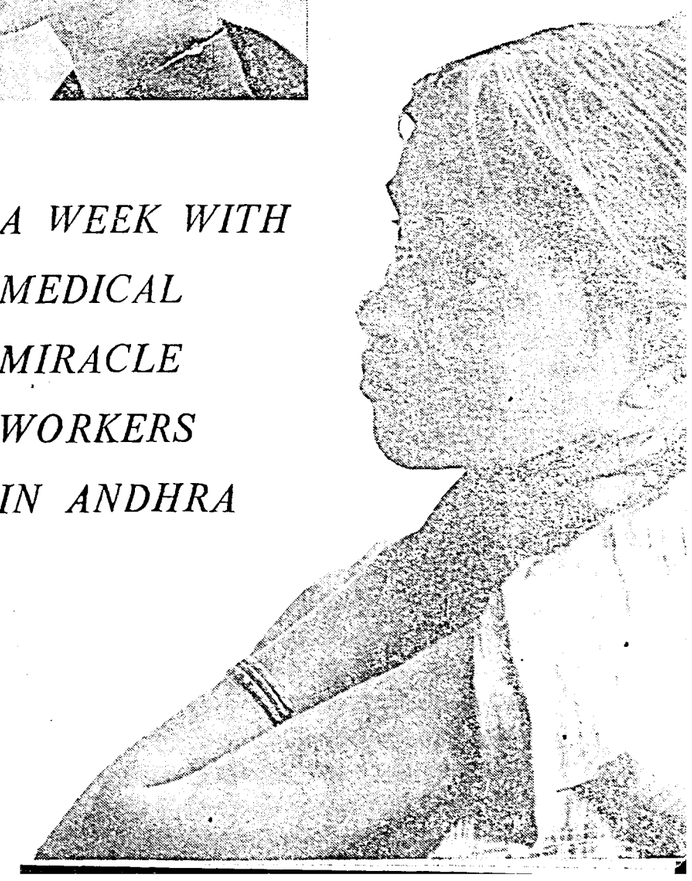


Progress in public health has brought about some of the most profound changes in the life of millions of Indians. There are some 12 million leprosy sufferers in the world today. In India alone there are about 2 million cases. Incidence of this disease is specially high in some districts of the south and in some sub-Himalayan regions.

Susceptibility to leprosy is greatest in childhood. The child who contracts the disease may become an invalid by the time he comes of age. But if he is found and treated in time, he can be completely cured. Leprosy is generally easy to diagnose when the disease is advanced. The deformities that it causes can then be seen by the eye. But diagnosis is difficult in the early stages. The symptoms may often be confused with those of some skin diseases, syphilis and yaws.

I SAID earlier that leprosy sufferers in medieval Europe and elsewhere were regarded as legally dead and given a warning bell which they were forced to carry. I thought of those terrible days when, recently, I stood by the kerb of a road in Pogiri, a village in the Srikakulam district of Andhra Pradesh. Several leprosy sufferers were arriving by bullock-cart at the Leprosy Treatment Clinic started there through the efforts of the Danish Save the Children Organisation.

This time, the sound of the bells tied to the necks of the bullocks spelled hope rather than despair. Inside one of the bullock-carts was young Appa Rao, who was visiting the clinic for a check-up. He is a spinner and had given up his occupation because leprosy had disfigured his hands. Now he was back at work after several months of treatment and was on a routine visit to



A WEEK WITH MEDICAL MIRACLE WORKERS IN ANDHRA

know that everything was well with him.

The Danish centre itself is a group of buildings around a small hospital. It was set up in 1962 by the Danish Save the Children Organisation in co-operation with the Government of India, the World Health Organisation and UNICEF, in an area where leprosy was widespread and where it had not yet been possible to start modern leprosy control work. Today the centre serves a district with a population of one million.

Following extensive case-finding work, it was estimated that 30,000 people in Srikakulam district suffered from leprosy. Of these, 21,000 are now under treatment through 60 small clinics strategically located throughout the district. The whole project is conducted on lines recommended by WHO and is supervised by a WHO medical officer stationed at the centre. He is assisted by nurses and a physiotherapist from Denmark and by Indian paramedical workers.

One of the first tasks of the centre was to train those workers, both in basic medical science and in modern leprosy control. Personal qualities are very important in leprosy-workers. Not only must they overcome the traditional fears and prejudices; they must be able to win the confidence of leprosy sufferers and to persuade them to take treatment regularly.

Day after day for a whole week, I went round several villages and saw dozens of people who once suffered from leprosy and faced social stigma. By good fortune, they had since been treated by dedicated and competent medical men and had returned to work. I saw Appa Rao merrily working on his spinning wheel, Tavitiah back on his job cultivating his few acres of land, Ramulu the teacher happily teaching his young students in the village primary school, and Satyamma running her family as a devoted housewife no longer despised by her husband and relatives.

Several hundreds like them had been physically rehabilitated and relieved of mental anguish.





Yojana Bhavan Diary

The National Development Council Committee on Industry, Power and Transport met on February 12 and 13.

Dr. Vera Anstey of the London School of Economics, who is now in India as a guest of the Planning Commission, met Mr. Tarlok Singh, Member, Planning Commission, on February 7. She visited the Indian Institute of Public Administration, the National Council of Applied Economic Research and the India International Centre, and left for Bombay on February 15.

Mr. Hirata, President of the Japanese Development Bank, Tokyo, called on Mr. Asoka Mehta, Deputy Chairman, on February 9.

A group of ten members from the Administrative Staff College, Hyderabad, met Professor V.K.R.V. Rao, Member, Planning Commission, and senior officers on February 9.

A group of 31 American Peace Corps volunteers who arrived in New Delhi recently met Mr. M. Butt, Joint Secretary, Planning Commission, on February 12.

Professor M.S. Thacker, Member, Planning Commission, returned from Bangkok on February 12 after attending the meeting of the Asian Group of the U.N. Advisory Committee on Application of Science and Technology to Development.

Dr. S.R. Sen, Adviser, Planning Commission, who visited Dacca (East Pakistan) as a member of the Indian delegation to attend the meeting of the FAO Working Party on Jute, returned on February 17.

THE APPA RAO STORY

A young spinner Appa Rao caught the contagion. He promptly went to the Pogiri centre. After several months' stay at the hospital he is back at his Ambar charkha, happy to be bread-winner for the family.

LINGUISTIC DISARMAMENT

THE Madras riots ought to induce our scholars and politicians to rethinking on some assumptions id find out whether these assumpons are valid or facile.

Earlier in history it used to be ought a common religion was a erequisite of nationhood. This elief was seen to be totally wrong. people could be one nation even they belonged to many religions. radually the idea of separation of urch and state gained ground. ltimately, through enlightenment nd the scientific surge of the nineenth century came the concept of a cular state.

The secular idea is a refinement of ne 'tolerance' taught by the best achers and rulers of old. Tolerance, ll said, is a personal quality. Secuarism has the force of law.

The question that serious students hould now examine is: if there could e a nation, and a state, without *one* eligion, couldn't there be *one* nation ithout *one* language?

The same Constitution that proclaims our nation to be a secular tate also states we have several ational languages. All the fourteen anguages of the Eighth Schedule, and ven those not mentioned there, are ational languages, although the Union is to have an official language or the business of the Union and or inter-state communication.

Our recent history, as well as that of Canada and Belgium, should show that linguistic loyalty is like the hold of religion. It is different from the sense of property. It is essentially a sentiment, a deeply-felt sentiment.

We haven't wholly overcome religious fanaticism, unfortunately. But secularism is gaining ground and making converts. We should now see whether we cannot attempt in the realm of language what we have achieved in the realm of religion.

Can't we study how things move in Yugoslavia and Switzerland which manage their affairs without the one-language idea? And is it very true that the people who speak the same language understand each other better? (Any home would show that it is wishful thinking.)

There are some who say: how will the farmer of Andhra Pradesh speak to the farmer of the Punjab if there is no common language? The answer to that is that the farmer of Andhra Pradesh does *not* have occasion to speak to the farmer of Punjab. (Except of course if he is on a pilgrim train which, nowadays, also goes to Bhakra. But pilgrims have always managed without much need of words).

It is not farmers or labourers but traders and technicians who need to carry on an inter-state conversation. And administrators and politicians. But some politicians have proved that they are understood in all States even if they know neither of the link languages—the pre- or the post-. And many politicians have shown they are misunderstood regardless of what language they speak. He who has to do business learns the language he needs. Technicians and scientists have the language of the hand, and of symbols.

This, some may feel, is an irresponsible way of dealing with the question. But a certain amount of irreverence is needed to deflate something to which too much importance is being attached. It is not by being attached to shibboleths but by giving them up through sincere self-examination that we can solve our problems.

Things ought to be regarded as more important than their names; and ideas more important than the medium of expression. The provisions of the Constitution and Parliament's will ought to be scrupulously obeyed, while the more thoughtful should explore ways of achieving a permanent linguistic disarmament. For the present let there be a ban on underground or above-ground explosions.

* * *

THE dry wit of Madras kept coming up in the midst of the grim events in that State earlier this month. A colleague returning from a southern holiday gave us some samples.



IGNORAMAN

Wants to Know

If the Sahitya Akademi Approves of Giving One's Life to a Language

"If a man asks you for a match, first see if his clothes are dry or soaked."

"If you have any Sanskrit books, hide them away. People may take them to be Hindi."

"Definition of a student: A student is between five and six years old and doesn't go to school; or he is thirty to thirty-five years old and works in a shop, a factory or a building project."

"Won't students go back to see Hindi films?....Oh yes, they will; but only after tearing up the posters."

Such levity, however, was rare. Our colleague gave us a frightening description of the way mob rule had asserted itself. Worse than the hideous anger, he said, was the vulgarity of the slogans raised there. The least obscene of them is still unprintable.

CLEAN FEET

OLD India hands often give strange advice to people coming over to India. Some months ago we had given one example: that would-be travellers to India should go well equipped with sheets! Now we have come across two more such beauties: one—"Don't buy shoes in India; you will catch infection through the feet", and two—"Don't wear shirts that require to be tucked in; you will get heat stroke."

The Tourist Department must do something about counteracting such ignorance.

Quality tools from quality steel

In 1923, a new Indian industry was born when the manufacture of improved agricultural implements of steel was started at Jamshedpur. In 1925, The Tata Iron and Steel Company took over the Agrico factory, and, for the first time in India, diversified production to include essential implements, such as hammers, shovels, picks, beaters and crowbars.

For the past 40 years, Agrico has helped to provide the farmers on the field and workers engaged in the construction and maintenance of roads and railway tracks, bridges and dams with improved varieties of tools.

Agrico now produces annually 4 million pieces of implements, scientifically designed, and forged in one piece from high-grade Tata carbon steel. Strict supervision at every stage of manufacture ensures the high quality and durability that have made Agrico implements the first choice of users throughout the country.

TATA STEEL



e Tata Iron and Steel Company Limited

JWTTN

The Books

The Vocabulary of Growth

Growth, Change and Planning by Maurice Zinkin. The Council for Economic Education, Bombay. 51 pages. Rs. 5.

ECONOMIC growth could be defined as the transition from an ascetic society (or a world without wants) to an affluent society (or a world without poverty). In concrete terms, it is a continuous increase in the aggregate real income of an economy. The vocabulary of economic growth which is devised to describe this process has grown much more rapidly than the real income of any country. The layman in economic affairs should be grateful for any guidance in understanding the elements of growthmanship. This book, which has grown out of lectures delivered last year at the Council for Economic Education, Bombay, is such a welcome help.

In the first lecture the author examines the role of economics in the context of social activity and sets forth the familiar propositions of Positivist or "means-ends" Economics. In the bargain, he assigns to the economist the task of registering decisions made by others by putting the price ticket on them. Here is the textbook economist in action, steering away from value judgements, as neutral as a computor and as aloof as an ascetic. Perhaps the author is less than kind to the ascetic when he refers to the begging-bowl industry. Yet, a little later, he speaks of a guide to salvation!

The other lectures trace the evolution of the concepts of growth and planning. The lecture on growth and change has as its dominant theme the freedom of initiative, which it expounds with many an example. Erosion of authority is made out to be a concomitant, if not a postulate, of economic growth. There is economic growth, and on a spectacular scale, under dictatorships. From this, it is possible to argue that authority is as much a requirement of economic growth as freedom is. This only confirms the suspicion that while accepting the ideal of economic growth, a society is free to evolve its own policies and institutions for realising it. After all, the road to affluent society need not necessarily pass through the split society and an acquisitive society.

The lecture on planning begins with its nonage, with the idea that planning has always been there in some form or other and that it is a matter of degree and not of kind, and illustrates the many meanings of the term. Like the economist in the first lecture, the planner here is neutral: he accepts the decisions of the true policy-makers, *viz.*, "the terrible trio, the non-technical civil servant, the ignorant politician and consumption-loving public" and confines himself to working out the implications of these decisions. Being only human, the planners occasionally express their views and "often irritate the public by telling it what it ought to want." All this is part of the democratic process, as, in a free society, expressing a view is as important as pointing out its implications.

With pleasing informality, the author surveys the entire range of economic problems of developing countries. Altogether, the reading of this book has been a satisfying experience. It says so much so well though some of it is already known to us.

A.N.S.

TRACTOR ON THE FARM

A Guide to Tractor Operation and Maintenance by E.G.K. Rao. Asia Publishing House. 96 pages. Rs. 10.

K. D. Sharma

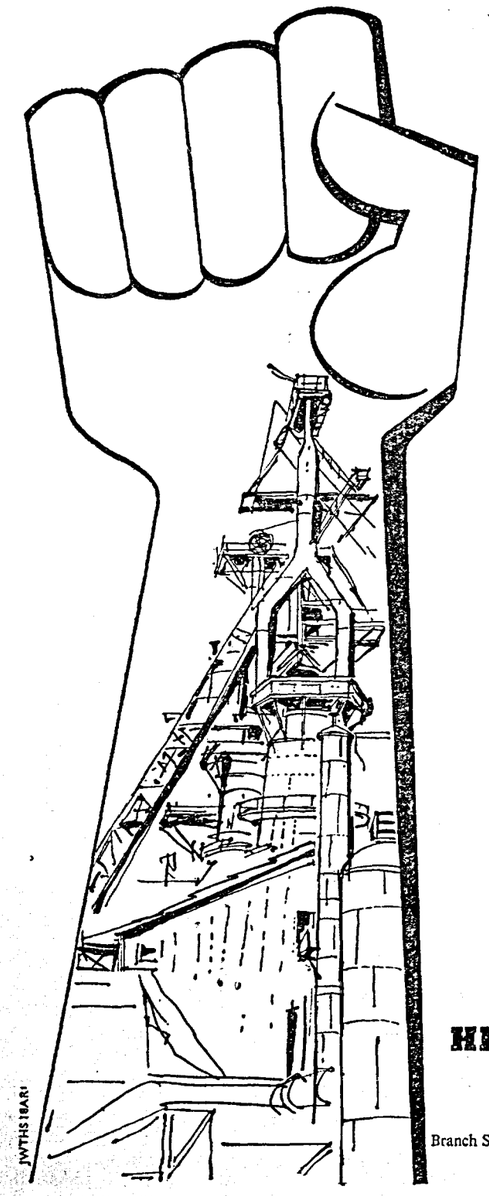
IN a country like India, where agriculture is still, by and large, conventional, attempts are being made over the last fifteen years to reorganise agriculture and put it on modern scientific lines. One of the most important steps necessary for this is to replace animal power by mechanical power. This, in other words, would mean that tractors have to be made popular with Indian peasants. In doing so we must attempt to remove the existing prejudices among our peasants for machines, through proper education. Books on agricultural machines, which explain to the peasants, in easy interesting language, what these machines are, how they can be useful to agriculture and how to use them, are very necessary. There is a dearth of good books on tractor maintenance and operation and the present book by Mr. E.G.K. Rao, who has vast experience of agricultural engineering is a welcome addition to the literature on agricultural engineering.

For the purpose of exposition and explanations the tractor has been treated as a composite unit of a few basic systems and assemblies. In describing these parts the author has drawn comparison to the various parts of human body. The book has twelve chapters, and in these the author has tried to explain the basic principles of the parts of the tractor and their working.

Another good feature of the book is the large number of block diagrams and photographs. The author has attempted to explain the basic principles as clearly and lucidly as possible with the help of these diagrams. However, a few of the diagrams are confusing and they could have been broken up into smaller parts.

The book, as the author says, is primarily meant to introduce the novice to the subject of tractor operation. It is also a useful book for those studying agricultural engineering. For tractor owners this book will be a very useful companion. This book, if it has to be useful to our agriculturists, should be translated into the various languages of India.

STRONGER THAN STEEL



There are metals stronger than steel, but steel is still the master metal because it helps build something stronger than all—a nation's industry.

India's annual steel production capacity has risen four times in five years—from 1.5 million ingot tonnes in 1956 to 6 million ingot tonnes today. In providing this firm foundation for the country, Hindustan Steel has played a leading role, building three one-million tonne integrated steel plants at Rourkela, Bhilai and Durgapur.

These plants are now being expanded to double their output from 3 million tonnes to 6 million tonnes. Besides, an Alloy Steels plant at Durgapur with an ultimate capacity of 3 lakh tonnes is coming into being.

Hindustan Steel is forging ahead; it is playing its part in continually strengthening the nation's industrial base. In the Fourth Five-Year Plan it plans to expand its capacity to 9 million tonnes.

HINDUSTAN STEEL

Backbone of Industry

Registered Office : Ranchi, Bihar
Plants : Rourkela . Bhilai . Durgapur
Sales Office : 2 Fairlie Place, Calcutta-1
Branch Sales Offices : Madras . Bombay . Delhi . Kanpur
Overseas Offices : London , Dusseldorf

FOOD FOR THE HEALTHY BODY

PROGRESS OF APPLIED NUTRITION PROGRAMME

THE man who knows his words never has a quarrel; the man who knows his food never has an illness. So runs an Indian proverb.

Unfortunately Indian diets are none too noteworthy for their nutritious qualities. Because of widespread poverty people do not get enough to eat; even where they get enough in quantity, the diet is not balanced in terms of nutrition.

To supplement such deficient diets and to show the people what constitutes a good diet, the Union and State Governments have sponsored, in several parts of India, an Applied Nutrition Programme.

The programme is aided by three United Nations organisations, namely the Food and Agriculture Organisation (FAO), the World Health Organisation (WHO), and the United Nations International Children's Emergency Fund (UNICEF).

The aim of the programme is:

(1) to develop a field service which will enable people, specially pregnant and nursing women, infants, pre-school and school children to have wholesome food;

(2) to train staff for the field service; and

(3) to educate village communities in hygienic practices of production, preservation and use of protective foods.

UNICEF supplies laboratory and audio-visual equipment, transport facilities, preservation units, tools, etc. FAO provides experts and assistance on technical problems. WHO provides knowledge in the field of health.

These add up to a tenth of the total cost of the programme. The remaining nine-tenths is borne by the Union and State Governments.

Initially the programme was called Expanded Nutrition Programme and was introduced in selected blocks in Orissa in 1959 and later extended to Andhra Pradesh and Uttar Pradesh. The experience showed that training in the production, preservation and consumption of nutritive foods to people was not enough. Basic education and training of field workers in rural areas was also necessary. The programme was therefore reoriented to include colleges and institutions which will turn out such trained personnel. The revised programme is called the Applied Nutrition Programme under which blocks selected for its implementation are attached to such colleges and institutions. Madras was the first State to have introduced the revised three-year programme. It now covers 179 blocks in Orissa, Andhra Pradesh, Uttar Pradesh, Madras, Mysore, Kerala, Madhya Pradesh, Punjab, West Bengal and Himachal Pradesh. The remaining States and Union Territories are expected to take up the programme in 43 blocks this year.

MORE EGGS, FISH AND VEGETABLES IN ORISSA

THE programme was taken up in Orissa in 1959-60 as a pilot project. It covered 240 villages in 32 selected blocks. The intensive five-year programme consisted of, first, demonstration in production of improved poultry and eggs, fish, vegetables and fruits; and secondly, education in the importance of a balanced diet, methods of cooking and preservation. Provision of clean drinking water and popularisation of hygienic habits also formed part of the programme.

The movement is built around 'mahila mandals', youth clubs, gram panchayats and village schools. Women's clubs and youth clubs are encouraged to rear poultry on modern lines. Every participating women's club has been provided with a poultry unit and generally feeds 20 mothers and 50 children with a balanced diet twice a week. Women's clubs are also encouraged to rear fish in the village tanks with the help of youth clubs. Eggs and fish thus produced are given to expectant and nursing mothers and to pre-school children to enrich their diets.

Every school is expected to have an orchard of two acres and is helped to raise it by help in the form of seeds and agricultural implements. Besides growing vegetables and fruits the school gardens also serve as a demonstration centre.

V. S. MATTHEWS
Commissioner, Panchayati Raj, Orissa

Mahila Samitis and schools also arrange milk distribution six days in a week. Education in nutrition is given to field workers and to members of women's clubs, youth clubs and panchayats.

To assess the impact of the programme, a field survey was recently conducted in 31 villages covering about 1,100 families spread over all the districts of the State. The findings of the survey are as follows:

Before the poultry programme was started in 1959-60, there was only one bird for every four families. Now every family has two birds. One in every eight birds is of the improved variety—Rhode Island Red or White Leghorn. There is keen demand among villagers for birds of improved breeds, but costs of rearing are high.

Before the programme was started, the average per capita consumption of eggs was one every three weeks. Now the consumption has risen to an egg per week. Where the families rear their own birds, the offtake is higher. The setting up of poultry units by women's and youth clubs, provision of free hatching facilities and extension poultry services pay rich dividends.

The kitchen garden scheme has been successful. Out of 1,090 families 715 have taken to kitchen gardening. The per capita per week production of vegetables has increased five times since the inception of the programme.

The consumption also has increased four times, and in some cases ten times.

Out of 1,100 familes, 610 have orchards of banana, guava and papaya. Bananas account for 56 per cent of the production. The consumption of fruits has doubled in three years, although it is still below the needs of good nutrition.

Several hundred tanks have been taken up for fish rearing. Production has doubled in four years. Ninety-six families own fish-tanks. Efforts are being made to help gram panchayats to renovate tanks and supply fingerlings.

A year ago, only 10 per cent of the families owned milch cows; now 35 per cent of the families have them. Consumption of milk has increased.

It has been observed that where women have come forward to enlist the support of the panchayati raj institutions, the production and consumption of vegetables, fruits, eggs and fish has been double that in other areas.

It would be rash to claim that the programme has made good the deficiencies in the diet of the people. Undernourishment and deficiency diseases still persist. But the fact remains that the programme has brought about a better awareness in the village people of the problem of nutrition and has induced them to grow more vegetables and fruits, and rear more poultry and fish. The visible impact of the programme justifies its expansion.

QUOTATION BOX

Human nature is the same everywhere; only it is more so in India.

—Mrs. Joan Robinson, the economist, in a conversation.

In no country is aristocracy as easy as in India.

—Mr V. S. Naipaul

My friends, humanity is on the march. We are in it. The clock cannot be put back; but excruciating trials are ahead. Man as a mammal is on test.....The prospect is frightening, also thrilling.

—Mr S. K. Dey in "Kurukshetra"

SOMETHING BOX : This is a steel box welded shut. It contains a battery that blinks eight tiny bulbs. That's all it does. It fascinates, keeps you awake, puts you to sleep, makes one curious. It runs for a year then it's done. You can't fix it. But its fun. $ 25.00.

—Advertisement in "The New York Times"

Even if I am not able to demolish the wall of bureaucracy which divides the people from the Government, I would create enough holes in it before I quit so that the common man can at least see what is happening inside.

—The late Mr Pratap Singh Kairon quoted in an article in "The Statesman"

The most urgent task is to separate the boys who can profit by education from those who really have no interest (who clamour for admission and then clamour for holidays.)

—Prof. D. McCutchion of Jadavpur University

Communism plus cost accounting equals capitalism.

—Mr A. K. Watson, U. S. delegate to International Chamber of Commerce

Tamilians have been the most shocked at their own behaviour and by the tragic turn of events.

—Mr S. C. Anantharaman in "The Statesman"

States have diverted funds (meant for girls' education) to other purposes such as building of roads and power houses.

—Mrs Raksha Saran

He (Union Deputy Minister for Steel and Mines) said that at the time of Tansen there were about 4,000 ragas and raginis. Tansen perfected those ragas and brought down their number to 400 only. He effected changes in 'dhrupad' raga also. Shri Sethi said that classical music would benefit by evolving new techniques and new terminology more in keeping with modern changes in society. In this connection he cited the instance of Russia.

—From a press note of the Madhya Pradesh Government

Ignorance should be well-mannered, not loud nor long. I inaugurate the Seminar.

—Two-sentence speech of Dr Zakir Husain at Seminar of Architects in Delhi

So long as the engineer remains the head of the building department, as in India, no worthwhile architectural solutions are possible.

—Mr H. Rahman, architect

Seven Madras Blocks Achieve Better Diets

In Madras State, the programme is being worked in seven rural extension training centres, three home science wings and in seven blocks attached to the training centres—Arni, Krishnagiri, Bhavanisagar, Puttukottai, Thiruvidamarudur, T. Kallupatti and Koilpatti. It is to be extended to two more institutions and the blocks attached to them.

Large poultry units have been established in each of the seven centres. The units supply birds to the village poultry farms. The State Government meets 75 per cent of the cost of construction of poultry houses, the remaining 25 per cent being met by the panchayats. Equipment as well as free ration to feed the birds were supplied by the State Government for the first two years. The panchayats are expected to supply 5,000 eggs to pregnant and nursing mothers and pre-school children in every 2,000 population for the 'project period' of three years. By December last, 5,19,636 eggs had been distributed free by 249 units.

Under the fish-farming programme all ponds in these areas are stocked with fingerlings supplied by the Fisheries Department free of cost to the panchayats. The panchayats are required to supply 1,000 pounds of fish every year to 50 pregnant and nursing mothers and 100 pre-school children in each 1,000 population. So far 2,90,578 lb of fish have thus been supplied.

Village gardens, up to five acres in area, have been started by the panchayats. There are now 103 gardens in the areas under the programme, besides those maintained by schools.

Milk powder supplied by the UNICEF is distributed to pregnant and nursing mothers and pre-school children in the villages.

Under the training programme, 2,380 persons, including chairman of panchayat unions, village level workers, women workers and teachers, have been given training in poultry farming, pisciculture and horticulture.

RAIL RATES UP, TO PAY MORE D.A. TO WORKERS

Haulage Capacity Is Now Higher than Demand

There will be increases in passenger fares and some freight rates in 1965-66 to bring in an additional income of Rs 21 crore.

These were announced by Mr S.K. Patil, who presented the Railway Budget to Lok Sabha on February 18.

Mr Patil said this additional income was necessary to pay higher dearness allowance and other benefits to railway employees in accordance with the Das Commission's award.

The Minister announced that in 1964-65 the Railways had provided all the goods transport needed and also introduced 125 new long-distance trains and 63 new suburban trains besides extending the run of 96 trains.

He drew attention to the fact that the increase in demand for goods traffic was much below the expected 17 million tonnes for which the Railways had prepared themselves. Because of this slack, the Railways were somewhat curtailing their expansion programme for the coming year.

In freight rates, the increase will be between 4 and 7 per cent on commodities like iron and steel, cement, stone, limestone, ores, and about 8 per cent on non-dangerous petroleum products. Rates on kerosene, iron ore for export, coal and food grains are unchanged. The adjustments will yield Rs 6.9 crore.

Increases in passenger fares will bring in Rs 13.50 crore. There will be no increase in third class fares for travel up to six kilometres. Journeys between 6 kilometres and 50 kilometres, which account for 70 per cent of third class travel (excepting season tickets), will cost 1 to 5 paise more per ticket. The increase works one to ten per cent on third and second class up to 800 kilometres, on first class up to 1,000 km, and on air-conditioned class up to 1,200 km, with the percentage coming down for longer travel. The increase on season tickets in the big cities is nominal in Bombay and Calcutta and in Delhi, Poona, Bangalore and Secunderabad.

Total receipts in 1964-65 were Rs 660 crore. Working expenditure was Rs. 432.68 crore. Rs. 83 crore went to reserves and Rs 11.50 crore to the pension fund. Another Rs 15.81 crore were accounted for by miscellaneous expenditure, leaving Rs 117.01 crore as net revenue. Of this, Rs 92.02 crore would go to the general revenues of the Union Government and Rs 12.50 crore to the States, leaving a net surplus of Rs 12.49 crore.

Inclusive of the new levies, revenues in 1965-66 would be Rs 716 crore and working expenses Rs 457.84 crore.

In 1965-66, the Minister said, the Railways expected to handle an increase of about 10 million tonnes in goods traffic, including half a million tonnes of finished steel and pig iron, about 2 million tonnes more of raw materials for steel plants including coal, a million tonnes more of export ores and another million tonnes of cement.

The estimates for works expenditure in the coming year have been placed at Rs 345 crore—Rs 20 crore less (because of the present economic situation) than the revised estimates for the current year.

Tabulated Look

	1964-65 Revised	1965-66
	(in crore rupees)	
Receipts	660.00	716.30
Working expenses	432.68	457.84
Depreciation Fund	83.00	85.00
Pension Fund	11.50	12.00
Miscellaneous expenses	15.81	16.02
Net Revenue	117.01	145.14
Dividend to general revenue	92.02	103.40
Transfer to States	12.50	12.50
Net surplus	12.49	29.24

Some facts given by the Minister on the production and development plans of the Railways are as follows:

The Chittaranjan Locomotive Works, which had by 1964 manufactured 1,691 steam, 21 D.C. electric and 2 A.C. electric locomotives, would produce 153 steam locomotives and 27 electric locomotives this year. The Diesel Locomotives Works at Varanasi had already assembled 12 diesel locomotives.

Conversion of the Siliguri-Haldibari section to broad gauge had been completed and opened to traffic. The broad gauge line up to Jogighopa would be ready this year.

Substantial doubling had been carried out on various trunk routes.

By about April 1966, there would be electric traction all the way from Calcutta docks to Kanpur.

Some 650 kilometres of track on the Howrah-Madras trunk route had already been doubled and further doubling of the route had been sanctioned, with provision of a second rail bridge on the Godavari at a cost of Rs 6.9 crore.

Out of 3,600 kilometres of new construction, including the 1,000 kilometres in progress at the beginning of this Plan, 2,100 kilometres of new lines would be opened by the end of the coming year.

The budget statistics show that at the end of 1963-64 the number of staff of Indian Railways stood at 1.27 million, and the average wage was Rs 1,994 per year.

WHAT HAPPENS WHEN YOU DIAL A CALL?



When you dial a call the Automatic telephone exchange comes to your help. The Automatic telephone exchange is a mechanical brain that replaces the manual telephone operator. It has three main functions. (1) to find out whether the number you dial is engaged. (2) to connect you to the number if the line is free and (3) to inform the dialled party that a telephone call is waiting for him.

The Automatic telephone exchange does these three jobs very efficiently, in fact a thousand times better than a manual operator. The 100,000 telephones in Calcutta and the 85,000 telephones in Bombay are completely operated by Automatic telephone exchanges.

The automatic dialling system manufactured by ITI is now being used on trunk lines as well. Single and multi link operator dialling systems have been installed in most major exchanges. Direct subscriber trunk dialling systems are also functioning between Jaipur, Delhi, Agra, Lucknow and Kanpur. This facility will soon be available on most trunk lines when the coaxial cable network is completed.

INDIAN TELEPHONE INDUSTRIES LIMITED,
BANGALORE-16

The Pioneer Manufacturers of Telecommunication Equipment in India.

ASP-ITI-58

PINJORE HMT HAS ITS FOUNDRY

As The PLAN Moves

THE foundry of the Hindustan Machine Tools factory at Pinjore (Punjab) has been commissioned. The foundry will produce 3,000 tonnes of castings every year, and later the capacity will be expanded to 6,000 tonnes.

With this foundry, HMT will become self-sufficient in its requirements of castings.

The Pinjore factory has already turned out the first batch of all-electric milling machines. These machines, described as 'a highly sophisticated variety', herald an era of automation in the machine tool industry in India.

Foundry Forge For Hardwar

A foundry forge plant will soon be set up at Hardwar to manufacture steel forgings and steel castings required by the electrical industry. It will have an annual capacity to produce, in the initial stage, 30,000 tonnes of fine alloy steel of which 15,000 tonnes of forges and 15,000 tonnes of castings will be processed in huge electrical furnaces. Steel cuttings and scraps available with the heavy electrical plant at Hardwar will be used for manufacturing the alloy steel.

The plant will be built at a cost of Rs. 20 crore by the Heavy Electricals Limited.

Another plant is proposed to be set up at Hyderabad for manufacturing air blast circuit breakers needed for power-houses.

SINTERING PLANT AT ROURKELA

The sintering plant of the Rourkela steel works has successfully completed trial runs. The plant has been built on a turn-key basis by the Koppers of Essen.

An oxygen plant also is to be built at Rourkela.

Work has begun on the expansion of the grey iron foundry of the steel works.

CONSULTANCY AGREEMENT FOR BOKARO

ANOTHER contract relating to the Bokaro steel plant was signed on February 6. (The earlier agreement was signed with the Soviet Union in last week of January). According to the new agreement, the Tjazhprom-export of the Soviet Union will provide design and consultancy services at a maximum cost of Rs. 6.6 crore. It also covers the preparation of a project report, which would be ready in about six months.

Actual work on the plant will begin early in 1966.

The Minister for Steel has disclosed that a steel plant will be built entirely by Indian engineers during the Fifth Plan.

CHEAPEST STEEL FROM DURGAPUR

The Durgapur steel plant produced the cheapest steel in 1963-64—a ton of steel cost Rs. 213, compared to Rs. 214 at Bhilai and Rs. 235 at Rourkela. However, the lowest cost of production in 1962-63 was achieved by Bhilai.

The cost of production in all the three plants together was lower in 1963-64 than in 1962-63.

Fish Canning at Malvan

A fish canning plant has been set up at Malvan in Maharashtra at a cost of Rs. 2 lakh. It is entirely designed and installed by the personnel of the State Fisheries Department.

BRIGHT SPOT

RASHTRA KALASH FOR GUJARAT

Gujarat has been awarded Rashtra Kalash, the highest honour, for the largest increase—21 per cent in the production of food grains in 1961-62. The second honour, Rashtrapati Kalash, goes to the Andaman and Nicobar Islands for an increase of 20 per cent. Along with these two awardees, Andhra Pradesh, Rajasthan, Himachal Pradesh and Delhi Territory also have been awarded community prizes of Rs 75,000 each for increasing their food grain production by more than 15 per cent in that year.

District level prizes of Rs 15,000 each have been awarded to 83 districts out of 298 for increase by more than 15 per cent in their respective production of food grains in 1961-62.

The prize amount is utilised for the improvement of agriculture.

THE BEST ORANGES

Mr V.K. Kale, a farmer from Maharashtra, has been awarded 'Udyan Pandit' in the all-India competition for growing Mandarin orange in 1964. His orange orchard at Warud in Amravati district has been adjudged as the best. He will receive a silver medal plated with gold, a certificate of 'Udyan Pandit' and a cash prize of Rs 5,000.

Postal Bank Outbids Scheduled Banks

The postal savings bank has outbid all the scheduled banks in savings business. At the end of March 1964, there were Rs. 530.78 crore as deposits in the postal bank, that is Rs. 51.74 crore more than the total deposits in the savings accounts of all the scheduled banks put together.

Combined with the balance deposits in postal savings certificates, the total deposits in the postal savings amounted to Rs. 1,154.54 crore, at the end of 1963-64, which works out to more than half the total amount of demand deposits and time deposits in all the scheduled banks.

The number of depositors crossed one crore mark in 1963-64 rising from 31.53 lakh in 1947-48.

Interview with K.N. SRIVASTAVA

Managing Director, Indian Drugs & Pharmaceuticals Ltd.

ALL THE ANTIBIOTICS THAT WE NEED

What are the considerations that led the Government to set up the Antibiotics Plant at Rishikesh?

Mainly two. Dust-free atmosphere and cold water are two important requirements for production of antibiotics. The environs of Rishikesh are comparatively free from dust, and thus have a low bacterial content. Then there is the advantage of a regular supply of water from the Ganga which remains cool for nine months in the year. This greatly cuts down refrigeration costs.

How many varieties of drugs do you propose to manufacture at Rishikesh?

Penicillin, streptomycin, tetracycline, chlorotetracycline, oxytetracycline and nistatin. Of these, nistatin will be manufactured for the first time in the country.

Penicillin and streptomycin are already being manufactured in our country. Why do you have to attempt the same thing?

Yes, both are being produced by the Hindustan Antibiotics at Pimpri. But the quantity is not enough for our requirements. The total annual production of penicillin is 75 million mega units (m.m.u.), and that of streptomycin is 80 tonnes. Tetracycline is being manufactured only in the private sector, the total annual production being only 18 tonnes. The Rishikesh plant, on reaching its full capacity in 1968, will produce 125 m.m.u. of penicillin, 80 tonnes of streptomycin and 120 tonnes of tetracycline.

Would we then be self-sufficient in these vital drugs?

Yes. We have also taken into consideration the increase in consumption that is likely to occur in the coming years. What is more, we also propose to export our products.

Rs 20-CRORE WORTH

How much foreign exchange would we be able to save after the plant has gone into full production?

The annual gross sale of antibiotic drugs is expected to amount to Rs 20 crore. To begin with, if we export two per cent of our drugs we shall be able to earn Rs 40 lakh in foreign exchange.

What about raw materials? Are they available in our country, or have we to import them?

As many as 70 different kinds of raw materials are required for production of antibiotic drugs, the principal being corn steep liquor, soyabean flour, maize starch, glucose, soda ash and ammonium nitrate. Of these 70, something like 60 are available in our country. Of the remaining ten, the most important are lactose, sodium boron hydride, activated carbons and resins which we are importing from Russia for the present. In course of time, however, we expect private entrepreneurs to manufacture some of these items locally, reducing the range of our imports. In fact it is the response of Indian manufacturers, who have come forward to make twelve of our raw materials, that has brought down the import list to only 10.

WELL-TRAINED SCIENTISTS

You are sending our scientists for training to U.S.S.R. Will they be able to take charge of the plant and the research laboratory? Or have you also to secure technical hands from other countries?

Our scientists are being trained in different aspects of production and research. Those who have already been trained in U.S.S.R. have gained experience and knowledge required to run the plant and the research laboratory. In all we would need 200 scientists of graduate and post-graduate level, specialised in chemistry, microbiology and pharmacology. Besides, we are getting people trained in Pimpri as well. We have excellent young scientists in our country and we are confident that under the guidance of the trained scientists they will be able to do their job successfully. Besides, steps are being taken to introduce certificate courses in technical institutions conforming to the needs of antibiotics production, in consultation with Director of Training and Employment and Director of Technical Education, U.P.

What about instruments for quality control? Are we importing them?

You have asked a vital question. Quality control is an essential factor in any line of production; it is more so in the manufacture of drugs. We want to make our standards as high as possible. Of course we are making some indigenous instruments, but for the most part in our project we shall need to rely on instruments from U.S.S.R. and East Germany. Some instruments for the capsuling and assembly lines in the finishing block will come from West Germany.

Could you tell me your plans for sale and distribution of the drugs manufactured at Rishikesh?

We propose to supply drugs directly to hospitals. We are also thinking of opening sales depots at different centres. Of course we don't wholly rule out distribution through agents.

Now I come to the important question of price. Unless prices of drugs are brought down to suit the pocket of the common man, is it much use producing them in bulk? Do you consider our people will be able to get these drugs at lower prices?

The prices of the drugs will be fixed by the Government and Government, you may be sure, will take all relevant factors into account. Equally important is that these modern drugs should reach the remotest village.

May I ask one last question? There is a feeling that the use of antibiotics is harmful. Do you think these drugs are likely to lose their popularity in the years to come?

I would leave these questions to be answered by medical practitioners. All I can say is that antibiotics are wonder drugs that have reduced the rate of mortality considerably. Indiscriminate use of anything is harmful. Sir Alexander Fleming himself decried the excessive use of penicillin. But we must remember that the per capita consumption of antibiotics is comparatively low in our country—compared to what it is in the advanced countries where antibiotics are used for animals and plants as well.

SHRAMDAN BY MIZOS

The Mizo tribal people have constructed a 224-km road from Lungleh to Aijal in the Mizo Hills district. Of this road, over 150 kilometres have been built entirely through voluntary labour. The road was later taken over by the State P.W.D.

Late but Good Start

GODKHALI-KURMIPARA is a small village on the bank of the Ganga in the Nadia district of West Bengal. The inhabitants are Mahatos, whose forebears migrated there from Bihar. They are mostly landless agricultural labourers and very few of them have a tradition of education. There is a primary school, of course; but unlike other villages where the problem is to find space for children in the school-building, the Godkhali-Kurmipara school is in perpetual want of students.

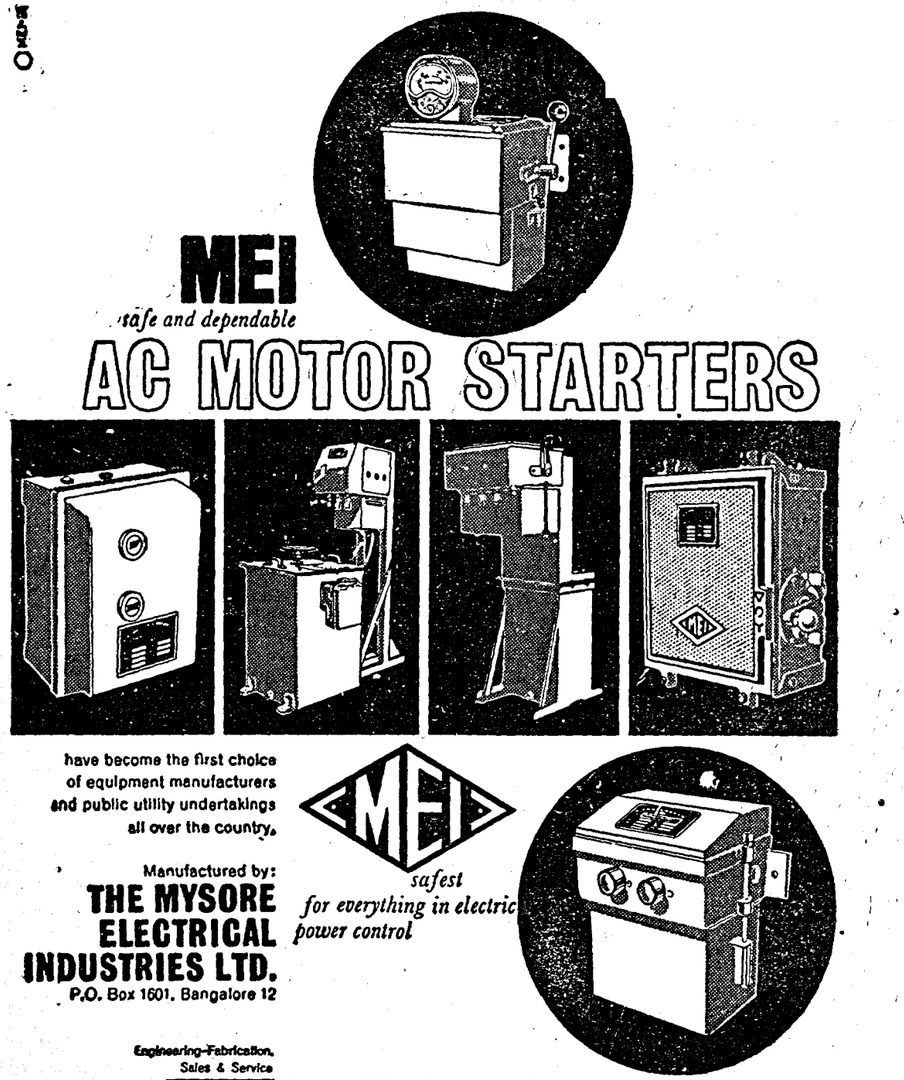
When children are not sent to school, would adults bother about learning the three R's? Even so, the Block authorities, with quiet courage, decided to open a social education centre in Godkhali-Kurmipara. Surprisingly, their task paid off. On an average 25 adults assemble there every evening, and they go to the centre after a hard day's toil, with the eagerness of young boys. The joy on the face of the learner when he first writes his name on a slate is to be seen to be believed.

The centre is not only a place of study but a place for singing devotional songs and for listening to the *Ramayana* and the *Mahabharata*. News and events are discussed, and information is sought on problems like how to control pests of jute and brinjal through modern insecticides.

23 I. T. I.s IN MADHYA PRADESH

Four Industrial Training Institutes have been set up in Madhya Pradesh in this month. This brings the total of such Institutes in the State to 23, all together having a capacity for 7,800 trainees.





WE YOU ASK US TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

3-LANGUAGE FORMULA

S. D. Manerikar, Baroda

1. What is the 'three-language formula'? Which States have been implementing it?

2. What are the facilities for technical education of girls at the secondary and higher stages in the States, particularly in Gujarat and Maharashtra?

ANSWERS: **1.** The 'three-language formula' requires a student to learn three languages simultaneously at the secondary stage. The languages are: (1) mothertongue or the regional language, (2) Hindi in non-Hindi-speaking regions and any modern Indian language in Hindi-speaking regions, and (3) English or any other European language.

The formula was accepted by the Chief Ministers of all States at their conference in 1961. This formula, which was intended to secure national integration, is being implemented in most of the States and Union Territories.

The concept of teaching three languages simultaneously was first suggested by the Secondary Education Commission in 1953. On this suggestion, the Central Advisory Board for Secondary Education evolved two formulae which were circulated to the States for their consideration in 1956. The States accepted the one which was similar to that now in practice, but was a little complicated with the addition of classical, that is Sanskrit, language.

2. There are no separate facilities for the technical education of girls, as distinguished from those for boys, at the secondary stage. The curricula in the various States are common for both boys and girls.

However, at the post-secondary stage, separate polytechnics for girls are being opened in the Third Plan period. The polytechnics are on experimental basis and are set up regionwise. During the past four years of the Plan, 15 such polytechnics have already been set up, out of which one is at Ahmedabad in Gujarat, and nine more are to be set up by the end of the Plan period. There will be no such polytechnic in Maharashtra as the State Government has not included it in its Plan.

POSTAL TRAINING FOR TEACHERS

B. A. Phansalkar, Ilkal (Mysore)

The Union Education Minister had announced a scheme for training teachers through postal tuition. What progress has the scheme made?

ANSWER: The scheme of correspondence courses for training teachers is to be implemented in the Fourth Plan period. Such a scheme is considered necessary in view of the back log of untrained teachers and the tremendous demand for teachers in future.

The full details of the scheme have not yet been worked out. But the Union Education Minister announced its basic features in Parliament in November last. A study group constituted by the National Council of Educational Research and Training has also submitted a report on the scheme. The main features of the scheme are likely to be:

1. Correspondence courses will be organised by the Education Departments of those selected States where the back log of untrained teachers is the highest.

2. The courses will be conducted by the State Institute of Education in which a department of correspondence courses is likely to be opened.

3. The teacher-trainees will be attached to the nearest teachers' training institution for guidance.

4. No tuition fees will be charged.

5. The duration of the courses will be 15 months for secondary teachers, and two more terms than the regular course for primary teachers.

GRAM SEVAK'S REWARD

B. N. R. Singh, Mudigere (Mysore)

1. What benefits do the Gram Sevaks get when they are adjudged best at the district, State and national levels?

2. Do we have an adequate number of Gram Sevaks in the country? If there is a shortage, what are the steps taken to remove it?

ANSWERS: **1.** At the district level, the best Gram Sevak gets a cash award of Rs 200 and a certificate. At the State level, the cash award is Rs 1,000 with a certificate. At the national level there are two awards: the first gets Rs 2,500 and the second Rs 1,600.

Since the national emergency, the awards have been temporarily withheld.

Apart from these awards, the satisfaction of having achieved distinction in serving the people and the people's recognition of the sincere work are the invaluable reward for the Gram Sevak, as for any other public servant.

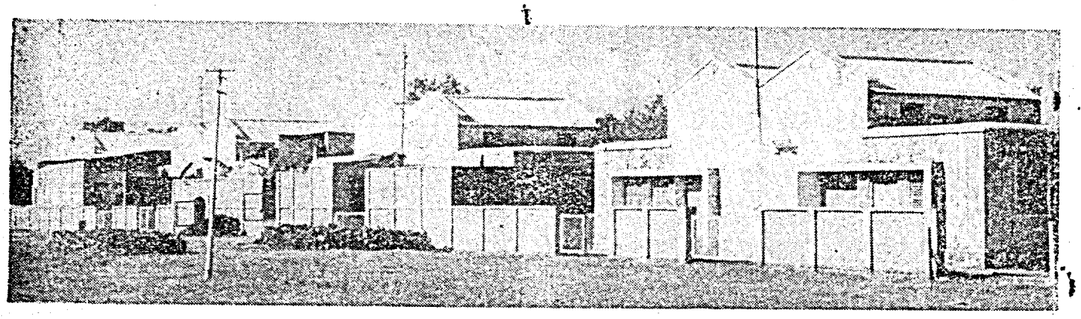
2. One Gram Sevak for every ten villages is considered to be a satisfactory working arrangement. The Community Development programme now covers all the five lakh villages in the country. In view of the country's total requirement of Gram Sevaks, the State Governments had sanctioned 50,400 posts for the Third Plan. Of these, 48,757 Gram Sevaks are now at work; the shortfall is only about 1,640.

The provision in the Third Plan is considered adequate and there are enough facilities for training Gram Sevaks. The only difficulty is about getting young men of the right ability who are also willing to work in the villages. This is the main reason for the present shortfall which is, however, small, just 3 per cent. To remove the shortfall, young qualified men will have to come forward in a bigger number.

REG. NO. D-876

YOJANA

MARCH 14, 1965
NINTH YEAR 5
25 PAISE



AT CENTRE OF LEARNING, A HOME FOR BUSY HANDS

DEOBAND has for centuries been famous as a centre of Islamic studies in India. The theological college there has produced countless scholars.

Now Deoband has a second string to its bow of fame. It houses the first rural industrial estate in Uttar Pradesh.

It is a neat and modest cluster of enterprises, but the estate holds out promise not only for the Saharanpur district, but through its example, for the State as a whole.

The Deoband estate has a provision for 30 industrial units, of which 26 are already functioning. The remaining four are installing their plants and will soon be in commission.

The units have been carefully selected to ensure ready market for their products. The products include articles like tin cans, agricultural tools, automobile parts, conduit pipes, measuring tapes, trunks and buckets, wires, drawing and surveying instruments, wood screws and imitation jewellery.

About 150 people are employed in the estate.

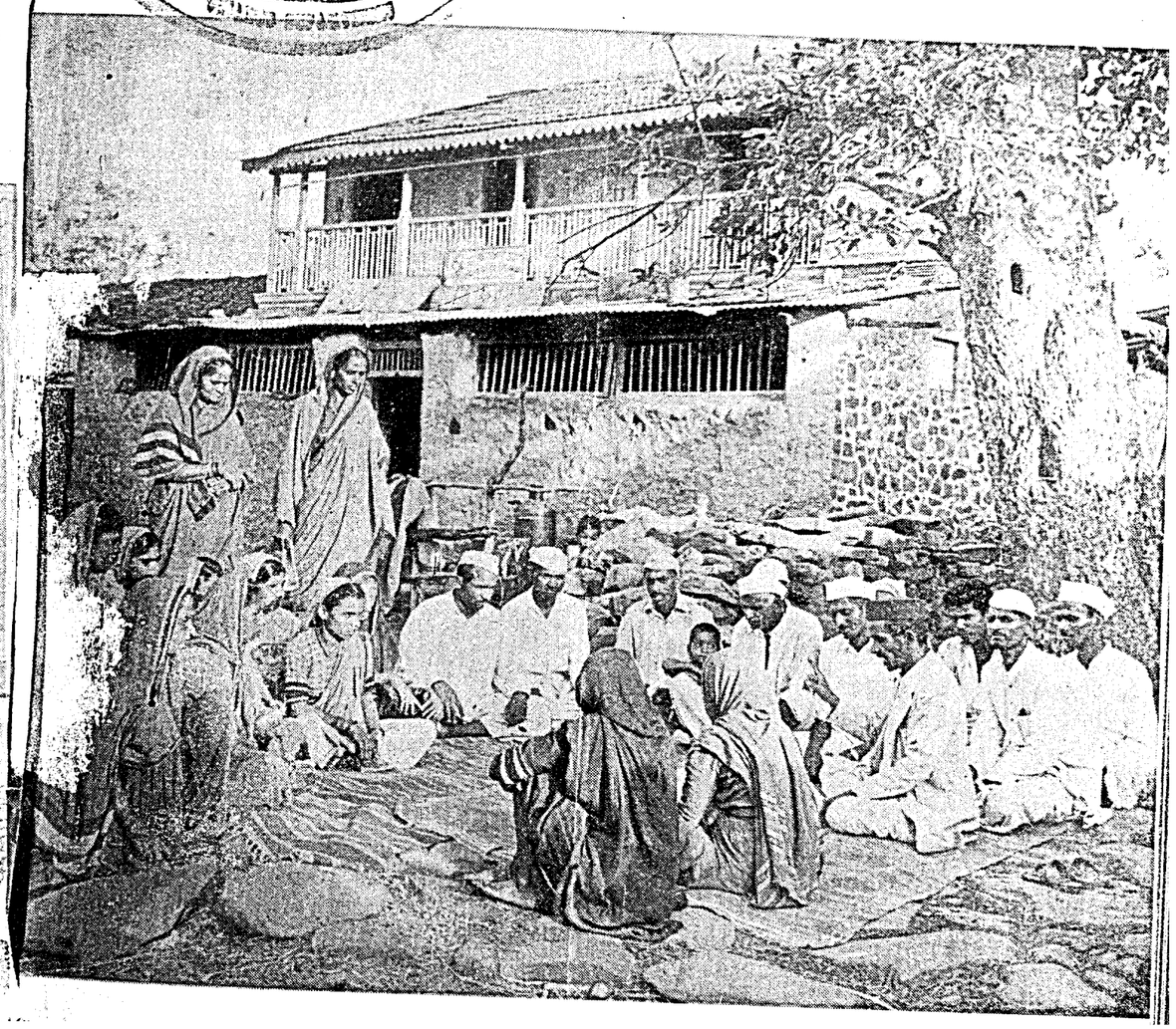
The estate provides to the entrepreneurs all the basic facilities such as workshop space, power, water, roads and help in securing raw materials.

Plans have been drawn up to provide factory accommodation for 20 more units and 24 labour quarters.





UP's first rural industrial estate opens at Deoband



BREAKTHROUGH IN RURAL EDUCATION

SEE PAGE TWO

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ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions English and Hindi.

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Cover : A social worker explaining to the villagers the benefits of being literate (see Page 2).

NEXT FORTNIGHT

NAGALAND MAKES PROGRESS

Illustrated Feature

★

IMPROVING THE WORK OF PUBLIC ENTERPRISES

OVER TO YOU

FERTILISER FROM DURGAPUR

I read in *Yojana* of January 26 about the Durgapur Fertiliser Factory which is being set up at a cost of Rs. 30 crore. What would be the value of its annual production?

M. R. APPA ROW
Minister, Andhra Pradesh

The estimated cost has lately been revised to Rs. 36.89 crore. The foreign exchange component would be Rs. 14.72 crore. The total value of production would be Rs. 28.75 crore, composed of Ammonium Phosphate Sulphate—Rs. 24.35 crore, Urea Rs. 3.20 crore and Ammonia Rs. 1.23 crore.

—Editor

AFRO-ASIAN COMMON MARKET

THE newly independent Afro-Asian nations are passing through several stresses and strains owing to shortage of resources, especially capital for developing their economies. So long as they were under the colonial rule, they were exploited fully. Raw materials were taken away by the rulers to feed their own industries at the expense of the colonies. Though politically independent now, Afro-Asian nations are not yet economically self-sufficient. The case of India also is not different.

According to Ragnar Nurkse the underdeveloped economy is exposed to a 'vicious circle'. A 'big push' is necessary to break the vicious circle and make the economy move towards development. By their very nature of low-saving, low-investment economies, capital shortage remains a major problem for them. The solution lies in development embracing the whole economy, which in turn depends on investment.

Investment in a few industries, however, cannot break the vicious circle. Again, investment in one industry, say, manufacture of lipstick, will be useless unless people are rich enough to buy the product. The demand for such industries can increase only when other industries also grow, raising the buying capacity of the people. As Adam Smith has observed, "Diversion of labour is limited by the extent of the market." Capital is required for huge investments and that can be raised through foreign trade. But where is the source? How can foreign trade of underdeveloped countries be developed to finance the capital requirements?

Like the European Common Market a Common Market for Afro-Asian Nations can help in developing their economies. The African markets are now being dumped with foreign goods, damaging the cause of home industries. An agreement among these underdeveloped countries on the erection of a tariff wall against the entry of goods will help in improving their economies. The market in view should be internally tariff-free to the members. The 'common market' will thus enable the members to export and import goods under favourable conditions.

If the idea is to materialise, and the Afro-Asian underdeveloped nations come forward to create a common market, the relatively developing nations like India will also be in a better position. India is trying to enlarge her foreign trade. The value of India's exports is estimated to go up to Rs 1,300—Rs 1,400 crore at the end of the Fourth Plan. The new common market will create a suitable outlet for Indian exports also.

P.K. DASAN
Chennamangalam (Kerala)

ECONOMICS OF RIOTS

Lord Krishna taught Arjuna that the body is distinct from the soul. The people of our country should also be taught the distinction between languages and the economy. For every country the economy is more precious than the language. Disturbances in Madras State have hurt the economy of the country. The sufferers are the people.

Tanjore. R.V. IYER

YOJANA

Vol. IX No. 5 Fortnightly Journal Published on behalf of the Planning Commission **Phalguna 23, 1886**

EXIT DEFICIT

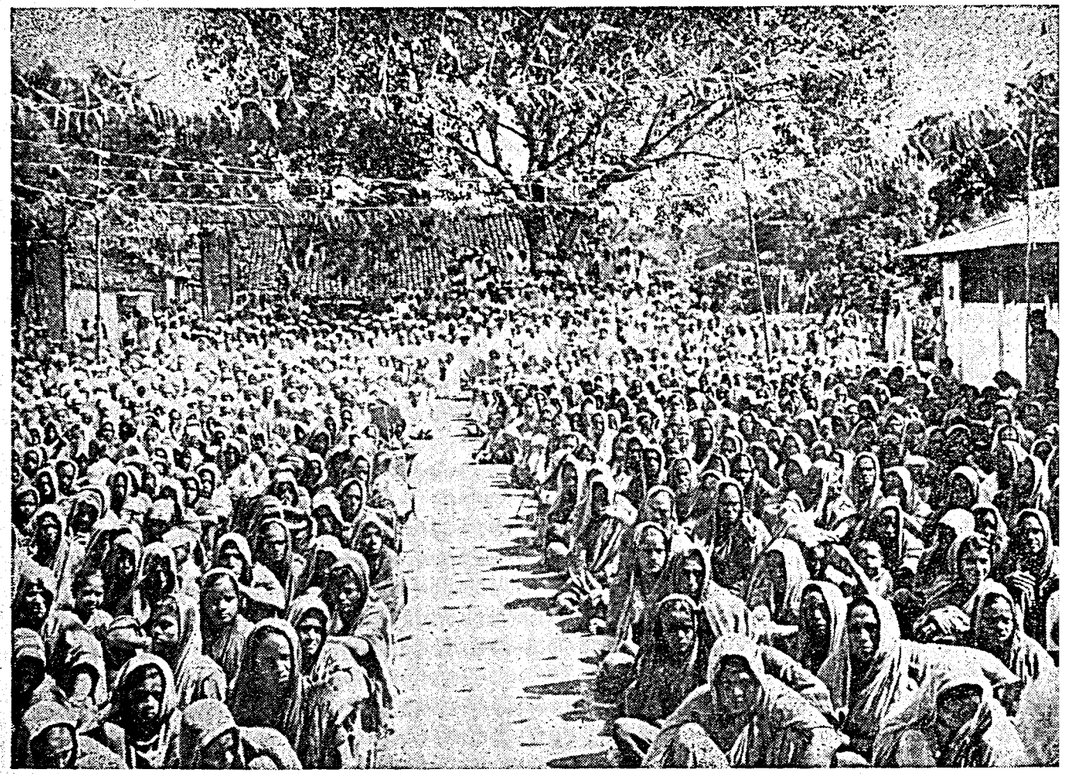
THE Budget for 1965-66 is remarkable in many ways. For the first time in years a Finance Minister has offered reliefs instead of new burdens; for the first time in years, again, a surplus is being achieved, not merely a surplus in the revenue budget but an overall surplus, doing away with deficit financing.

This is a matter for congratulation, when there are so many depressing things around. It is even more heartening to learn that the financial year that is drawing to a close is likely to find solutions to a number of problems we have been encountering. Earlier in the year prices, specially of food grains, shot up. But a fine harvest has come up, the best so far for our country, bringing promise of ampler supplies and relief in prices. There is a bucking-up also in industrial production, which had slowed in the first half of the year. The increase in industrial production is likely to be 8 per cent. With agriculture regaining bounce after three near-standstill years (a point to note is that the production of these years was still well above the mean of the Second Plan period), the fourth year of the Third Plan is expected to show a rise in national income higher than the 4.5 per cent achieved in 1963-64.

A large harvest following unprecedented increase in prices has not been the only paradox of 1964-65. The Union Government has managed to achieve big economies in expenditure (nearly Rs. 42 crore) despite having to spend Rs. 12 crore more on rehabilitating the people who came over from Pakistan in a big wave, and despite paying Rs. 38 crore more as dearness allowance to the Central employees. There are other points of satisfaction too: exports have been doing a good job and public sector undertakings are able to chip in more to the development pool.

Production, prices, investment and exports are four areas where decisive action from the Government is needed, and Mr. Krishnamachari has set out to provide it. The reduction he has announced in personal and company taxes, the streamlining of the tax structure, the voluntary disclosure scheme, and the plan to discourage large urban property holdings—all these are intended not only to enlarge the resources of the corporate sector but build a better climate for production. He has also announced incentives in the form of tax certificates for higher production. A similar scheme will apply to exports. As for prices, while the larger harvest will improve the outlook, Mr. Krishnamachari has given excise reliefs in some commodities of household use in the confidence that these reliefs will be passed on to the consumer. The commodities chosen are such—cloth, *vanaspati*, bicycles, shoes—that Government has scope to see that price reduction does take place and make a difference to family budgets.

In the final year of a five-year plan, as in the last lap of a sprinter's course, extra effort is put in, and this often makes up for the slackness in earlier stretches. This seems like happening in 1965-66 also, with the push given by the current year. We shall be in good shape to deal with the tasks of the Fourth Plan which, Mr. Krishnamachari reminded us, are more complex and more difficult.



MOHIM OF MAHARASHTRA

Achievement of Total Literacy Is Proud Event for Villages

Picture: **Gathering at a Gram Gaurav Samarambha**

MORE than a third of the world's illiterates—indeed 37 per cent—are in India.

The high ratio of illiteracy is one of the root causes of our underdevelopment. Inability to read and write keeps our people largely out of the reach of new ideas. They are unable, for example, to use the knowledge in regard to modern agriculture, family planning or small industry. They cling to traditional notions.

Eradication of illiteracy has been one of the aims of the five-year plans, but the gains have been slow. Between 1951 and 1961 the ratio of literacy went up by only 7 per cent—from 16 per cent to 24 per cent.

A determined mass education drive has been planned in the Fourth Plan which aims at not only removal of illiteracy but at sustained adult education so that the new gift is retained and utilised.

This campaign cannot succeed if it is just an officially sponsored programme. It requires enthusiastic mass support and mass participation. How these can be generated has been demonstrated by Maharashtra. The Maharashtra Gram Shikshan Mohim (rural education movement) has been one of the most remarkable developments in the country.

Because of its signal success, the Planning Commission sent a team of officers to Maharashtra in April 1964 to study the movement. The team toured the districts of Poona, Satara and Sangli, and saw the working of the movement in a large number of villages, and had the opportunity of talking to a large gathering of villagers, teachers, senior students of schools, social

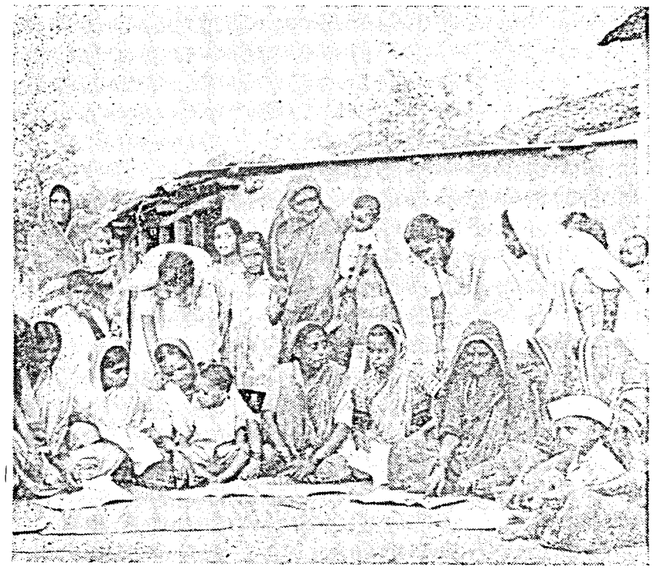
State Scores in Rural Education

workers, officials at various levels, members of various organisations like Panchayat Samitis, Zila Parishads and Gram Panchayats. On the basis of evidence collected, the team submitted its report to the Planning Commission.

In an introduction to the report of the team, Professor V.K.R.V. Rao has said: "It is my earnest hope that State Governments and other persons and bodies interested in adult literacy would take this report into consideration when working out their own programmes in this field for the Fourth Plan."

The Commission has also taken prompt action, by bringing the Maharashtra results to the notice of Central Ministries concerned and State Governments, to see that the good work is emulated by the whole nation. The response is encouraging. The report has been helpful and instructive to the State Governments, and it is proposed to take up this programme in a big way in the light of the suggestions made in the report. Assam has already launched a literacy movement based on the Maharashtra pattern. Bihar and Uttar Pradesh are deputing officers to Maharashtra to study the working of the movement.

What is more important, a scheme of rural education on the lines of Maharashtra experiment has been included in the Fourth Plan. The education programme for the Fourth Plan visualises 'that there should be increasing public co-operation in the specific area of making adults literate on the lines of the Gram Shikshan Mohim, which would be supplemented by a massive Government programme of production of books and literature, so that the results of literacy are retained and there is no relapse into illiteracy'.



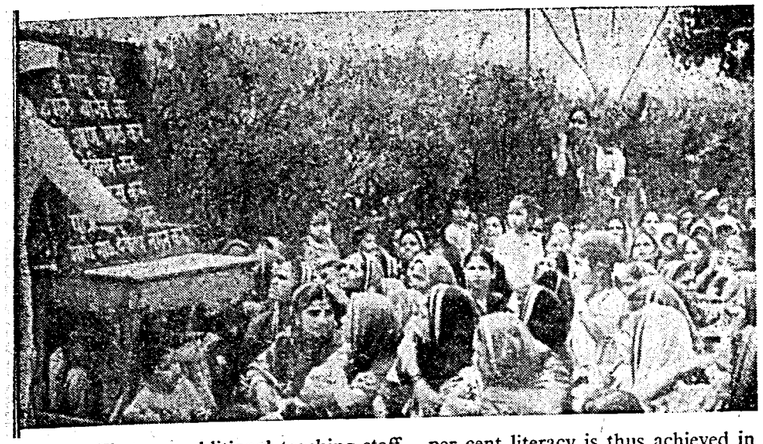
Women students unravelling the secrets of books after learning to read in the class

Let us now acquaint ourselves with the main features of the Gram Shikshan Mohim.

The campaign was launched in 1959 in the Satara district and was extended to all districts in the State in 1961. Before the campaign was taken up, there were stray adult literacy classes in the rural areas. Classes used to be opened with great enthusiasm, which waned after a few weeks. Most of them folded when attendance dwindled. But, after the introduction of the campaign, the classes are being run on a regular footing and the number of neo-literates has increased steeply. In the Satara district alone the annual average of 3,000 neo-literates rose to 11,000 in 1959 and crossed 100,000 in 1960. The campaign has become so popular that it is now the villagers who go to officials clamouring for a class, instead of the teachers persuading the people to join a literacy class.

Children Teach Parents

The aim of the Gram Shikshan Mohim is to take the literacy movement to the people and make them adopt it as their own programme. It is the movement of the people, based entirely on the initiative and co-operation of the people. The programme is planned and conducted by the people with the help of Government. The campaign has several features which account for its practical success.



Reading test taken at the Gram Gaurav ceremony. *Below:* Villagers decide to taste the fruits of knowledge.

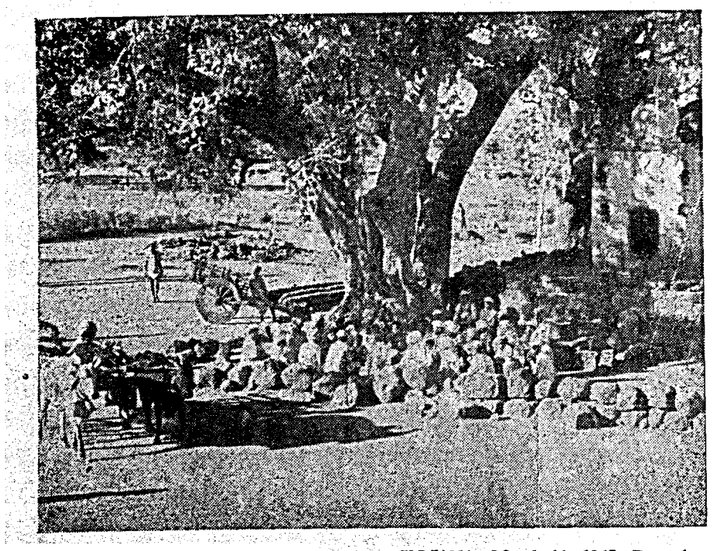
First, no additional teaching staff is recruited. Teachers, social workers and educated youth take to literacy work without getting any honorarium. They are helped by children in the senior classes in the village school. Adults, it has been observed, enjoy this situation; elders like to be taught by young children.

Secondly, a literacy class has only a limited number of adult students—not more than ten. Separate classes are held for women wherever necessary. Thus every adult student receives personal attention of the teacher.

Thirdly, the programme insists on making every person in the age-group 14-50 literate, and when cent per cent literacy is thus achieved in a village, a ceremony is held to celebrate the event in which the whole village participates. The occasion is called Gram Gaurav Samarambha (village honour ceremony). Thus the achievement of full literacy becomes a thing of pride for the entire village.

Fourthly, the village is rewarded for the achievement. The village panchayat is given a special grant at the rate of 50 paise per adult.

Fifthly, the campaign takes care that the fruits of the achievement are not lost. To retain the literacy, the neo-literates are given books from a circulating library. A social education centre is opened in the village soon after the Gram Gaurav Samarambha to encourage the villagers to utilise their achievement for the benefit of the individual and the village community.



The Proud Occasion

When a village comes under the movement, an executive committee is formed under the chairmanship of the Sarpanch. Other members of the committee include the headman and other officials in the village, representatives of the different societies, headmaster of the school and a representative of women. The committee draws up a list of all the illiterate persons between the age 14 and 50 years, and another list of literate and educated men and women who can conduct the classes. It also finds suitable places for classes, makes seating arrangements, provides the equipment needed by the classes and assigns teachers and workers for different classes. An intensive publicity campaign is undertaken to inform the villagers about the programme before the classes are opened.

The classes continue for about four months, generally during the season when there is no work on the farms.

The syllabus lays emphasis on reading. Writing and simple arithmetic are also taught. A student is expected to write numbers up to 100 and know simple sums. The lessons contain information on sanitation, hygienic practices, farming, village administration, child care and citizenship. Charts, strips and booklets are mainly the materials used for teaching.

After the course is complete a simple test is held. Those who fail in the test are put on a separate list for a second round of instruction. For the test, reading carries 40 marks, and writing, arithmetic and general knowledge carry 20 each.

The Gram Gaurav Samarambha thus becomes a proud occasion for the entire village. It is not only the

(Continued on Page 13)

ECONOMIC DEVELOPMENT AND SOCIAL JUSTICE

GULZARILAL NANDA

ECONOMIC development and social justice are both important and necessary goals for any society. With the vast and rapid transformation which the world has undergone in this generation, the problem of social justice has come increasingly to the fore. The new nations and the developing countries especially come up against the position that there may be certain incompatibilities and contradictions in trying to achieve both the aims together. The awakened masses in these countries, whatever might have been their conditions before, are impatient for a better deal and are not prepared to wait very long for the gradual operation of the economic forces to bring for them a better life and an equitable share of the fruits of progress. Promises have been held out to them, and as the pressures for fulfilment grow, the whole system comes under strain from several directions; and disorders in various forms appear. Have we any assurance for them that these apparent contradictions are superficial and temporary and there are possible devices which can ensure the proper blend of the two in each successive phase of the national growth?

The guidance furnished by past history is rather of a negative character. Economic progress, especially in periods of relatively quick technological change, was often secured at a phenomenal cost in terms of human misery and hardship. Political and social movements spread over many decades have tilted the balance in favour of the working masses which are now far better placed to resist any oppressive arrangement. Social conscience has developed a degree of sensitiveness that gross injustices will not be easily tolerated. Wit every advance in technology and the increase in the stoc of capital it becomes more and more feasible to step u economic growth while providing for better livin condition for the people generally.

With the achievement of independence, India foun itself in the position of being politically free to build u its own future, but was at the same time faced with a exceedingly difficult economic challenge. It enjoye only very partially the benefits of economic and technica progress which had been the possession of the advance nations for long periods. Having invested the peopl with adult franchise and parliamentary democracy India could not evade the impact of rising expectation of the awakened masses. The Indian nation has accept ed the obligations to march quickly towards the goals o social justice alongside of rapid economic development

The Directive Principles of State Policy embodied i our Constitution and the preambles to our successiv Five-Year Plans have made it abundantly clear that w wish to achieve economic development at a pace an along patterns consistent with the principles of socia justice. With the immediate adoption of planned deve lopment as the major instrument for achieving thes goals, those general principles of social justice wer given a more precise content and direction.

Protection and promotion of the interests of the weake sections of the population, narrowing of disparities i income and wealth, prevention of concentration of eco nomic power in the hands of a few, promotion of equality of opportunities in terms of education, employment etc. have been the guiding principles of development strategy in India's Five-Year Plans.

These goals have been sought to be achieved through various practical measures and programmes. Fisca

Inaugural address at the Round Table on Economic Development and Social Justice held in New Delhi on February 24, 25 and 26 under the joint auspices of the Advertising Council of America and the Institute of Economic Growth, Delhi.

measures relating to personal and corporate taxation have been so devised as to make for reduction of inequalities. Not only is there a progressive scale of taxation on higher income-earners but within the same income-range also wholly unearned income is taxed at a higher rate. In respect of indirect taxation, a heavier burden on luxury goods is markedly visible. The tendency towards concentration of economic power, which is inherent in the process of development at the initial stage, has been curbed considerably through the expansion of the public sector and the promotion of a co-operative sector in various branches of the economy. It also has been recognised that the policy of industrial licensing has to be so worked as to provide opportunities for new entrants and co-operative units. Similarly, legislative measures have been taken to enable regulation of inter-corporate investments and multiple directorships in corporate commercial bodies. Dispersal and diversification of economic activity have been attempted through the spread of small-scale industries. The whole series of land reforms directed towards the abolition of landlordism and intermediaries and on placing a ceiling on land holdings have led to a more equitable distribution of the land resources. Welfare programmes providing special measures for the relatively backward communities to bring them rapidly on par with the rest of the community have been the special features of India's Five Year Plans. Starting with large scale unemployment and extensive under-employment, it was obligatory on the part of the planners to provide for labour-intensive schemes consistent with the need for increasing production. The whole sector of Khadi and village industries, the special programmes of local development works and rural works were designed specifically with the intention of spreading the benefits of employment among the poorer sections of the population.

Noteworthy Achievements

It is estimated that by the end of the Third Five Year Plan 27 million new jobs will have been created. Wages of organised industrial workers have shown a significant rate of increase during the period. The percentage of literacy has increased between 1951 and 1961 from about 17 per cent to about 25 per cent and more attention is being given to the promotion of literacy and education among women. Scholarships for backward classes and reservation in some measures of employment opportunities have strengthened the weaker sections of the community. The number of school going children, the number of teachers and the number of educational institutions have all increased phenomenally. In the field of health, again, a massive effort has almost eradicated malaria and reduced the incidence of typhoid, smallpox and many other diseases. The death rate has come down to a significant extent, and the average expectation of life has increased, over the decade, from 32 to 48 years. Welfare legislation has been undertaken on an extensive scale and the working classes have benefited by larger facilities for provident fund, health insurance, industrial housing, and also some provision for unemployment relief.

This rapid review of measures taken to honour the obligations of social justice enjoined in the Constitution and reaffirmed by Parliament has to be considered in the context of the strides India has taken in the direction of an economic take-off.

By the usual Indices of economic development, the progress achieved during the last 15 years is not insignificant. Over the first decade of development a 44 per cent rise in national income (from Rs. 8,850 crore in 1950-51 to Rs. 12,730 crore in 1960-61 at constant prices), nearly 19 per cent step-up in per capita income (from Rs. 248 to Rs. 293), over 59 per cent rise in food production (from 50.8 million tonnes to 81.0 million tonnes) and 93 per cent increase in industrial production (index rising from 72 in 1951 to 139.3 in 1961), are but a few of the gross indices which highlight the advance registered on the ceonomic front. Not fully satisfied with the economic progress achieved in global terms, the Government appointed a committee to examine the trends in the redistribution of incomes, brought about as a result of the rise in national and per capita incomes. Likewise another body has been recently appointed to enquire into the growth of monopolies and concentration of economic power. These are but instances of the vigilance exercised by the Government in trying to ensure that the fruits of development were more equitably enjoyed by the larger community and more especially by the disadvantaged sections of the population.

This is a noteworthy record of effort and achievement but it has to be admitted that progress in other directions has not been adequate and it could well have been greater than it has been. This is a call for introspection and deeper analysis of the Indian experience to ascertain what we have missed in our understanding of the social and economic problems and what have been the inadequacies in our methods and approach to its solution. I venture to put down a few reactions and very general ideas which have been pressing upon my mind.

Desire for Better Life

We may recall the days of our struggle for independence. It gave expression not only to the people's strong urge for freedom but also symbolised the intense aspirations for social justice and better living standards. Both these themes recur constantly in the literature of the period. From these times, our approach to the question of the social, economic and political organisations of the country has been coloured largely by a passion for justice as well as a keen desire for a better life.

In those days when our youthful enthusiasm was not yet tempered by the experience of the living reality, we felt that if we could just have our way, a brave new world could be brought into being by passing the necessary laws and setting up some new institutions. In this new social order, the means for a rich and full life would be available to every member of the community; injustice or exploitation would have become things of the past and conquest of poverty with all its evils would occur as a matter of course.

With better understanding of the operation of the mechanisms of political power and with some more insight into the complexities of the social system, there

is an awareness now of the painful fact that, if it all had been so simple, a just and happy society would not have eluded the grasp of humanity for so long and some semblance of it could have materialised in many parts of the world long ago. What we are up against really is that a community, at a particular stage of development, has a limited capacity for change. We are so familiar with the concept of the rate of economic growth, which is seen to depend largely on some material factors which we might quantify and measure, but it is not easy to take the measure of the capacity of the community for social change, and even to set out in precise terms all that it involves. On the other hand, there is the power of resistance to change which works in its own way.

It is not a question of inertia only. We are aware of the fact that the community composed of a mass of humanity is not uniform in content and character in economic or social terms, but we are apt to discount the degree and depth of variation which are actually encountered. When an attempt is made to give it a new shape, a baffling number of layers and sections are disclosed to the view. There is a large variety of conflicting interests which cut across the bases of diverse loyalties. These forces give rise to the grooves and traditions which make up the social pattern. In the crucible of a revolutionary situation the pattern is shaken up and many hard attitudes and vested interests melt away. The changes which take place in the normal course of economic and social development are in the nature of things gradual. The pace of change may, however, be more or less rapid. The obstacles in the onward march of social justice lie at least as much in the social fabric as in the economic factors. Even the rate of economic progress, especially in the traditional societies, hinges far more on the inner working of the social system than on purely economic constituents. This fact has not perhaps received adequate recognition in practice. This is glaringly true when we look at the recent Indian experience, both in the matter of material progress and the achievement of social justice.

New Social Insights Needed

It seems to me that we have taken our society and its responses for granted more or less. We have assumed in practice that with a given scale of financial resources, material inputs, techniques and machines, the optimum benefits can be secured as a matter of course. The positive and negative role of the political and social structure of the country has not received adequate attention. The tangled skein of our social life in which castes, creeds, languages, regions have got mixed up has to be unravelled. We must acquire a better understanding of the roots of the social institutions of the country, the social processes and the complex motives at work and their economic and political consequences, to control the direction of the economic and social trends and accelerate the pace of progress. It requires a degree of specialisation which will take time to develop, but much good can be done by evoking a widespread general interest in the issues and problems.

This may be taken as a plea for closer study of the social and political factors, as distinct from the purely economic factor, underlying the total situation in the country. Application of the lessons of such a study would be highly productive and of great consequence for speeding up the progress in both these directions.

With regard to the conflict between the two objectives—social justice and economic progress—the position is not really so rigid and forbidding as it may appear at first sight. The point at which this conflict may start in the course of development can be postponed and avoided in a large measure in actual operation by a selective approach in the choice of the elements which make up the two currents.

In a developing country in the conditions of democracy, the gains for the people's welfare which can accrue from redistributive justice alone must be severely limited. In fact, it may well be that by itself the process may bring down the total quantum of material goods and services available to the community. While certain policies and schemes for bringing about greater economic equality may be viewed as militating against the requirements of economic growth it is not inevitable that any real step forward towards material progress has to be taken at the expense of social justice. In choosing the path of economic progress, alternative courses may present themselves. On the one hand, there may be the possibility of conferring unequal gains but no loss to any under-privileged section in any event. On the other hand, it may be possible to achieve a little faster growth, but at the cost of depressing the existing standards and opportunities of those who stand at the lower rungs of the economic ladder. This latter situation need not arise and could hardly be permitted in a country wedded to democratic socialism. There are numerous possibilities, however, of redressing the existing balance in a manner which may provide additional stimulus for economic advance. Many things, for example, can be done to raise the level of health and well-being of the worker which will, at the same time, increase his productive efficiency and material contribution. This will necessitate detailed planning in real terms for the development of human resources of the nation.

On the other hand, it would be wrong to assume that every form of denial and every step to reduce the share of the rich classes in the national dividend must operate as a disincentive so far as new income generation is concerned. An attack on functionless incomes would be beneficial from every point of view. All measures to curtail the secret and illegitimate gains in trade, industry and other activities will promote the ends of social justice as well as material progress. This has to be brought about by well conceived social, administrative and political action.

Mahatma Gandhi has brought to bear an integral approach on the affairs and problems of life and the efficacy of his economic ideas has to be judged in the context of the total situation in the country. I believe that there will be gain in devoting much more attention to the concepts which he introduced and the programmes which he advocated, specially for the realisation of the objectives of social justice.

Fundamentals of Language Problem

V. K. R. V. RAO

THE turn taken by the language controversy in recent weeks disturbed me, as they must have disturbed many others in the country. The Prime Minister and the State Chief Ministers, as well as the Congress Working Committee, have now, after careful thought, evolved a set of proposals to reconcile the conflicting points of view. These proposals, which have been announced in Parliament, ought to allay fears, but it has to be realised that we can achieve a lasting solution of the problem only through patient work and an understanding of the real issues involved.

Language is not merely a matter of official communication between the State Governments and the Central Government; nor is it only a question of what language is used for notings in official files. In a democratic society which also claims to be a nation, language is essentially a tool for establishing a dialogue and continuous communication between the people and Government, and among the people themselves. In a multilingual country like India, there would always be difficulties in choosing one language for such a purpose; but there is no escape from such difficulties if India is to develop as a nation-state functioning as a democratic society. That was why the freedom movement was fought on the basis of linguistic provinces, Indian languages as national languages and Hindi-Hindustani as the link language. That was also why Hindi was accepted as the national official language by the makers of our Constitution.

Unfortunately, as it turns out, the fact that Hindi was also the language of north India made for a feeling of disadvantage on the part of the non-Hindi speaking people. The misguided and often aggressive posture taken up by some Hindi enthusiasts sharpened this feeling and also evoked irritation and anger among the non-Hindi speaking people. The rapid Sanskritisation of Hindi and the artificial creation of a new language that bore only a remote resemblance to the language that Gandhiji had made popular and placed on the national map added to the difficulties. The result of all this has been the language controversy in India reaching its climax in the recent outburst of violence and student demonstrations in Madras State.

Need for Communication between Classes & Masses

I would plead with all the emphasis at my command that we should not be carried away by temporary difficulties and forget the fundamentals of the problem. If India is to be a nation-state, there must be one language which all the people of India—and people means the masses and not only the *elite*—can understand at least orally if not through the written word. If emotional integration is to be fostered, then there must be communication between the different Indian languages. If democracy is to be real, there must be continuous and two-way communication between the classes and the masses in each State, as well as in the country at large. English cannot satisfy any of these tests, though undoubtedly English must continue to be taught in order to enable all those seeking higher education to take advantage of the wealth of knowledge contained in books and journals written in that language as well as to serve as a window opening out into the rest of the world.

A Central Institute for Each Language

While English therefore must continue as a must in higher education and English books continue as a major source for the acquisition of knowledge in science, technology and social sciences, it cannot be the link language of India as far as the masses are concerned. This can only be an Indian language; and Hindi is obviously the most appropriate language for this purpose. But Hindi cannot be the language of the States; it is the regional language that must be the official language of the States as also their medium of instruction in education; only then can their democracies function and communication established between their masses and their classes. For intercommunication between the different Indian languages there must be additional common script, which may be either Nagari or Roman, in which the best of each Indian language is transliterated; and there must be a Central institute for each Indian language that will supervise this task, formulate a basic vocabulary in each language, prepare bilingual and multilingual dictionaries, and promote seminars, round-tables and conferences of savants and *litterateurs* in different Indian languages. As the bulk of the non-Hindi speaking people needed only an oral understanding of Hindi and not necessarily knowledge of written Hindi, I see no reason why Hindi should not be taught to them in their own regional scripts.

In conclusion, I would plead for a patient and a national approach to the problem of language, with attention firmly fixed on fundamentals and not clouded by temporary passions or short-period expediencies. Such an approach would bring into the open the logic behind the proposal for making Hindi as the official Central language, with regional languages as the official State languages and media of instruction and an additional common script for all Indian languages. Of course, this is only the goal. The transitional period will have to continue English as envisaged by the Official Languages Act and any subsequent amendments that may be made to give continuity to Mr. Nehru's assurances on the subject; meanwhile, we must go all out to develop all Indian languages including Hindi and set up communication channels among them.

Patriarch Bemoans

Neglect Of Land

We are becoming casual and careless. Nothing arouses our curiosity

N. G. CHAPEKAR

IT is well-nigh two decades since the Bombay Tenancy and Agricultural Lands Act (No LXVII of 1948) was passed by the then Bombay Government. It was hailed by the Press and the doctrinaire politicians as the most effective step in the direction of land reform. The objective was twofold: (i) to ameliorate the condition of the agricultural class, and (ii) to foster production. It is now time to enquire whether we have succeeded in achieving what was expected from the drastic legislation.

Having known the mentality of our people, I have been rather sceptical about the success of this official measure from the beginning. The underlying idea of the legislative effort was that the sense of ownership would stimulate agriculturists to work harder and produce more.

This, however, has proved fallacious. In order to satisfy my curiosity, I interviewed a number of persons; and the replies elicited were revealing and instructive, though disheartening.

Yojana has the privilege of claiming Mr Chapekar of Badlapur, Maharashtra, as the eldest of its contributors. Mr Chapekar is in his ninety-sixth year and is the author of well-known works on village society.

In the first place, those who were more enlightened amongst my correspondents categorically asserted that there has not been the slightest increase in the aggregate yield of the Badalpur lands. This is not to be wondered at, when I disclose a very deplorable fact: that not a single agriculturist in Badalpur has ever used any kind of manure. The people here have a prejudice against chemical fertilisers; they argue that if they once take to using them, they would have to use them every year. Otherwise, the normal capacity of the land would be adversely affected.

If this prejudice is unfounded, nobody ever tried to allay their apprehensions. Cow-dung is the best manure, they say. Even this natural manure which is easily available and which costs nothing, is not adequately utilised. In the rainy season, this wealth is allowed to be washed away into rivulets and streams. Is it not possible to accumulate this hitherto wasted dung for being used later on as manure? Cattle dung must be mixed with earth. This is not done. An intelligent farmer, who is a Government servant, showed me from his record the gradual increase in his yield over the last six years *from 15 to 27 maunds per acre* by regularly using cattle dung. Agriculture requires intelligence as well as capital.

This regrettable no-fertiliser story does not close the chapter. Additional evidence can be adduced to clinch the issue. In my random investigation I came across about twenty land-holders who, amongst themselves, owned about 50 to 60 acres of good paddy lands but who did not own a single bullock. An agriculturist without the requisite equipment is a phenomenon that exists perhaps only in India.

There are some peasants who have only one bullock. This is as good as no bullock, for they have to depend on others, and cannot initiate agricultural operations in time on their own. Then there are agriculturists who do own a pair of bullocks, but not enough for their needs. For instance, I know two farmers who hire a couple of more bullocks to till their lands by paying *six maunds of paddy*, which at the current market rate comes to Rs 120. The lender is in a commanding position. He can dictate his own terms. So he demands the superior quality of grain which at present fetches Rs 20 a maund. It has become a profession with some people to secure large quantities of paddy by maintaining he-buffaloes or bullocks. Ploughing of the land with he-buffaloes is more efficient. The hire of a he-buffalo for the season is four maunds of paddy—Rs 80.

It is a matter of grave concern that, during the last twelve years over which the price of paddy has risen from Rs 2 to Rs 20 per maund, so many farmers have not been able to purchase bullocks so indispensable for agriculture. Production is at a stand-still, but expenditure is rising at galloping rate consequent upon the dearness of consumer articles as well as an abrupt change to urban life. Many agriculturists are in arrears in respect of instalments fixed by the valuation officer.

Change the Slogan

I am not interested in drawing a lurid picture. I want to assert, and assert emphatically, that the remedies adopted to improve agriculture and the agriculturist are ill-conceived. We are by now familiar with the slogan: "Land to the tiller". Nothing can be sillier than this. If we are fond of slogans, we should rather say that "The land should belong to those who are agriculturists by profession".

Strange as it may seem for a country like ours, few pursue agriculture as a profession. It is a side-business. I cite an instance. There was a joint family of three brothers, hair-dressers by profession. On partition, their land also was partitioned, each owning a piece of an acre and a half. How can production increase when fragmentation of this kind takesplace?

For the problem of land, three alternative solutions seem possible: (1) nationalising the land, and making it a subject of the Union Government; (2) making every cultivator a permanent tenant, subject to a small fixed rent, *in kind and not in cash*, to the landlord, (3) seeing to it that land sufficient for a family of two adults and three minors is formed into a single holding, *not liable to further fragmentation*. The authorities have to make up their mind. It is perilous to continue the present state of things. The

(*Continued on page 27*)

BLACK MONEY WHITE MONEY

"BLACK money" is a much discussed subject. In discussing it, it is useful to distinguish between "unaccounted incomes" generated in the economy and "unaccounted money" circulating in the form of currency.

Unaccounted money is money that does not get into the account books of individuals or business firms. The presumption is that it is obtained by illegitimate means, or by evading taxes. The Finance Minister some time ago placed the volume of such money around Rs. 300 crore (an eighth of the money in circulation, which is Rs. 2,400 crore). Others have placed the figure at Rs. 3,000 crore, and some even believe that it is as high Rs. 8,000 crore!

In the long chain of transactions, it is not always easy to distinguish between black money and white money. Let us say a five-rupee note passes from a worker to a bootlegger, whose wife gives it to the vegetable seller, who passes it on to the municipal official for permitting him to sell vegetables without a proper market licence. The officer on his way back home buys books for his children, and the book-seller himself deposits the money in a bank. Thus the same amount of money now wears a black mask and now a white mask in its long journey.

In a perfectly competitive economy the problem of black money does not (in theory) exist. But there are few such ideal economies. Black money has existed in varying degrees in all countries, and more so in developing economies such as eighteenth-century Britain and present-day Afro-Asian countries. In India it is even a threatening growth.

Scarcities, maladjustment of prices, ineffective controls on the production and distribution of goods, restrictions on capital issues, non-availability of machinery, illegal gratification paid to public and private employees, all these have had their share in creating black money. The huge developmental expenditures have led to a rise in income, output and employment levels on the one hand, and to inelasticities of supplies and abnormal profits on the other. The liberal attitude of accommodating the private sector by fixing the factor prices at a low level without restricting the rise in product prices, on the ground that a moderate degree of inflation acts as a catalytic agent in the development process, has enabled the private sector to appropriate the benefits of planning and development while laying the blame at the doors of the Government.

The "deepening" and "broadening" of the tax structure that has taken place have also deepened and broadened evasion of taxes. Prof. Kaldor estimated the loss due to tax evasion at Rs 200 crore to Rs. 300 crore a year. As widespread as evasion is under-invoicing the export

P. D. GUPTA

bills. The loss on this account is about Rs. 50 crore a year. The spate of ill-drafted and complicated legislation pertaining to sales tax and the like has led to the corruption of the enforcement machinery resulting in an addition to black money.

When money cannot be accounted for, or stacked away safely, it has to be spent quickly. The spending spree caused by unaccounted money has been responsible for pushing up prices and large-scale speculation in commodities. Luxury goods are lavishly bought, and consumer durable articles hoarded. Black money has diverted funds to the production of non-essential goods and even led to the flight of capital outside the country. It has come in conflict with the restrictive credit control policies followed by the Reserve Bank of India. It has encouraged secret "hundi" transactions as is evident from the unearthing of a large "hundi" racket in Bombay. Besides, black money is working havoc with simple and honest tax-payers who have to pay, through higher tax, what the evader fails to pay. Black money is responsible for the general impression that the distribution of wealth has been unequal, that the rich have grown richer, that there is concentration of wealth and growth of monopolies. Black money has emerged as the moral barrier to growth.

How do we make black money white? Demonetisation of high denomination notes is suggested by some as a cure. But it is wrong to think that black money is kept only in high denomination notes. More than 80 per cent of notes are kept in the denomination of Rs. 10 and Rs. 100 and only 2 per cent to 3 per cent are kept in the high denomination notes of Rs. 1,000 or so. Fear of even the remotest possibility of demonetisation has prompted many to exchange their money into lower denomination notes or transform it into durable assets. Besides, demonetisation has its own impact on the people's mind. The sanctity of the "promise to pay" should not easily be ignored.

Stray and sudden raids do not hold, either. They are not made simultaneously or carried on intensively. The net has too many holes, besides the fact that the enforcement machinery is human, subject to human failings. Possibly the recent much-publicised raids have driven underground more black money than has been netted.

A third way out suggested is that government should declare amnesty for hoarded wealth and devise some compromise solution like the issuing of bonds with the guarantee that no enquiry about the source would be held.

It is in fact wrong to look for simple solutions. Ultimately, the cure consists in increased production and fairer distribution; strong and effective fiscal and economic measures; minimum possible controls; and a general strengthening of the moral fibre. Once again, the truth of Mahatma Gandhi's statement that a moral revolution must precede the economic revolution in India becomes evident.

First Surplus Budget in Years

MANY RELIEFS, PRODUCTION INCENTIVES

Rs. 2,225 Crore for Final Year of 3rd Plan

PERSONAL AND CORPORATE TAXES ARE REDUCED

SCHEME ANNOUNCED TO DRAW OUT HIDDEN GAINS

TTK CONFIDENT OF HIGH GROWTH

THE Union Government's Budget for 1965-6 has two features. It is the first in several years to achieve a surplus. And it does it despite bringing down direct taxation at all levels and offering relief in excise duties on a number of everyday goods.

The Finance Minister, Mr. T.T. Krishnamachari, said the aims of his budget proposals were: to hold the rising prices, to secure more resources for investment both in the public and private corporate sector, to help the export drive, to simplify and rationalise the tax structure, to curb the mischief of unaccounted money, to mop up large differences between costs and prices and, on the whole, to serve the larger purposes of development.

Noteworthy Achievement

At existing levels of taxation, the revenue in 1965-66 would have been Rs. 2,353.09 crore and expenditure Rs. 2,116.48 crore, leaving a surplus of Rs. 236.61 crore. With changes in taxation levels announced, the revenue and the revenue surplus will now be Rs. 6.38 crore less.

With capital receipts of Rs. 2,177.57 crore (which include the revenue surplus) and capital disbursements of Rs. 2,173.79 crore, there will be an overall surplus of Rs. 3.78 crore. This compares with an overall deficit of Rs. 80.30 crore in 1964-65.

It was not enough, the Finance Minister said, if the revenue budget was balanced. The health and stability of the economy as a whole depended on the overall position taking the revenue and capital budget together. The achievement of a higher revenue surplus in 1964-65 was thus noteworthy.

Economy in Spending

This had come about mainly from a curtailment of expenditure (by as much as Rs. 42 crore) and higher earnings from customs (Rs. 49 crore) and direct taxes (Rs. 66 crore).

Revenue receipts in 1964-65 were Rs. 2,228.41 crore (instead of the the budgeted Rs. 2,124.30 crore) and revenue disbursements Rs. 1,999.26 crore (instead of budgeted Rs. 2,041.31 crore). The revenue surplus had gone up from the estimated Rs. 82.99 crore to the substantial figure of Rs. 229.15 crore. Capital receipts in 1964-65 were Rs. 2,087.70 crore and capital disbursements Rs. 2,168 crore. The overall deficit had come down to Rs. 80.30 crore from the budgeted Rs. 96.68 crore.

Rs 749 crore for Defence

Of the revenue expenditure of Rs. 2,116.48 crore in 1965-66, Rs. 748.74 crore will be for Defence (Rs. 32 crore more than in the current year). The Army is allotted Rs. 550.52 crore, the Navy Rs. 24.33 crore and the Air Force Rs. 153.35 crore.

Total Plan expenditure in 1965-66 which is the final year of the Third Plan, will be Rs. 2,22[5] crore (Rs. 241 crore more than in 1964-65.

Of this sum, Rs. 1,198 crore will be for the Central Plan and Rs. 1,027 crore in the States. Of the latter outlay, Rs. 377 crore will be found by the State Governments, and Rs. 650 crore will come from the Union Government. In the Central Plan as much as Rs. 160 crore will be contributed by the public sector undertakings from their surpluses. The Union Government will be finding Rs. 1,688 crore for development.

More from Public Sector

It is noteworthy that the contribution of public sector undertakings will be Rs. 45 crore more than in this year.

Mr. Krishnamachari opened the speech with a reference to Mr. Nehru and his economic ideals and hoped the budget would help in some small measure in carrying forward the legacy.

Stage Set for Fourth Plan

He also said that as the last budget of the current Plan period, it was the climax of our efforts for fulfilling the Third Plan and set the stage for the more complex, sophisticated and difficult tasks of the Fourth Plan.

The Finance Minister made the

heartening forecast that the growth rate in 1964-65 would prove to be well above the 4½ per cent achieved in 1963-64. He said the total production of grain and commercial crops would show a substantial increase and that industrial production had recovered its tempo sufficiently to prove to be of the order of 8 per cent.

Black Mischief

An important measure announced by Mr. Krishnamachari to 'mitigate the mischief of unaccounted incomes' was a scheme by which people with undisclosed incomes could pay in 60 per cent of the money to the Reserve Bank and take the remaining 40 per cent on to their books with no further questions asked. This "opportunity to return to the path of civic responsibility" would be open only until the end of May. If this offer to make voluntary disclosures was spurned, Government would use all the legal weapons at its command.

The Budget has not taken credit for receipts under this scheme. If the scheme meets with the expected success, the surplus will be larger.

Needs of the Plan

Mr. Krishnamachari concluded his speech with the following words:

"It is a matter of some satisfaction to me to be able to present this Budget which holds every promise of being a balanced one—if not a surplus one—taking both the Revenue and Capital accounts together. We have been able to present a balanced budget while providing for the needs of the Plan and giving a measure of relief in direct and indirect taxation."

KEY FIGURES

	(in rupees crore) 1964-5 Revised	1965-6 Budget
Revenue Budget		
Receipts	2228.41	2346.71
Disbursements	1999.26	2116.48
Surplus	229.15	230.23
Capital Budget		
Receipts	2087.70	2177.57
Disbursements	2168.00	2173.79
Overall Deficit/Surplus	**−80.30**	**+3.78**

TAX STRUCTURE RATIONALISED

The main changes proposed in the Budget are as follows:

1. Excise duty removed on footwear, bicycle parts and tyres and tubes, and printing paper. Duty levels reduced on coarse and medium cloth and vegetable product. (Loss of Rs. 29.5 crore.)

MOPPING UP MARGIN

2. *Excise duty increased on scarce materials like copper and alloys, steel ingots and products, etc, in order to mop up the present unduly high margin of profits. (Additional revenue of Rs. 15.75 crore.)*
3. Regulatory customs duty at 10 per cent of the value of imported goods announced in February to continue.
4. *Import duty increased on some items like stainless steel plates where the gap between landed prices and market prices is very large. (Total additional revenue from customs Rs. 14.5 crore.)*

CREDIT ON EXPORTS

5. To stimulate exports further, tax credit certificates to be issued to exporters up to 15 per cent of the value of such exports.

SEVERITY REDUCED

6. *Corporate taxation further modified to remove the feeling of severity and to generate resources for investment. List of industries in Part IV of the First Schedule of the Finance Act 1964 enlarged. Concessions offered to Section 104 companies also enlarged. Penalty rate for non-distribution of profits reduced.*
7. To relieve overcrowding in cities, tax on capital gains to be refunded to public companies selling land and buildings companies selling land and buildings with a view to moving to new areas.

PLAN OUTLAYS

	(in rupees crore) 1964-5	1965-6
From Central Funds	**1516**	**1688**
From Public Undertakings	**115**	**160**
For States from Centre	559	650
States' own resources	**353**	**377**
TOTAL	1984	2225

PRODUCTION STIMULUS

8. *Development rebate to be raised to 25 per cent in case of industries included in a new Fifth Schedule (from present 20 per cent). The rate to be 15 per cent for other industries except coal machinery (35 per cent) and ships (40 per cent).*
9. Ceiling limit of income-tax and surtax on companies to be 70 per cent.
10. *To stimulate production, tax credit certificates to be given to the extent of 25 per cent of the excise duty paid on increased production.*
11. Tea companies given relief in direct tax.
12. *To cut excessive investment in urban property and direct it to productive channels, an additional wealth tax to be levied on large urban properties. (Additional revenue Rs. 1.5 crore).*

MORE AT LOWER RATE

13. Tax structure simplified by integrating income-tax and super-tax doing away with discrimination against bachelors. (Loss Rs. 3.64 crore).
14. *Personal taxation reduced at all levels. On earned income, the highest rate will come down from 82.5 per cent to 74.75 per cent. (Total loss of revenue from changes in direct taxes Rs. 20.65 crore). But as a result of lowering of personal taxation and improvement in collection, inflow of Rs. 30 crore more is expected.*

MAIN HEADS*

Revenue Budget

	(in rupees crore) 1964—5 Revised	1965—6
Receipts		
Customs	385.00	419.50
Excise duties	773.05	819.19
Company Tax	342.00	371.60
Income tax	268 00	294.00
Wealth tax	11.05	13.50
Debt Services	265.57	296.73
Currency & Mint	52.11	61.69
Disbursements		
Defence	716.81	748.74
Debt Services	317.61	356.11
Administration	82.17	91.36
Social and Development Services	165.11	184.66
Grants to States & Union Territories	288.56	327.11
States share of excise	127.34	140.84

Capital Budget

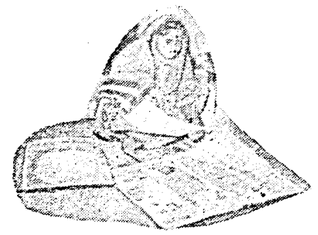
	(in rupees crore)	
Receipts		
Revenue Surplus	229.15	230.23
Public Debt		
in India	297.70	270.00
Abroad	653.92	668.86
Repayment of loans	301.31	333.69
Small Savings	135.00	135.00
Provident Funds	49.62	54.66
Annuity Deposits	65.00	65.00
P.L. 483 Fund deposits	11.00	191.00
Railway & P&T Funds	17.81	48.23
Sp. Dev. Fund	275.50	143.16
Other debts, deposits	51.69	37.74
Disbursements		
Capital expenditure civil	342.96	359.73
Capital expenditure defence	117.95	130.05
Capital expenditure railways	251.92	240.00
Capital expenditure P & T	26.59	32.83
Repayment of Indian debts	191.54	170.00
Repayment of foreign debts	85.11	97.29
Loans to States & Union Territories	707.92	712.07
Advance to others	271.01	351.82

* Only the chief items have been shown. Totals don't necessarily add up.

SAHIWAL COW IS THE BEST

A five-and-a-half year old Sahiwal cow belonging to Satguru Hari Singh of Jiwan Nagar (Hissar) won the first prize at the recent all-India cattle show at Hissar. The owner received Rs. 1,250 and six challenge cups for the cow. Similarly a Murrah buffalo bull owned by Mr. Malik Kishan Lal of Rohtak won the first prize for the best buffalo bull.

Mohim of Maharashtra



(*From Page 4*)

literacy that entitles the village to the honour. Clean roads and houses, regular sanitation, adequate arrangement for drinking water and drainage, are also the pre-requisites for holding the ceremony. At the ceremony, the neo-literates take a vow to keep up their reading and not lapse back to illiteracy; they also address the audience.

Cost Is Rupee One

Follow-up work is taken in hand soon after the ceremony. A circulating library and a social education centre are established in the village. The library circulates books in four sets of ten books each. The circulation is done through the children in the school. Classes are also held at suitable places and at convenient time where every neo-literate has compulsorily to read these four sets of books by turns. A record of books read by each neo-literate is maintained along with his signature for having read every set. The literature is supplied free by the Government.

The cost of the campaign works out to about a rupee an adult. The teachers and workers are not given any remuneration. The items of expenditure include stationery, lanterns and other contingencies.

Up to the end of 1963-64, the campaign had covered 12,300 villages out of the total of 35,541 villages in Maharashtra. The number of villages that had celebrated the Gram Gaurav ceremony was 1,258 (with 237,000 neo-literates) by the end of June 1963. The number of adults enrolled in the classes was 1,000,000 in 1962-63, of whom 522,000 were made literate in that year.

The campaign has been intensified since May 1964 so as to achieve total literacy in an additional 20 per cent of the villages under Panchayat Samitis. The aim is to eradicate illiteracy completely within the next five years.

That literacy carries with it a new awareness can already be seen in the changes that have taken place in the outlook and habits of the neo-literates. The Mohim has made people education-minded and they are becoming more particular about sending their children to schools. There has been an increase in the enrolment of children in schools. There is a gradual awakening and change in the outlook of women. They have found scope for expressing themselves in public life though to a limited extent. There is a marked change in social consciousness and general development including education of the people. The villagers have become interested in reading newspapers and they are becoming aware of the development taking place in the world. To a certain extent local leadership is being created and developed and villagers have become co-operative and have grown self-reliant. They have also become Plan-conscious and try to work together for the uplift of the village as a whole.

Summing up its impressions of the Gram Shikshan Mohim, the Planning Commission's report says: "After hearing and reading about the programme and seeing its actual implementation, one is convinced that the Gram Shikshan Mohim is really a programme of the masses. Its achievements—both tangible and intangible—are considerable. It has made a positive impact on the people of those areas where it has been introduced and fully implemented....There is no doubt that the Mohim has made a significant contribution in breaking the initial inertia of the adults to literacy."

For more details see Report on Shikshan Mohim of Maharashtra published by the Planning Commission, New Delhi, Pages 30. Photographs are from Maharashtra Government.

New Thrill to Visitors from 'Son et Lumiere'

RED FORT LEAPS BACK TO LIFE

through interplay of light and sound

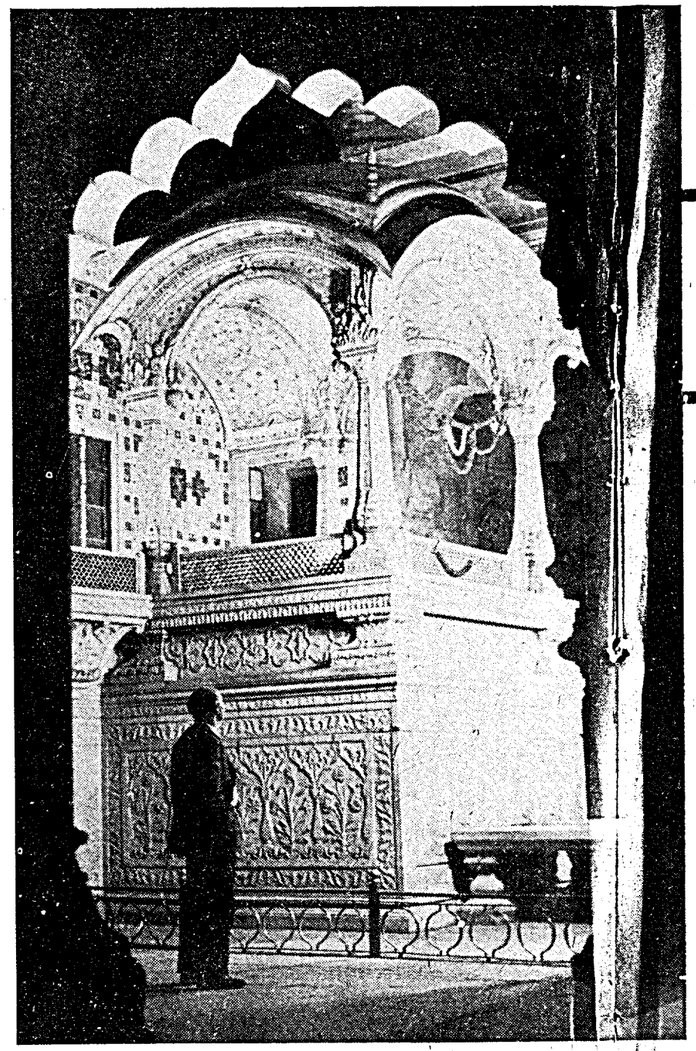
LATER this month Delhi's Red Fort will join company with the Palace of Versailles, the Sphinx and the Pyramids, the Athaeneum, the Tower of London and other great monuments of the world when the startling **Son et Lumiere** programme is mounted on this old fort by the Department of Tourism.

Sitting comfortably in their chairs under the night sky, spectators will be able to see the Red Fort and its palace apartments come back to life in flashes of light and colour. A tape recording of words, music and appropriate sound effects will be switched on to synchronise with the play of light and shadow to create an illusion of history through which the monument has passed. All the major events of which the Red Fort was the scene will be re-enacted by invisible actors, telescoping, as it were, 300 years of Delhi's history into a span of fifty minutes.

The spectacle will be focussed on the Diwan-e-Khas, Khas Mahal, the Hamams, the Moti Masjid, the Monsoon Pavilions and the military barracks. In quick sequence the principal events in the biography of the Red Fort will unfold themselves before you, transporting you into the long forgotten scenes of history. We all know the Red Fort as a surviving symbol of Mughal power; Son et Lumiere transforms it into an epitome of Mughal history.

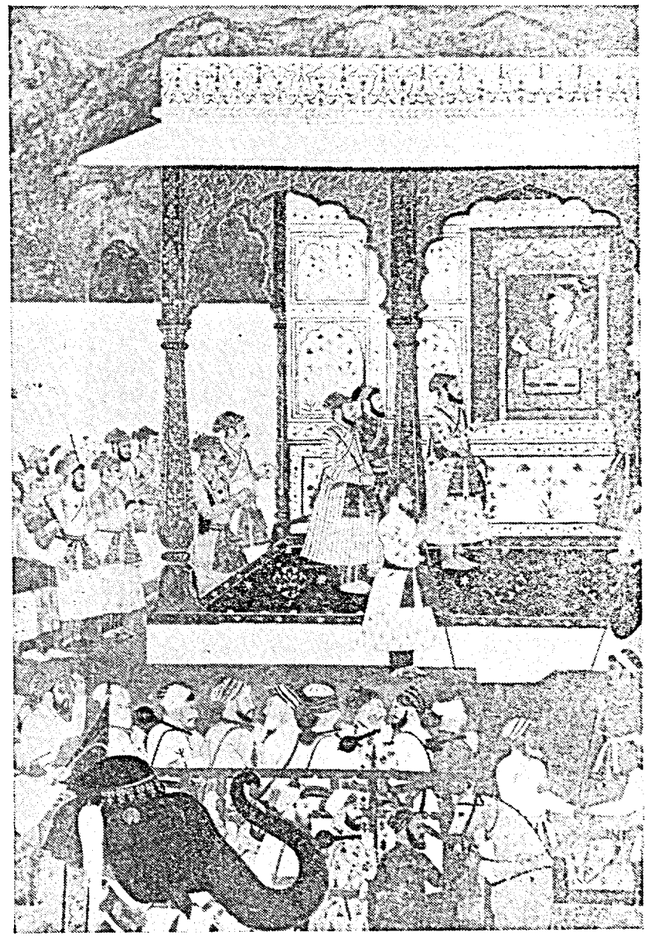
The *Waq-i-Navees*, or the Official Recorder, starts his story from the beginning when the site where the Red Fort now stands was a wilderness haunted by jackals and hyenas, and take you through the vicissitudes of which the Quila Mubarak has been a mute witness for 326 years. Starting from the stone-cutters who chiselled the rocks into shape and conveyed them to the rhythmic drone of "*haisa, haisa*", he tells you of the glittering pomp of Shah Jahan's court. You hear the long-drawn eulogies sung by heralds announcing the arrival of His Imperial Majesty, King of Kings, Emperor of Hindustan; of ambassadors, missionaries, traders and travellers from far-off lands who came there to pay homage; of lions, tigers, leopards and rhinoceroses which were brought by their tamers to the august presence of the Emperor; of swordsmen and wrestlers who displayed their skill to amuse the Court; of the complaints from citizens which the King heard and disposed; of the fratricidal wars in which brother shed the blood of brother. You hear, too, the war cries of rebellious Rajputs, the aggressive Marathas' and the avenging Sikhs which tormented the old and ailing Aurangzeb and caused the rapid decline of Mughal power. The sound effects conveying an idea of the unbridled mirth inside the palace, to be soon followed by the anguished cries of helpless citizens who fell in their thousands to the merciless sword of Nadir Shah, will give intimations of how pleasure and insouciance sapped the strength of the great dynasty, rendering it prey to ruder forces. Event succeeds event and you are brought face to face with the cupidity, hate, cruelty and shame that smudged the Indian political scene in the eighteenth and nineteenth centuries culminating in its subjugation by the British.

But there are, too, some bright patches in this sordid scene of decay as when you listen to a gathering of poets at Bahadur Shah's Court. Masters of Urdu poetry like Ghalib, Zoq and Momin come before you for a fleeting moment with their priceless songs on love and retire to the tumultuous approbation of "*Wah, Wah*". Then the booming guns of the freedom fighters of 1857 follow, to be stilled again by the victorious cries of the English army. Bahadur Shah is later captured with his family, tried and exiled. Then comes His Majesty King George V to hold a Durbar where once Shah Jahan sat on his fabulous Peacock Throne and announces that the Capital of the Indian Empire is again shifted to Delhi.



Above: *The balcony in the Diwan-i-Am (Hall of Audience) in the Red Fort in Delhi where the Mughal Emperor sat and held court. The Chamberlain handed over petitions to the monarch from below.*

Right: *Shah Jahan with courtiers. The painting dates from 1645 and is now at the Bharat Kala Bhavan, Varanasi.*



The Second World War and British victory again. The Red Fort becomes the scene of the famous trial of officers of the Indian National Army. Then you have not long to wait for the crowning moment of India's triumph when you hear the familiar voice of Jawaharlal Nehru as the Union Jack is lowered and the Indian Tricolour goes up. Fifty absorbing minutes, and on your mind is impressed 300 years of Delhi's history in its main outlines.

SON ET LUMIERE is a term in French which means Sound and Light. This is a new type of entertainment which was developed in 1952. It all began when an Italian first illuminated the Eiffel Tower in 1929 and later the idea caught on in many European countries. Son et Lumiere converts static lighting into something dynamic, as in theatre, and synthesises it with sound.

This synchronisation of sound and light is achieved by the use of electronic equipment which has two tape-recorders to deliver the sound and signals which activise sound and light combinations appropriate to each sequence in the story.

No actors come on the stage; but the narrative, which is faithful to facts, is delivered by trained and cultivated voices. Background sounds are superimposed to build up the appropriate atmosphere. The scope for dramatic licence is naturally limited in the Son et Lumiere, but this is as it should be. When a dead monument is brought back to life before you, you expect it to be a play-back of actual events. To be successful, therefore, Son et Lumiere calls for a good deal of skill in co-ordinating the fruits of scholarship with the talents of artistes. The spectacle can be seen only at night and in complete darkness, the audience standing or sitting to watch it. The programme has to be short and fast moving if it has to be impressive.

The Sound and Light spectacle at the Red Fort has been processed by distinguished artists and technicians. All the voices in the English programme are of Indian actors. Ian Hunter, former Director of the Edinburgh Festival, and his associate, Anthony Burley, are responsible for overall direction, and Emile de Harven for sound production. Chetan Anand (producer of the film *Haqeeqat*) has directed the Hindi version. Khushwant Singh has written the English text, and S.H. Vatsyayan "Agyeya" is the author of the Hindi version.

Music has been specially composed by Ali Akbar Khan and performed by himself and an orchestra of 32 persons. Narayana Menon has supervised music recording and Ali Sardar Jafri has acted as pronunciation adviser. Both the English and Hindi words and music were recorded under the supervision of Kaushik in the Mehboob Studios in Bombay. Philips India Ltd., assisted by their associates in Holland, have supplied and installed the equipment and Messrs. Srinivasan and van Amersfoort of Philips have made the technical arrangement for mounting the spectacle.



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N. 41(A) 64

SOCIAL JUSTICE ROUND A TABLE

SIX men from the United States and six from India sat on a platform for three days recently to thrash out the problem of social justice in relation to economic growth. The event was called a round table (a term which will now catch on like that intolerable word 'seminar').

The participants ('panelists' as they were described) included top economists and top industrialists. It was interesting to note that the ideas of each of the two groups cut across national boundaries. The industrialists approved of the profit motive and the professors thought well of education. Indeed one member of the Indian team, Mr. S. L. Kirloskar, was so much of a profit whole-hogger as to say : "Take care of production, social justice will come of its own", leaving even the dedicated U. S. capitalists gasping.

The key paper before the round table was that by Dr I.G. Patel. He referred to the fact that all societies, capitalist or socialist, rich or poor, regarded both economic development and social justice as desirable goals, although economists saw a conflict between the two. In a developing country, emphasis on growth would result in a widening of disparities, and concentration on social justice might slow down growth.

Justice itself, Dr Patel pointed out, had different meanings. There were those well-known concepts: "To each according to his needs" and "To each according to his ability". There was justice with a small "j" and justice with a capital "J". Although he did not employ those words, what Dr Patel was pointing out was the distinction between 'nyaya" and "dharma". Dr Patel maintained that justice itself was not ultimate value. It belonged to a secondary, "means to an end" category. The ultimate values could only be human dignity, brotherhood and the like.

In regard to the conflict between growth and justice, Dr Patel said that the two main lines of reasoning were as follows : (*a*) that a speedy progress towards a basic minimum for all might jeopardise accumulation and (*b*) greater inequalities in income distribution might make for a greater saving. Dr P. S. Lokanathan disputed the second notion. Mr Robert Anderson, former U. S. Secretary of the Treasury, sounded a warning against letting bureaucracy grow in the name of bringing about social justice. People running about with bits of paper, he said, could achieve neither growth nor justice.

The second day's session of the round table was devoted to examining the two concepts in relation to rural development. Professor A. M. Khusro of Delhi referred to the conflict between the "inputs" school and the "land reform" school and said that each group was now beginning to see the other's point. He and Mr P. N. Thapar of the Ludhiana University referred to the lack of co-ordination among district officials and the inability to establish a sequence in the help that Government supposedly gave to farmers. Mr Thapar, in an aside, said that if the poor Gram Sevak had all the abilities expected of him, he certainly ought to be the Prime Minister of India. Professor D. D. Humphrey of the U. S. said that only if agriculture was regarded as a business proposition and agriculture in a district was placed under a single district manager or district director, was there hope for improvement.

Earlier, addressing the round table, Mr. Chester Bowles, the U. S. Ambassador, said : "While most Indians like to describe themselves as socialists, and most Americans insist they are capitalists, more than 20 per cent of American gross national income is spent by government while in India the corresponding figure is only 14 per cent." He also pointed out that a democratic country could not ignore present improvements in standards in the name of building up basic industry. There were limits to austerity in a country where the consumers were also voters. Anyway there was really no competition between the resources needed for basic industries and those needed for simple consumer goods. "Increased production of shoes and saris does not draw resources from urgently needed power plants. More charpoys, chairs and other furniture will not slow down the modernisation of railroads."

(*Mr Gulzarilal Nanda's address to the round table has been pubished in this issue and Dr Patel's paper will be published in the next issue*).



IGNORAMAN
Wants to Know

If all our talk
of social justice
is
just ice?

RURAL TRUTH

IT is unjust to complain that foreigners can't understand us when so few of us understand ourselves. Who among us had foreseen the vehemence of the language controversy ? Foreign correspondents in Delhi are no little nonplussed that the country didn't split along the Godavari or the Krishna. One of them has had the charity to say that things don't move to their logical conclusion in India and the Indians solve their problems by contriving a grand anticlimax.

Just before the language riots monopolised newspaper space, the despatches of foreign correspondents were taken up mostly by the food scarcity in India. Why blame the

(*Continued on page 21*)

Books

OUR SOILS

Soils of India by S.P. Raychaudhuri, R.R. Agarwal, N.R. Dutta Biswas, S.P. Gupta and P.K. Thomas. Indian Council of Agricultural Research, New Delhi. 496 pages. Rs 17.50.

S. C. Mandal

THE book is a compilation of information on soils of all States of India. The description of soils has been preceded by brief outlines on geography, topography, climate, geology and vegetation of each State making it easier for the reader to understand the variations in soils of different regions.

Soils have been described mainly on the basis of past work done by the State Departments of Agriculture in the course of various types of soil surveys conducted in different States. The work done by All-India Soils and Land Use Survey adds useful supplementary information. Some typical profiles have been given for major classes of soils of each State. In many cases chemical data have also been provided, though, generally, chemical data are not adequate even for the brief description of soils given in the book.

However, the reader does not get much information on land use, soil fertility, cropping pattern, management of infertile soils etc. In a number of States, for example in Bihar, the magnitude of fertility problems such as management of acid soils or calcareous soils has not been properly dealt with. Unless the reader is critical he may not get a correct idea of distribution of these or similar problem soils in the States. The work being mostly a compilation of information accumulated in various States over a number of years, some of the contents require modification in the light of current knowledge. It has been stated that attempts at reclaiming acid lands in Kerala by the application of lime have met with no appreciable success. Recent work in Kerala has, however, shown response to lime. Terms like "forest soil" may convey a wrong impression to those familiar with forest soils of Europe and America. Similarly "red soil" has been used for various types of soils showing different characteristics, genesis and development. Again, the word laterite has been used for some soils which, strictly speaking, may not be laterites. Importance has also been given to relatively minor soils in some States such as calcareous soils in the Damodar catchment of Bihar.

It is a handicap that the book does not provide a brief description of soils of India at the outset. One has to know the soils of each State before one can frame in one's mind a picture of Indian soils. If some 30 to 40 pages could have been devoted in the beginning to the soils of India as a whole, it would have been of great advantage to the reader. Dr Raychaudhuri, the senior author of the book, has evidently realised this deficiency and has published subsequently the book *Indian Soils—their classification, occurrence and properties*. It is desirable to read that book along with the book under review.

However, *Soils of India* is the only book of its kind and can be regarded as an authentic record of soils of India in a concise form. A soil map for each State along with a bibliography, an index and a glossary of regional terms covering 22 pages are additional features.

Commonwealth Common Market

Commonwealth Common Market by K. Venkatagiri Gowda. Rao & Raghavan. 189 pages. Rs. 16.75.

M.K. Ramamurthy

THIS outline of a new trade policy is addressed mainly to the U.K. in view of the British failure to enter the European Common Market.

Mr Gowda leans to the views of the remnant of Empire Crusaders of the *Daily Express* variety and makes much of the needs of the underdeveloped countries who trust the British and for whom Britain therefore must extend more assistance. If there is a streak of liberalism derived from the Scottish philosophers—Hume and Adam Smith—there is also the preference for trade as an engine of growth. References to the last century's precepts and example are many. Yet the book, ready in October 1963, may fall flat in view of later events but it is suggestive enough as it proposes that the Commonwealth should agree about imports and exports and retain sterling as the common currency. The plea runs counter to the pattern of treaties to which India adheres and to the fact that North America and the Caribbean regions will cling to the U.S.A.

Changes in Britain's trade during the last decade make Europe far more important than the old Empire. There is much difficulty in exporting capital on the old scale and that too makes the ex-Colonies look to the U.S.A. as a source of liberal aid. The recovery of Europe has reduced Britain's importance as an exporter and it is significant that Britain now wants to trade actively with China as well as Russia. This is an aspect of contemporary change, to which attention may be invited. Since 1947 the break-up of old associations has proceeded rapidly and Australia now sets more store by access to Japan as an outlet for her wool, wheat, and minerals. Moreover, U.S. capital is more important in new extractive industries. Development demands dollars. So a C.C.M. as an instrument of improvement may not appeal in the same measure to one and all in the Dominion and Republics. And there is no eagerness to maintain old preferential tariffs for the E.T.T.A. had indicated that Denmark is as important as New Zealand to the U.K. as a source of dairy products. There is no identity of interests or policy today as may be deduced. And U.S. agricultural surpluses, offered on cheap terms to needy countries, compel the Canadian and Australian Governments to look to the Far East — not to Europe or Britain. Europe's tariffs may be cut to let in tropical products in some volume. India's present need is for currencies other than sterling to pay for essential imports or keep up the rate of industrial expansion. The Commonwealth is not likely to expand trade by means of a clearing arrangement, more so as London looks to Western Europe as a borrower or lender and Britain prefers to invest in a successful expanding Europe rather than in countries like Ghana or Kenya.

The impact of political development in Africa cannot be easily ignored when discussing economic policy or aims and the fact that Britain's view of South Africa differs from the Afro-Asian view can only be cited as a sign of instability grounded in experience. It is too late to resurrect a project of empire, to adopt Prof. Shield Nicholson's phrase for getting over the effects of two world wars on Britain's shaky economy. Sympathy for newly freed countries will not obscure the essential point that the major buyer for Malaya's rubber and tin is the U.S.A. and Hongkong looks to China and Malaya, not to the U.K. for its materials or markets. The plea of Mr Gowda will not, therefore, impress those who can see the growing influx of U.S. funds into British industry and trade or emphasise the importance of oil imports for Britain. Mr Gowda has certainly stated a case of sorts. But his book seems an intellectual exercise: it cannot be a prelude to action by governments or others. All the argument and analysis is in the air. Misprints mar the handsome get-up.

PUBLICATIONS RECEIVED

Dawn of Renascent India by K.K. Datta. 152 pages. Rs 18. *Management Organisation and Control in Public Enterprises* by Om P. Kaushal. 197 pages. Rs 22. *Labour and Planning*. Edited by Radhakamal Mukerjee. 267 pages. Rs. 22. *Essays on Indian Federalism*. Edited by S.P. Aiyer and Usha Mehta. 342 pages. Rs 25. *Extension in Planned Social Change* (The Indian Experience) by B. Rudramoorthy. 263 pages. Rs 15. *Indian Economic Growth—Performance and Prospects* by K.N. Raj. 28 pages. Rs 1.50 All published by Allied Publishers Pvt. Ltd., Bombay.

CATTLE & THE ECONOMY

Building From Below—Essays on India's Cattle Economy. Sarva Seva Sangh. 154+xxxii pages. Rs. 5.

J. S. Srivastava

THE volume is a collection of contributions on the role of cattle in our economy from twenty-one authors directly connected with the problem. Notes on four related subjects, with statistical information, are appended.

The book opens with an editorial note on Gandhiji's approach to the question of cow protection. The next note elucidates the idea of promoting animal husbandry in the context of the basic economic problems of the nation. In his article Mr. Dhebar has focussed attention on improving the conditions of farmers and cattle-breeders and thereby inducing them to adopt improved husbandry practices. Acharya Vinoba Bhave, in suggesting a scientific approach to cattle rearing, has stressed the need to ban cow slaughter by law. In his article "Cow and the Policy of the Government", Mr. C. Subramaniam pleads for a change in the breeding practices so that high-yielding milch animals are reared which will satisfy the increasing demand for milk and milk products. His suggestion for massive cattle development programmes in conjunction with dairy plants already forms part of the schemes proposed for the Fourth Five Year Plan. Mr. Shriman Narayan, in his article "Cow in the Five Year Plans" has advocated the development of dual-purpose breeds of cattle and improvement in the nutritional standards.

The question has often been asked what level of milk production in the Indian cow can be considered economic. Dr. P. Bhattacharya, Animal Husbandry Commissioner, has tried to answer this question in his article "Breeding Profitable Cows." In his view, a cow that yields less than 4,000 lb. of milk may not be a profitable dairy animal in this country. From Table I on page 39 the average yield of Indian cows appears to be the lowest in the world. Although in certain herds the yields have been high, they are nowhere near the world records.

There are certain redeeming features, however, which Dr. Bhattacharya points out. For increasing the levels of production his suggestions are: (a) selected breeding by intensive use of progeny-tested bulls in well-defined dairy breeds; (b) use of exotic breeds on large scale in other areas; (c) evolution of dairy breeds of cattle suitable for Indian conditions through cross-breeding; (d) breeding programmes sustained by proper management and disease control.

The idea of augmenting milk production through cross-breeding has been supported by the Raja of Bhadri. According to him cross-breeding is the shortest cut to achieving the objective. Mr. D.N. Khurody emphasises the importance of continuity in breeding policy and points out the need to have a separate Ministry of Animal Industry in order to give proper attention to the livestock enterprises.

Cattle in India not only give milk but provide draught power. An animal can perform to its maximum capacity provided it is well-fed, managed properly and is kept in a state of good health. The contributions seem to lay greater stress on breeding than on feeding. There is not a single article on keeping the animal in a state of good health.

The statistical supplement contains much information, some of which is really useful. Although information regarding training facilities for agricultural graduates has been given, there is no mention of the training in veterinary science which is more relevant to the subject. Since the volume is meant for use all over the country, the list of cattle fairs and shows should not have been limited to Rajasthan.

It is the claim of Mysore that even though it was only a 'native State' it set the pattern in electrification and industrial progress for many provinces of British India to emulate. Since 1947, however, Mysore has not gone ahead at the pace which its early start had foreshadowed. There is some indication recently that the State is determined to have a new go at industrialisation, judged from articles in "Industrial Mysore 1964". We suggest that, in its next number, the annual should have an article specifically giving at length the prospects and potentialities that await entrepreneurs in the State.

CHANGING APPROACH TO AGRICULTURE

Contradictions Need to be Resolved

P. R. DUBHASHI

AGRICULTURE has been the weak spot of our economic development. Disappointment with past performance and impatience for a better future have created an atmosphere which demands a total rejection of what has gone on before, in order to make way for a new approach. Yet it has to be remembered that agricultural development can only be accomplished through a sustained policy which permits neither abrupt changes nor any magic solution.

The enduring elements in agricultural policy are: extension education carrying the results of scientific research to the farmer and disseminating improved practices; organisation of supplies, services, technical know-how and credit; irrigation, land reclamation and land improvement; land reforms; and a price policy that will provide incentives to the farmer. Even within this framework, however, there can be, as there are, extreme swings of the pendulum. One of these we are now witnessing—the swing from a multipurpose approach to a single-purpose approach, from a decentralised approach to a centralised approach, from a universal approach to a selective approach.

"Tackle the whole man", "The farmer knows best, ascertain his felt needs", "Introduce minimum area development everywhere"—these are supposed to be the principles underlying the multipurpose, decentralised and universal approaches respectively. On the other hand, "Give the first priority to agriculture, everything else will follow"; "Have a single line of command and obedience"; "Concentrate so that you get the best out of the resources"—these are the maxims advanced to support, in that order, single-purpose, centralised and selective approaches. Taken singly, as unqualified assertions, these so-called principles are no better than mere proverbs; taken together they contain important elements of truth and are sound guides to policy formulation. In a mood of despondency, and in search for a break-through, however, we are yielding to the temptation of rejecting one approach and veering round to another.

The multipurpose approach has behind it the sanction of thinking over many years. The Indian farmer is caught in the vicious circle of poverty, under-employment, ignorance, disease and squalor. Unless a simultaneous onslaught is made on all these fronts, the Indian rural problem cannot be solved. Better agriculture requires not only better seeds and practices but also better health and education, better roads and communication, better housing and sanitation. Moreover, agricultural development is above all a human development. The farmer has to be infused with the urge for a higher level of living, and motivated towards accepting change and innovation. His confidence has to be gained, and this is not possible unless attention is simultaneously given to all aspects of his life.

This is the reasoning behind a multipurpose approach, a multipurpose agency, and a multipurpose programme of development. The "agriculture first" approach, on the other hand, brooks no diversion from the single-minded devotion to agriculture. But what is agriculture? Improved seeds, more chemical fertilisers, crop rotation and other improved agricultural practices, irrigation and soil conservation—these are at its core. But they require finance. And the products require markets. And organisation of the supply of seeds, fertilisers, finance and marketing requires co-operatives or other agencies. Electricity is required for lift irrigation and roads for marketing. Literacy is required for better farm management and good health for intensive labour.

Thus the scope of agriculture gets widened into an ever expanding circle. The village level worker, even when exclusively concerned with agriculture, needs to be trained in knowledge and skill not only in the purely technical content of agriculture but also in extension and organisation, motivation and communication. Agricultural administration comprehends not merely "agriculture" but also co-operation, engineering, co-ordination, team work, planning and organisation. It is a job not merely for the agricultural technicians but for the general administrator, the development officer, and many others as well. A single-purpose approach to agriculture—yes; but it still has to accommodate a good deal of what constitutes a mulpurpose approach.

The centralised approach begins with the research station. The decentralised approach starts from the farmer. Both have to meet. If the farmer knows his job just because he has done it for thousands of years in India, then science would have nothing to offer, If "felt need" is the touchstone of every action, then technology will get confined to what the farmer already knows. The limitations of the farmer's experience and felt needs will have to be overcome by the new message which science and technology have to offer. But then scientific research, if it is to have an immediate and direct impact, has to be geared to the technological possibilities in the field. Moreover, transplantation of technology from the research station to the field has to take into account a number of constraints—psychological, social and economic. A package of practices recommended must be specifically adjusted to suit the size of holding, scale of operation, nature of soil and economic fortune of every farming family.

The selective approach is preferred to the universal approach because it can make a deep dent, while the universal approach is lost in intricacies. But the selective approach cannot stand by itself. It has to function within the framework of a universal programme. For one, the strength of the chain is in the weakest link; thus the selective approach tends to forget, because it concentrates on what responds best and not what responds least, and it is the latter which constitutes the real problem. For another, a selective programme, if it has to make any impression, has to cover a large area and in the process gets slowly widened till it nearly reaches the dimensions of a universal programme.

In choosing between alternatives we repeatedly come up against the many-sided nature of truth. Enthusiasm for extension education leads one to expect miracles out of the locally available resources. But experience soon betrays the limitation on extension imposed by the scarcity of essential material inputs. On the contrary, exclusive emphasis on external resources of a given specification overlooks possibilities of substitution. Even a combined programme of agricultural extension and material inputs would misfire if the third critical variable, namely incentive, is forgotten.

The different elements have their own place in a balanced and far-reaching programme of agricultural development. Their place at any particular point has to be judged not by impressions, however careful, since they have their limitations, but by scientific appraisals and evaluations, both concurrent and continuous.

YOU ASK US WE TELL YOU

PLANNERS & THEIR PORTFOLIOS

I. P. Chaube, Indore

Recently there was a reallocation of work among Members of the Planning Commission. What is the charge of each Member at present?

ANSWER: The departments in the charge of each member, after the redistribution, are as follows:

1. Mr Asoka Mehta (Deputy Chairman): (i) Plan Co-ordination and General Co-ordination, (ii) Administration in Planning Commission, (iii) Programme Administration, (iv) Economic Policy and Growth, (v) Industry, (vi) Village and Small Industries, (vii) Oil and Minerals, (viii) Foreign Exchange and Foreign Aid, (ix) Information and Publicity, (x) Rehabilitation.

2. Prof. P. C. Mahalanobis (Member, Perspective Planning) : (i) Perspective Planning, (ii) Statistics and Surveys, (iii) Scientific Research.

3. Prof. M. S. Thacker (Member, Natural Resources): (i) Natural Resources including Committee on Natural Resources, (ii) Irrigation and Power, (iii) Housing including Rural and Urban Development and Town Planning, (iv) Health (excluding Medical Education) and Family Planning, (v) Water Supply and Drainage, (vi) Construction Economies, (vii) U.N. Special Fund and Technical Assistance.

4. Mr Tarlok Singh (Member, Administration and Transport) : (i) Transport and Communications, (ii) Management and Administration, (iii) Labour, Employment and Rural Works, (iv) Manpower Planning including Scientific and Technical Manpower, (v) Social Welfare including Backward Classes, (vi) Committee on Plan Projects.

5. Prof. V.K.R.V. Rao (Member (A.E. and I.T.) : (i) Education, including Medical Education, (ii) Agriculture including Food, (iii) Community Development and Co-operation, (iv) Land Reforms, (v) Economic and Social Research, including Research Programmes Committee, (vi) International Trade, (vii) Programme Evaluation Organisation.

Among the six Minister-Members, three hold charges as follows:

6. Mr Gulzari Lal Nanda : Public Co-operation including Planning Forums.

7. Mr T.T. Krishnamachari : Financial Resources.

8. Mr B. R. Bhagat: Parliamentary business.

The remaining three Minister-Members, Mr T. N. Singh (formerly Member, Industries), Mr Swaran Singh and Mr C. Subramaniam are Members without portfolios.

SIDE TRACK

(*Continued from Page 17*)

guest reporters? Our own newsmen were convinced that at no time in recent history did we have such a shortage of food. It needed Daniel Thorner, a highly conscientious student of rural India, to point out that things were not so dismal. He had seen India in 1944, and spent eight years here in the fifties. He recently came here again expecting acute suffering. What he found during a seven-week visit was very different.

Dr. Thorner made it a point to visit villages in various parts of India, villages he had known well and studied during his earlier, long stay in India. He went to remote hamlets and into houses of 'chamars' and 'mehtars' and other poor sections, talked to hundreds of people, and everywhere he found improvement of standards, even higher consumption of food, a keen desire for education and the beginnings of a break with the past.

Summing up his experiences, Dr. Thorner declares, "The situation in the countryside is not as critical as the city-dwelling sowers of gloom would have us believe." The likelihood is, he says, that the total economic strength of India and ability to deal with the food situation are being seriously underestimated.

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Let me tell you how the policy helped me.

Three years ago when I was 22 years old, I took a Convertible Whole Life Assurance Policy for Rs. 10,000. I pay only about Rs. 20 a month for it. If my family loses me, the entire sum of Rs. 10,000 will be theirs, with accrued profits.

Two years from now, I can convert this policy into an Endowment Assurance Policy that gives me the money in my own lifetime. If I should die earlier, naturally my family gets the money right away. The premiums, of course, will increase when I convert the policy. But by then, I'll be able to afford them !"

There is no substitute for **LIFE INSURANCE.**



DELHI SURVEY Shows Higher the Education, More the Distaste for Prohibition

WHY do drinkers drink? What are their motives and social background? How much do they spend on it? What do they think of the Government's prohibition policies?

Every one, drinker or abstainer, has answers to these questions, but, prompted by a desire to have insights with a better scientific basis, a socio-economic survey was recently conducted in Delhi.

It was found that a large number from the country liquor shop group and men and women in slums favour complete prohibition, whereas a majority of club members, permit-holders, hostel-dwellers and women from the upper class society favour no prohibition. Among the higher educated class there is a greater percentage of people who approve of drinking. The lesser the degree of education of the respondent the greater are the chances of his supporting prohibition.

The survey was made by the Delhi School of Social Work at the instance of the Planning Commission which acted on the recommendation of Mr Justice Tek Chand, Chairman of the Prohibition Study Team, who felt that there should be sample surveys of at least one urban area and one rural area.

In Mr Tek Chand's opinion the survey should gather information on the attitude to drink on the part of traditional families, the new rich, the upper and middle classes, the higher and middle-rung officials, shopkeepers and small property owners, students, taxi-drivers, restaurant employees and industrial workers. The survey was also to bring out what and how much was drunk.

In view of the short time available the study gave up an attempt, by means of area survey of households, to estimate the proportion of drinkers in the total population. Instead it confined itself to finding out the habits of known drinkers.

These include the various categories mentioned by Mr Tek Chand, but no claim is made to suggest that they constitute a representative sample.

It was found that 34 to 47.50 per cent of the 1,405 people interviewed drank regularly. They include men in slums, members of registered clubs and permit-holders.

The majority of drinkers belong to the age-group 30-39. Among women, particularly those belonging to the upper class society, the predominant age-group is 20-29. In slums, drinking among women is prevalent mostly in the above-40 age group.

Some other findings are: A majority of low-income people do not approve of drinking on grounds of economy and health. On the other hand, a substantial number among the upper class people approve of drinking provided it is kept within limits. There are also people who approve of drinking as a means of recreation and relaxation.

The survey was conducted on the basis of samples selected by a team consisting of 16 members—a director, a research supervisor, a secretary and 13 interviewers. The interview schedule was divided into four sections to ascertain: (1) socio-economic position of drinkers, (2) size of drinker's family and family income, (3) nature of drinking habit, and (4) drinker's attitude to drinking and his views on prohibition.

On the basis of preliminary observations made at various liquor shops and information gathered from reliable sources the survey team identified drinkers in the following eight categories:

(1) *Country liquor shop group*: Six hundred persons who bought country liquor from shops at Bela Road and Pusa Road were interviewed on five consecutive wet days during the second and third week of December 1963.

(2) *Foreign liquor shop group*: From a list of 1,000 persons supplied by the Excise Commissioner's office, 400 who bought liquor from shops located in four different areas were interviewed.

(3) *Men in slums*: Two hundred persons were taken as samples out of a group of drinkers known for consumption of illicit liquor from four different slum areas.

(4) *Permit holders*: Out of 200 addresses given by the Excise Commissioner 65 were interviewed.

(5) *Club members*: Since alcoholic drinks are served in registered clubs 40 male members were interviewed at three different clubs.

(6) *Students*: Fifty students from university and college hostels were interviewed. They helped the team in getting necessary information.

(7) *Women drinkers in slums*: Twenty-one were taken as a sample from the slum areas.

(8) *Women drinkers in upper class society*: Twenty-nine were selected from among clubs, families of army officers, women's hostels and women's university hostels.

As regards education, the report says that except six persons who had attained high school standard, men and women in slums represented the least-educated group, an overwhelming majority being illiterate. A high

percentage of persons in the country liquor shop group was also illiterate, though a fair number had attained middle-school standard. Among the foreign liquor shop group more than three-fourths had at least high school education. Most club members, permit-holders, hostel-dwellers and upper class women had college education.

As for occupation, the report observes that a majority of people were in private employment, the proportion of Government employees in individual categories not going beyond one-fourth of the total number in each category of drinkers. Whereas the country liquor group included a large number of employees in subordinate service and workers like fitters, taxi-drivers, small shopkeeprs, washermen, the foreign liquor shop group showed a sizable number of persons holding administrative, supervisory and executive positions. Of men in slums, most were manual workers, like stone-cutters, hand-cart pullers and hawkers.

Club members and permit-holders included a fairly large number of administrative, supervisory and executive people such as officials in the army and air force, top executives in business and industrial establishments. Among women those in slums were manual workers. Those belonging to the upper class society were mainly housewives including a small number of journalists and students.

On an average, drinkers in all the categories had families consisting of four to six members except those in slums who had larger families with seven to nine members. The family incomes of men and women in slums were not generally more than Rs 250 per month and a preponderant majority of the country liquor shop group had incomes of less than Rs 500 per month. A majority of foreign liquor shop group had, however, incomes of more than Rs. 500 per month. The average number of earners in various categories varied slightly between 1.56 to 1.84 per family except for women in slums where the average was 2.04. As for dependants, the average number varied between 2.75 to 5.26 in various categories, the country liquor shop group showing a higher number of dependants.

The report gives interesting information on money spent on drinks. It says, "Among the country liquor shop group, men and women in slums, and hostel-dwellers, for most drinkers the expenses ranged between Re 1 to Rs 30 per month. More than one-third of the foreign liquor shop group spent over Rs 50 per month. Nearly two-thirds of the club members and permit-holders spent between Rs 100 and Rs 500 per month.

The report states that most of the persons interviewed had started drinking when their age was between 20 to 29. A fair number had their first drink before they had attained the age of 20, few having tested alcohol even before they had reached the age of ten. Among the circumstances that led them to drink were mainly encouragement by friends and special occasions like Diwali, Holi and wedding parties.

According to the report "Drinking was most frequently reported to be attributable to a desire for relaxation and a sense of adequacy. Among the relatively richer category, namely foreign liquor shop group, club members, permit-holders, hostel-dwellers and upper class women drinking done for the sake of company was fairly prevalent. Among the country liquor shop group and men in slums a sizable number of responses assigned drinking to a need for an escape from mental and physical discomfort."

Analysing the attitude towards drinking the report enumerates the reasons as well as the views of those who approved drinking and those who did not. These were obtained on the basis of questionnaires prepared for the purpose. It was found that in the two economically and educationally backward categories, namely persons in the country liquor shop group, and men and women in slums, a substantial number disapproved drinking mainly on economic grounds. On the other hand, a majority of club members, permit-holders, the foreign liquor shop group, women from the upper class society and hostel-dwellers approved of drinking provided it was kept within limits. There were also those who favoured drinking as a means of overcoming exhaustion or physical discomfort and also as a means of recréation and relaxation. Those who expressed indifference constituted a minority in all categories.

As regards reaction to the prohibition policy in operation in the Union Territory of Delhi, at least half of the responses from those in the country liquor shop group and men and women in slums expressed their approval. On the other hand, fifty per cent of the club members, permit-holders and hostel-dwellers felt that the policy on prohibition had completely failed.

SNIPPETS

THE trade agreement of 1958 between India and Greece has been extended up to the end of December 1965..Oil and gas have been struck in test drilling at Karaikal in Madras State..Petrochemical industries will be set up around the Koyali refinery near Baroda at a cost of Rs. 50 crore..The Indian Institute of Technology, Powai, near Bombay, has set up a plant to produce liquid nitrogen-oxygen. The plant is a gift from the Soviet Union through UNESCO..The State Bank of India has drawn a plan to set up 50-70 rural pilot centres all over the country for providing credit for both agricultural and industrial production in rural areas..The producers' prices for wheat for 1964-65 crop have been announced. The new prices per quintal are: red variety—Rs. 45.50; white variety—Rs. 49.50; superior variety—Rs. 53.50..The Bechtel Corporation of the U.S.A. has offered to set up five fertiliser factories in India—three in the coastal area and two in the interior—at a cost of Rs. 200 crore..An Indian Council of Arbitration is to be set up to co-ordinate the activities in the field of commercial arbitration and to create a climate for the incorporation of an arbitration clause in all contracts of foreign trade.. Two seams of superior grade coal have been discovered in the Pathakhera coalfield in Betul district of Madhya Pradesh..The second unit of the Chandrapura power station of the Damodar Valley Corporation is expected to be switched on by the end of this month (March). The construction of the third unit is in progress..Maharashtra will shortly undertake a special programme for the development of fisheries.

FREE TRADE AT KANDLA

THE Free Trade Zone at Kandla port was formally inaugurated on March 7.

The zone has been set up in a 320-acre area near the port. So far 64 industries like textiles, light engineering and chemicals have been approved for the zone. The zone provides for the establishment of small and medium industrial units and the necessary facilities for them. The aim is to make merchandise competitive, primarily to promote export trade. No customs or excise duty is to be paid on imports.

TWO SINTERING PLANTS

The sintering plant of the Rourkela steel works has been commissioned. The plant can produce 1.2 million tonnes of superfluxed sinter every year from iron ore waste. Built at a cost of Rs. 5.5 crore with the assistance of West Germany, the plant is the largest in India.

A sintering plant is being constructed at Durgapur as a part of expansion of the Durgapur steel works to a capacity of 1.6 million tonnes a year.

Five units in the Durgapur steel works exceeded their rated capacity in January last.

ARC FURNACE AT DURGAPUR

The 10-tonne arc furnace at the steel melting shop of the Alloy Steel Plant at Durgapur has gone into production. The arc furnace is one of the primary units of the alloy steel project being set up by the Hindustan Steel Company.

The alloy steel plant, which began production in January, will have a capacity for one lakh tonnes of ingots every year, to be later expanded to three lakh tonnes.

● In the all-India poultry show at Hissar a Rhode Island Red cockerel, owned by Mr. A. V. Johnson of Ajmer, won the first prize for the best bird.



HEAVY EQUIPMENT PLANT

A plant for the fabrication of heavy structurals and other equipment is to be set up at Allahabad in the public sector in collaboration with an Austrian firm, Messrs VOEST. The collaboration agreement was signed on March 3

The plant will have an annual capacity to produce 25,000 tonnes of heavy structurals totally valued at Rs. 5 crore.

BHADRAVATI MAKES SPECIAL STEEL

THE first set of installations at the Mysore Iron and Steel Works, Bhadravati, went into production on March 6. The Bhadravati steel works is being converted into a high-grade and alloy steels plant. The first set includes one of the two 20-tonne electro furnaces, a 680-mm blooming mill and a 603-mm heavy plate mill.

The plant is expected to produce 30,000 tonnes of high-grade steel annually from June next.

West Germany has given a loan of about Rs 7.2 crore for the conversion project.

DHUVARAN SWITCHED ON

The Dhuvaran thermal power house in Gujarat was formaily inaugurated on March 6.

H.A.L. EARNS A CRORE RUPEES

The Hindustan Aeronautics Limited (Bangalore Division) earned a crore of rupees as profit in 1963-64.

During the year HAL handed over the first batch of supersonic jet fighters to the Indian Air Force, and the first India-made basic jet trainer, HJT-16, made its maiden flight. The turbo-jet engine for the trainer was also designed and developed by HAL. Other important items in the year's production were Orpheus-703 engine, first batch of Dart-7 engines (for AVRO-748), and 64 'Pushpak' ultra-light trainers.

The Rail Coach Division of HAL turned out 250 integral broad-gauge coaches, making the total 1,125.

BEL Grows 100 Times in Seven Years

The Bharat Electronics Limited (BEL), Bangalore, made a net profit of Rs 53.61 lakh in 1963-64 (Rs. 6.75 lakh more than in 1962-63). The total production during the year was valued at Rs. 6.21 crore, while it was merely Rs. 5.97 lakh in 1956-57, the first year of its working. BEL now manufactures 70 different types of equipment ranging from a small transmitter to sophisticated radars.

1.67 LAKH WATCHES FROM HMT

The watch factory of the Hindustan Machine Tools, Bangalore, produced 1,67,306 watches, (valued at Rs. 1.6 crore) in 1964, as against 1,06,024 watches (valued at Rs. one crore) in the previous year. Of these 26,000 were luminous dial watches for jawans at high altitudes.

STC'S PROFITS

The State Trading Corporation transacted direct trade worth Rs 55.98 crore and indirect trade worth Rs 41.79 crore, and made a net profit of Rs 59.88 lakh in 1963-64.

135 NEW COMPANIES IN A MONTH

In January, 135 new companies, having a total authorised capital of Rs. 35.94 crore, were registered in the country. Of these 14 were public and 121 private. Among them were: The Hindustan Allied Chemicals (Rs. 10 crore), the Cement Corporation (Rs. 5 crore), the India Tourism and Hotels Corporation (4 crore).

Only 10 Per Cent of Rural Loans Spent on Farms

THE members of the Planning Forum of the First Grade College, Tumkur (Mysore), conducted a survey last month on the agricultural credit system in the villages of Devarayanadurga, Anupanahalli, Sethupalya, Durgadahalli, Thimmanayakanahalli and Kurubarahallikere in the taluk of Tumkur. Twenty-six students took part in the survey under the guidance of Mr. Krishna Naik, head of the economics department and secretary of the college Planning Forum.

The members of the Forum were divided into groups and each visited the villages assigned to it. On the basis of a questionnaire prepared the Forum collected information on the purpose of debt, agencies from which loans were taken, the rate of interest paid and the difficulty in getting rural credits from co-operative societies and other Government agencies.

The survey revealed that 90 per cent of the agriculturists who had taken loans from the co-operative societies, money-lenders and other agencies used them for purposes other than agriculture. They spent the money for personal use or for social observances like birth and death ceremonies. Only 10 per cent of them used the loan for improving land, sinking wells, buying better seeds and fertilisers and agricultural tools. Of those in debt, 60 per cent took loans from the money-lenders paying as high rate of interest as 75 per cent.

The Forum found the farmers interested in taking loans from the co-operative societies. But it was the formalities and procedural delays that forced most of them to approach the money-lenders and *sahukars*.

Of the farmers of the six villages, only those of Devarayanadurga were members of the service co-operative society. Of the remaining 90 families only 10 had taken loans from the co-operative societies.

The Forum has suggested that co-operative societies and Block authorities should explain the importance of co-operation to farmers and try to bring them within its fold.

National Planning Council Formed

Yojana Bhavan Diary

A National Planning Council has been constituted in accordance with the decision taken by the National Development Council meetings held on October 27 and 28.

The Planning Commission has, since its inception, sought the help of economists, scientists, technical and other specialists in the preparation of the five year plans and constituted panels, advisory committees and study groups. With the growth of India's economy problems of development have become more complex. It was felt that in addition to the existing arrangements it would be useful to enlist the cooperation of a small body of specialists who could work on a part-time basis in association with the Planning Commission and its members.

The National Planning Council will include scientists, engineers, economists and other experts to help the Planning Commission in formulating the Fourth Plan. Its composition will be :

Chairman : Mr. Asoka Mehta, Deputy Chairman, Planning Commission. Besides the members of the Planning Commission its members will include :

Mr. H. R. Bhatia, Principal, Thapar Institute of Engineering and Technology, Patiala.

Mr K. T. Chandy, Director, Indian Institute of Management, Calcutta.

Professor P. N. Dhar, Director, Institute of Economic Growth, Delhi.

Mr M. Y. Ghorpade, M. L. A., Mysore.

Dr. M. S. Gore, Director, Tata Institute of Social Sciences, Bombay.

Mr N. D. Gulhati, New Delhi.

Dr A. C. Joshi, Vice-Chancellor, Panjab University, Chandigarh.

Dr D. S. Kothari, Chairman, University Grants Commission, New Delhi.

Mr T. S. Krishna, Messrs T. V. Sundaram Iyengar and Sons, Madurai.

Mr S. Moolgoakar, Tata Industries, Bombay.

Mr G. Pande, Vice-Chancellor, University of Roorkee.

Dr J. S. Patel, Vice-Chancellor, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.

Dr M. D. Parekh, The National Rayon Corporation Ltd., Bombay.

Dr Vikram A. Sarabhai, Professor, Physical Research Laboratory, Ahmedabad.

Dr S. R. Sen Gupta, Director, Indian Institute of Technology, Kharagpur.

Professor N. V. Sovani, Gokhale Institute of Politics and Economics, Poona.

Mr S. R. Vasavada, Textile Labour Association, Ahmedabad.

The Joint Secretary, Plan Coordination, Planning Commission, will be the secretary to the Council.

The National Development Council Committee on Industry, Power and Transport met on February 23. The Committee on Social Services met on February 26 and 27. Other meetings held in Yojana Bhavan discussed : programme of sugar production in Fourth Plan, February, 22; establishment of cotton spinning mills in the co-operative and public sectors, February 23; and fertiliser production in Fourth Plan, February 25.

A parliamentary delegation from Yugoslavia called on Mr Asoka Mehta on February 23.

A group of French teachers who were in India under the auspices of the Indian Council for Cultural Relations met Mr K. A. P. Stevenson, Joint Secretary, on February 25.

Neglect of Land

(*Continued from Page 9*)

present scarcity of food is the result of the present legislative and executive misjudgements.

We want on the one hand higher production, and on the other we are wasting what may be termed as animal-wealth, which in fact is the nourishment of the soil. A heap of human hair accumulated in the hair-cutting saloons is a healthy food for rice crop, but it is cast off on the streets as mere rubbish. I had alluded to this hair-manure in my life-sketch of a barber of my village, published in a Marathi weekly some years ago. It went entirely unnoticed.

Likewise, night soil, the utility of which is acknowledged, remains unutilised. In urban areas it is drained off, with a flush of purified water, making even that operation more costly than ever and further creating a shortage of drinking water.

We are becoming casual and careless. Nothing arouses our curiosity. By lack of foresight, the village economy, nay, the national economy, has been entirely upset without any idea of compensating adjustments.

SOME STUDIES

Agricultural Labour in Four Indian Villages (Studies in Rural Problems: Three). Edited by V.S. Vyas. Brought out by Agro-Economic Research Centre, Sardar Vallabhbhai Vidyapeeth, Vallabh Vidyanagar (Gujarat). 119 pages. Rs 5.

Management Planning in Public Enterprises. Management Paper No. 1. 21 pages. *Guide to Project Management—Programme Evaluation Review Technique*. Both brought out by The Committee on Plan Projects, Planning Commission, New Delhi.

India-Africa Trade Series—Northern Africa. Published by Federation of Indian Chambers of Commerce & Industry, New Delhi. 100 pages ×1 map.

Statistical Abstract, Rajasthan, 1963. Brought out by Directorate of Economics & Statistics, Rajasthan, Jaipur.

Soviet—Indian Co-operation : Heavy Engineering Vol. XXIV No. 5. 64 pages. *Soviet — Indian Co-operation: Steel Industry. Vol. XXIV No. 7* Both Published by the U.S.S.R. Embassy in India, New Delhi.

THE ANIMAL COTTON

WOOL has been with man longer than cotton; that is why some people who saw cotton first, called it the wool that grows on trees. Conversely, wool is cotton that grows on animals.

* * *

IN INDIA we produce about 75 million lb of wool annually. Out of this about 30 million lb is exported, earning about Rs. 90 million. It is possible to step up exports to earn about Rs. 22 million, as Indian wool is in demand especially for carpet making.

* * *

IN POINT OF numbers, we have about 40 million sheep, with an average yield of 1.9 lb of wool per sheep. In Australia, where wool production is most efficiently organised, the average yield per sheep is about 9.1 lb per year. The yield per animal in India varies widely according to regions; in hotter regions, the proportion is quite low.

* * *

SOMETHING more than a cold climate is necessary for a greater yield of wool. In Himachal Pradesh, for instance, the yield per sheep is 120 *tolas*, while in Rajasthan it is 188 and in the Punjab 260. The States in the South, Madras, Mysore and Andhra Pradesh, show very low yield: 20, 24 and 28 *tolas* respectively. There is obviously more than room for a systematic effort for increasing the yield.

* * *

IN AUSTRALIA, there are specially developed breeds yielding as much as a thousand *tolas* per animal. The Merino, Romney March and South Down are some of the high wool yielders. They grow fast and are valued for their meat also. Within the first three months they attain a weight of 60-80 lb. Their breed is strong and healthy.

* * *

SHEEP IN INDIA are generally not well looked after; infant mortality among them is high, judged by Australian standards. While a hundred mothers produce as many as 110-112 lambs, our ewes cannot bring up even a fourth of that number. Lack of good feed and neglect on the part of shepherds are the main factors for this high death rate.

* * *

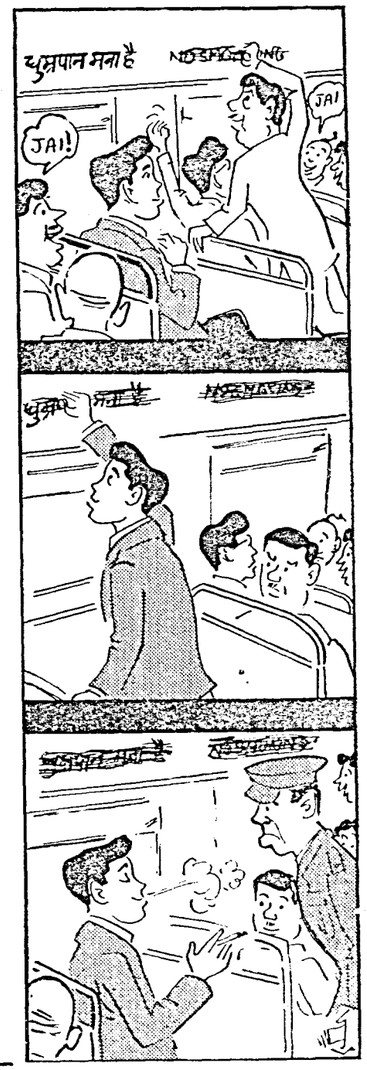
LACK OF adequate grazing pastures has been pointed as a great handicap of Indian sheep. Whatever little grazing is available to them is not perennial. Indian sheep actually destroy the grass-land by uprooting it while grazing, causing soil erosion. If properly kept pastures are made available to shepherd, the health of the sheep in general would considerably improve.

* * *

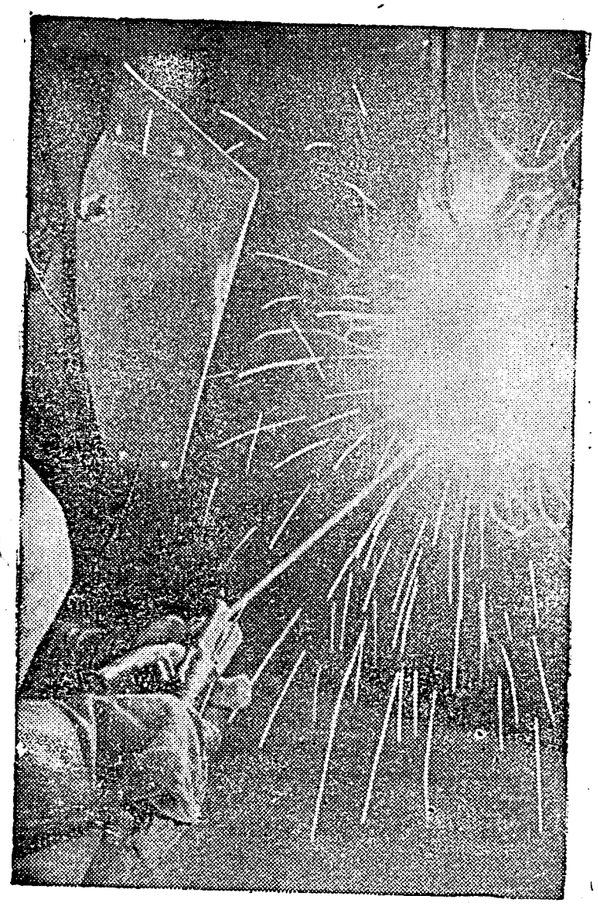
EFFORTS AT cross-breeding the Australian and Nilgiri sheep have shown promising results. A New Zealand sheep farm has been established in the Himalayan region and its results are being carefully watched. Whatever has been achieved is only the beginning; much more remains to be done and let us hope that the Wool Development Board, the Agricultural Ministry and all concerned will do their best in achieving outstanding results.

S.R.T.

SHAMBU By Malinda Topa

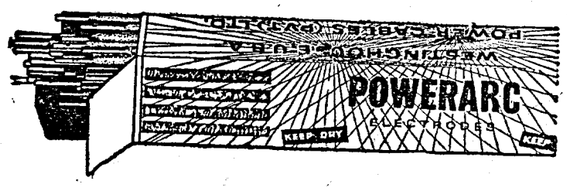


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QUOTATION BOX

At Bhilai, the General Manager, Mr Inderjit Singh, frankly declares that the surplus of clerks etcetera is at least 2,000. Peons from offices were given the chance to work at the coke ovens. Many of those who did jump at the opportunity later decided that dozing on a stool in the office corridor, even if less remunerative, was better than the rigours of plant life.

—Mr Dilip Mukherjee in "The Statesman"

"When the Opposition asked, "Was the Durgapur session a mela?" the Chief Minister's reply was : "Yes, it was a mela."

—"The Hindustan Times"

It is wrong to speak of "conquerors" of Mount Everest; one can only climb it, but never "conquer" it.

—Mr Norman G. Dyhrenfurth, Leader of the U.S. Everest team

A senior Central Government official travelling by the Delhi-Madras Grand Trunk Express recently pulled the alarm chain three times in an hour—once to order tea, a second time to get it warmed, and a third time to get hot water to shave.

—A UNI report

They shouted "shame, shame" as the Speaker castigated the Government for failure to give Hindi its due place. Then someone realised that "shame" was English, and shouts changed to "dhikkar hai, dhikkar hai".

—"The Statesman"

When short stature and a strong will go together, there is the stuff heroes are made of. In our own history Shivaji, a diminutive figure, converted the Marathas, scattered over the arid Ghats, into a dynamic nation. Napoleon, another short personality, nearly conquered the world for himself 150 years ago.

—Mr D. R. Mankekar in his biography "Lal Bahadur"

Since I took over as Chief Minister in this State, without throwing any reflections on the previous regime, I would like to say that many civil servants, even senior ones, seem to have a feeling that the new government has not much to inspire them. I fully appreciate their problem—that of missing the earlier pressures and kicks.

—Mr Ram Kishen, Chief Minister of Punjab

Preachers of coexistence that we are, and vociferous as we are about our spirit of tolerance and absorption, we must realise that in our land there can be, and must be, a place for both English and Hindi on an equal footing.

—Letter in "The Hindu"

I notice that in upper-class Hindu society today the girls are always superior to the young men in intelligence, sensibility and enterprise.

—Mr Nirad C. Chaudhuri

Everybody gets promotion even if he works the minimum and can get to the top of the grade without working hard and honestly...As far as my knowledge goes, nobody has been so far removed from service for inefficiency.

—Mr Morarji Desai in "The Indian Express"

The Jan Sangh launched its anti-English campaign by issuing in English its official statement condemning the use of English by the Government...

Speakers at the meeting which preceded the formal launching of the movement did not know the Hindi equivalents of words like 'symbolic', 'compulsory', 'survey', 'signboard plank', 'condemnation', 'political interest', 'emergency', 'the D. I. R.', 'criminal', 'waste', 'minority', 'seriously', 'training colleges', 'teachers', 'literature', 'per cent', 'democracy', 'Chief Minister', 'violence', 'conference', 'party', 'statesmanship', 'peace', 'export' and 'appeal'.

A volunteer arrested on Janpath shouted in English at a constable : "Do not touch me". The constable replied politely in Hindi: "Janab, main English nahin janta hoon."

—Report in "The Times of India"

The Rajasthan Government has decided to permit the use of common English words written in Devnagri script in administrative work and notings.

Officers have been warned not to ridicule or pull up subordinates for using incorrect Hindi.

—Report in "Patriot"

The use of English medium in the economy depresses work output, in education reduces learning and almost nullifies research, in administration weakens efficiency and adds to inequality and corruption.

—Dr Ram Manohar Lohia

"It is for tenants to vacate the house and not for owners" he (Mr Mahabir Tyagi) quipped while commenting on rumours about his resignation.

—Press Trust of India report

Tarring signboards, said a senior police official, was quite simply a non-cognisable offence.

—Newspaper report

A working girl makes a better wife, because, having worked with men, she has a deeper understanding of masculine nature.

—From a letter in "The Statesman"

Some Lok Sabha members described Parliament as a 'sleeping tiger'—it awakens to life infrequently but with a voracious hunger. A Parliament constantly raging might disrupt government.....but it must establish convincingly that it is liable to spring into action when necessary.

—From an article in "Seminar"

The part taken by Members of Parliament in mobilising public opinion for the plans is negligible.

—Mr K. Santhanam, M. P.

But the disaster which looked inevitable has somehow been averted, proving once more that in India things rarely come to a logical conclusion, that stability is maintained by the national genius for contriving an anticlimax.

—From report in "The Observer", London, on the language crisis

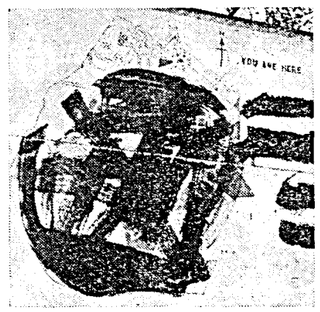
First family social picture in colour showing :

Love between sister and sister;
Love between husband and wife;
Love between father and son;
Love between mother and son;
Love between borther-in-law & sister-in-law;
Love between auntie and nephew;
Love between friend and friend;
Love between lover and beloved.

—From a film advertisement

Verily did India's cricket blossom this day—bringing as much relief as TTK's budget.

—Mr K. N. Prabhu in the "Times of India" on the Madras Test



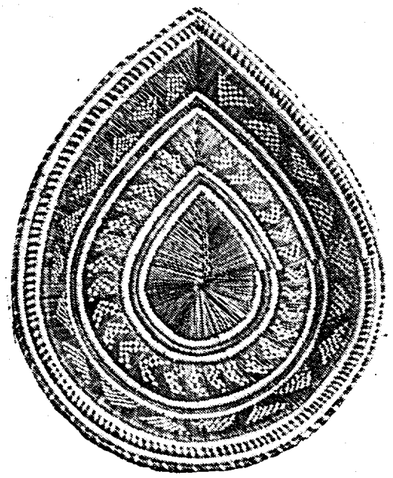
A tarred guide-map in New Delhi, with the words "You Are Here" left well alone

REGD. NO. D-576

YOJANA

MARCH 28, 1965
NINTH YEAR 6
25 PAISE

SIKKI WORK OF DARBHANGA



THIS grass elephant is not only a piece of decoration but also a 'box' to hold presents. When a Bihari bride starts for her new home she takes with her presents arranged in trays, *jhampis* or boxes made of Sikki.

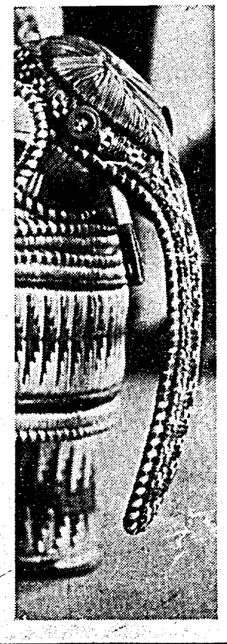
Sikki is a kind of grass which grows in abundance during the rainy season in the northern part of Bihar. Making Sikki articles is a traditional craft of Bihari women, followed particularly by those living in the district of Darbhanga. In fact, skill in Sikki craft is regarded as part of the accomplishment of an unmarried girl. Some old, excellent specimens of Sikki articles are preserved in many households.

Sikki is thin and soft and yields easily to deft fingers. The grass is cut lengthwise and dyed partly or fully in three bright indigenous colours—red, black and blue. With the help of a *takua* or a needle, women produce a variety of articles, such as boxes, trays, *jhampis* and table-mats, colourful design taking shape in the process of weaving. The distinctive feature of Sikki articles is their non-conventional shapes and lovely designs. The articles usually resemble a toy elephant, a bird or a pyramid. The upper parts, which are detachable, serve as lids (see picture).

Sikki articles are light and durable. They are being produced on a large scale by the State Institute of Design at Patna.

PRIDE OF PLACE 110







These photographs were taken at the Bihar handicrafts exhibition recently held in Delhi.



CHANGING FACE OF NAGALAND

PAGES 13-16

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ABOUT YOJANA

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Our Cover : During the last eight years many schools have been opened in the Naga hills, taking education to the door of the people. (See pages 13-16)

NEXT FORTNIGHT

SURGICAL INSTRUMENTS FACTORY AT MADRAS
—*YOJANA REPORT*

RECLAIMING THE DESERT
J. P. Correa

OVER TO YOU

Field Work Must Be Part of Economics Course

THROUGH the columns of your esteemed journal, I wish to add to Mr R.P. Kurulkar's erudite suggestions for utilising the services of College Planning Forums in fighting the various problems that our villages face. His suggestions are very useful for bringing about a development of rural India. The services of the Forums can be harnessed to the task of propagating various schemes designed to foster the welfare of the rural masses such as co-operative credit, marketing and farming, the success depends on combating the ignorance of villagers. It would be advisable to prepare a list of tasks which the Forums propose to undertake and complete in a specific period of time. The Forum may be asked to study the problems of local areas.

But pious hope will hardly suffice for the purpose. In order to enable the Forums to share these enunciated responsibilities, two things are required. First, the Forums, if they have to study rural problems, need adequate financial resources. Secondly, students must be involved to a greater extent. Unless these activities are made part and parcel of the curriculum and some marks are allotted in appreciation of field work done, student participation can hardly be aroused or expected. Though the encouragement on the part of the teachers has its own importance, substantial results can be achieved only if the students are benefited directly. The allocation of marks in examinations or award of a certificate of credit, or both, would act as inducements to the students to participate in the programme. For students who offer economics, commerce or allied subjects some field work may be made compulsory.

Universities, where the three-year degree course is in practice and statistics is taught in the economics or commerce course, should take up this suggestion immediately. It will not only encourage students to become better aware of rural problems; it will also serve as an added qualification for them in securing jobs requiring field service.

Chirimiri (M. P.) A.P. SRIVASTAVA

INDUSTRIAL FINANCE

WE offer the following clarification on some statements made in the article "Finance for Industry" published in Yojana of February 28.

1. The Industrial Development Bank of India started functioning from July 1, 1964, although the necessary legislation was enacted in May 1964. (Cf. intro to the article).

2. In terms of the IDBI Act, shares of the Corporation held by the Central Government and the Reserve Bank have been transferred to the Industrial Development Bank of India since August 1964 and additional shares issued to it so that the IDBI now holds 50 per cent of the paid-up capital of the Corporation. (Cf. paragraph 5).

3. The maximum limit (of finance by the Industrial Finance Corporation) to an individual concern has been increased to Rs. 2 crore as a result of amendments to the IFC Act. This may be exceeded with the prior approval of the Industrial Development Bank. (Cf. paragraph 5).

4. The maximum limit (of accommodation to individual concerns prescribed for the State Finance Corporations) was raised to Rs. 20 lakh in the case of public limited companies and co-operative societies and Rs. 10 lakh in other cases under SFCs (Amendment) Act, 1962. (Cf. paragraph 8).

5. The Refinance Corporation for Industry has been taken over by the Industrial Development Bank since September 1, 1964, (Cf. paragraph 22).

GENERAL MANAGER,
INDUSTRIAL DEVELOPMENT BANK OF INDIA

Bombay

PROGRESS VIA UNITY

INDIANS as a nation have a reputation for self-criticism and it is well that it is so in the largest democracy in the world. Seventeen years after Independence many of us still seem to be in need of being convinced of a cohesive, well balanced sense of purpose so essential for carrying the country forward on the road to economic betterment and social security.

Much of the criticism of our State of economy springs from impatience at our rate of progress in these fourteen years of planning; and impatience in such matters is a sign of political health. But as Prime Minister Lal Bahadur remarked a few days ago, there is a tendency among us to exaggerate the shortcomings and present a grim picture "as if the country was splitting up".

The critics, too, are not agreed on what comes in the way of a speedier progress of our economy. There are those who are critical of the entire philosophy of planning by the State; they would like the plans to be suspended altogether for some time at least. At the other extreme are those who want the State to take complete control of the nation's economy and do not appreciate the wisdom of a mixed economy. In a society where the common man alone is the ultimate measure of the success of Governmental policies, shortcomings have necessarily to be viewed in the context of the complexity and massiveness of problems. The Prime Minister did not underestimate their seriousness or magnitude when he reminded the critics that "never before had a country of such a size and population successfully initiated within a democratic framework and in an environment of general economic and social stability such a comprehensive process of social transformation and technological change". He explained his Government's approach as being one of securing in an orderly rather than a sensational manner, steady gains for the economy and a progressive betterment in the living standards of the people.

It is an inescapable fact of a developing economy, burdened with heavy population, that investments have to be made with tremendous effort and sacrifice. This is what Mr Asok Mehta had in mind when he said, in his Brij Narain Memorial Lecture, that "the poorer a country, the larger are the human wastages and the smaller is the prospect that its inhabitants will be able to make the most of their lives, both in the biological and in the economic sense". The problem of development in an underdeveloped country is invariably complicated by the urgency for development. The fact of a growing population poses an unrelenting challenge to all efforts at promoting a fast growth in production. Making effective use of the demographic data the Deputy Chairman said that India should not hope to have any respite from the pressure of population in the forseeable future. The tendency towards a fall in the fertility rate will not make itself felt till after 1980. Our population is expected to be 49.4 crore in 1966, 55.8 crore in 1971, 62.9 crore in 1976 and 69.3 crore in 1981, leaving, as Mr Mehta says, no room for complacency "unless we are able to achieve something miraculous in the field of family planning during the next five or seven years".

Notwithstanding the frightening challenge of population our Plans have succeeded in pushing a stagnant economy on to the road of change. The national output has increased from Rs. 9,530 crore in 1950-51 to Rs. 14,140 crore in 1960-61 (in current prices) and is likely to be Rs. 19,200 crore in 1965-66 (in 1963-64 prices). Experts have estimated that over the period 1950-1970 national output would go up by 177 per cent or at the annual compound rate of 5.3 per cent. Investment, too, is being stepped up. The total development expenditure went up from 2.4 per cent of the total national income in 1950-51 to 5 per cent in 1960-61 and is expected to reach 6.7 per cent in 1970-71. So has the gross capital formation increased from an annual rate of Rs. 1,600 crore in the First Plan period to Rs. 2,500 crore in the Second Plan period. In the Third and Fourth Plans there will be further significant acceleration.

Consequently significant structural changes have occurred in the nation's economy, resulting in considerable progress in capital goods production, transport and power, which constitute the base of an industrial economy. By the end of the Fourth Plan we shall be producing capital goods worth about Rs. 5,000 crore and will be practically able to supply the nation's requirements of machinery for sugar, jute, paper and cement mills and railway transport equipment. We shall be producing, too, heavy electrical equipment like generators, turbines, transformers, and power boilers to meet the greater part of our needs. These are apart from tractors, diesel engines and power-driven pumps, steel castings and forgings which will roll out of our factories to meet the demands of agriculture and industry.

Side by side, a considerable part of our resources is being spent on the improvement of education, medical and public health from which an increasingly large section of the population is benefiting. Whatever the crises of the day—and they are bound to be there for a long time—the Prime Minister's recent exhortation could not have been more timely. He said, "people must never forget that we are a united nation."

SOCIAL JUSTICE IN A DEVELOPING ECONOMY

I. G. PATEL

SOCIAL justice and economic development are accepted goals of economic policy in all modern societies. In this respect, therefore, there is no difference between nations, be they rich or poor, capitalistic or socialistic, believers in planning or otherwise. Indeed, even the urge for greater economic well-being in individuals, as in nations, is hardly separable from the desire to secure for oneself that which is already given to others. At the same time, professional economists at any rate are prone to think in terms of conflict and choice between these fundamental objectives. Is there really a problem of choice involved here? Is the concept of social justice capable of bearing a fixed and determinate meaning in terms of which we can speak of conflict and choice? Should all areas of choice between the two objectives be regarded as open issues requiring resolution or are there some which ought to be considered as settled in terms of accepted human values? Where conflict or choice is real and cannot be settled *ab initio*, is there no way of reconciling social justice with economic progress at least over time? And finally, to what extent have we succeeded in India in grappling with this challenge of combining economic progress with justice?

Defining "Justice"

At the outset, it may be useful to distinguish between at least three different strands in the universal desire for social justice: (a) the right of all human beings as human beings to a basic minimum of economic well-being and opportunity; (b) some correspondence between economic rewards for different individuals and their respective contribution to social good; and (c) a measure of equality between different sections of the community at least in the sense of avoiding any undue concentration of economic power.

These different aspects of what is commonly understood by social justice are not in themselves harmonious one with the other. Our universal religious heritage and the belief in the dignity and worth of every individual lead us to the dictum of "to each according to his needs" —at least certain minimum needs of health, education and sustenance. On the other hand, "justice"—with a small "j"—calls for "to each according to his ability"; and most of us at any rate have not ordered our values so neatly as to say, with the Communists, that "ability" should be supreme in the present and "needs" when the millennium is reached. Indeed, if forced to a decision, we are bound to accept the priority of "minimum needs" over "justice" narrowly conceived even if we insist in the process, for practical reasons, on taking a "realistic" view of the "minimum" and proclaim, for emotional reasons, that "justice" in fact is not violated as much as one might think at first sight.

Rights and Rewards

The notion of justice in the sense of correspondence between rewards and contribution has, therefore, to yield place at one end to the concept of basic human rights. At the other extreme, it cannot be carried so far as to result in gross "inequality" or concentration of power or domination of a few over many. Here again, it is worth noting that the passion for equality itself has two different strands. While much of it derives its strength from considerations of "justice" proper, i.e. from the desire to relate rewards to effort as distinguished from privilege of birth or inheritance, there is also the ingredient of a limit to the power that any group can exercise over another irrespective of the origin of such power. Within a democratic framework, at any rate, some restraint on the exercise of power is a basic value on par with regard for individual dignity.

Social justice itself, therefore, is not a homogenous quantity. It expresses a hierarchy of values which need to be put in some order before they can be a basis for rational conduct. But the intensity with which different values are held is a matter which admits of change and human beings do not accept easily the need for some conscious ordering of deeply felt values. If social justice merely implied benefits in relation to effort and contribution, there should be little scope for conflict with economic progress. The conflict arises essentially

Paper read by Dr. I. G. Patel at a "Round Table" on Economic Development and Social Justice held in New Delhi in February.

within the framework of social justice itself and for want of agreement at any given time on what constitutes a reasonable basic minimum or undue domination. The search for social justice, therefore, must essentially be a continuing one with scope for variations in emphasis on different ingredients of it and for efforts at mutual persuasion about its specific content from time to time.

Savings and Inequality

Given the multiplicity of aims symbolised by the desire for social justice and their susceptibility to divergent emphasis and interpretation, why should they conflict with the desire for economic development? If economic development is understood simply as the fastest possible rate of growth in real national income, it may necessitate policies inconsistent with social justice, at least in the short run, for three main reasons—those associated with considerations of saving, incentives and economies of scale.

Put crudely, savings and social justice may not go together for two reasons: (a) a speedy progress towards a basic minimum for all might jeopardise accumulation; and (b) greater inequalities in income distribution might make for a higher rate of saving. In a complex social structure, inequality, of course, is not easy to define. It is arguable, for example, that in predominantly peasant economies with a small sector of organised industry and considerable disguised and open unemployment, a policy which keeps industrial wages low and industrial profits high makes for greater equality as well as faster economic progress. The distribution of income between industrial workers and profit earners in industry may tend towards greater inequality. But this policy brings about faster industrial expansion, and, therefore, a swifter end to unemployment. As between the unemployed and those already employed in industry, it would make for a more equal distribution of income so that, in the aggregate, the needs of faster progress and social justice are better served than in the alternative case of high industrial wages and low industrial profits.

In practice, however, it is not easy to resolve the conflict simply by appeal to all relevant facts. Those who seek equality for themselves do not always concede the case of others even more unfortunately placed. Their claim for high wages is also based on justice—demand for a just share in profits they have helped to earn. What is more, even if accumulation is important, why should the capitalist be given a larger income merely because he saves some of it? For any increase in savings, the total additional income to be transferred to him has to be a multiple of the additional savings. And even if the rich save all their additional income, they add to their property as a result of what the workers are asked to forgo. This line of reasoning invariably leads to claims for public ownership of industry. That these claims are made more as a debating point than anything else may well be true as workers even in publicly owned industries are not more receptive to claims to accumulation. But the fact remains that arguments about savings cannot conclusively warrant a compromise with claims of social justice unless one takes a certain institutional framework in regard to property rights for granted.

Within the limits set by regard for private property, the return on property income—and on savings—must be high enough to induce further accumulation and this in turn sets a limit to the community's concern for a basic minimum for all as well as to its concern for concentration of wealth. Even workers and poor peasants and petty *bourgeoisie* can be made to save by special incentives, exhortations, appeal to security through life insurance, provident funds and the like. The greater the success of these measures, the less the need for higher rewards on property incomes. But poor societies hungry for savings have to tap all strata of incomes; and where they do not begin from a very primitive level or from a thorough overhaul of property rights after a war or a revolution, a certain conflict between savings and social justice is inherent in the situation.

It is, for example, not surprising that almost all developing countries, including India, have a system of incentives for savings which is far more elaborate than in most advanced countries. While the urgent claims of "basic social minimum" have called for sizeable increases in taxation, these are as much on "wage incomes" as on "property incomes", if not more; and even so, the pace of progress in carrying forward the "basic minimum" programmes has had to be a measured one. Nor has the state managed to raise any significant net public savings so that its programme of investment has had to depend essentially on borrowing the savings of others.

One popular idea in most modern states is that while properties may be allowed and even encouraged to grow in the interest of accumulation during the lifetime of an individual, the claims of social justice must be asserted with full vigour at the time of death or inheritance. Superficially, incentives do not operate beyond death, and justice requires a curb on rewards based merely on the accident of birth. There is perhaps a way here of reconciling at least in part the claims of justice and growth. But we need to know much more about this field of human motivation. It is difficult to believe that restraint on one's ability to provide for one's children is no disincentive at all; and attitudes are bound to differ depending on whether the fortunes that pass at death are in most cases only one generation old or several generations old. What may, therefore, get easily accepted in a mature capitalist society may not be equally acceptable or harmless in the early stages of accumulation. This is not to say that death duties, gift taxes and inheritance taxes should not be used as antidotes to higher incentives for savings and accumulation. It is only to serve as a reminder that the antidote may not work without some unpalatable side effects.

Human Investment

The conflict between savings and social justice is thus a real one even if it could be reduced in practice by a number of devices such as appropriate taxation and mobilisation of small savings. But this is not to say that all areas of this conflict are open issues without any guidelines about how the choice is to be made. Consider, for instance, the enormous efforts being made in all emerging countries to improve health standards and to spread education. It is obvious that rapid improvements in health standards have led to a phenomenal acceleration of population growth and this, in

turn, has added to the difficulties of promoting higher rates of saving and growth. And yet no responsible person would suggest that conquest over death and disease should proceed at a measured pace with due regard to the adverse effect of larger numbers on the prospects for growth. The choice between better health and more savings, although a real one, is not one of the unsettled issues of our times. The issue is settled in terms of our basic human values which stir us to look for new approaches to the problem of population growth and savings without calculating the cost of prolonging human life.

Much the same is true of education. As a natural reaction to the tendency to think of education as less productive than investment in agriculture or industry or transport, a great deal has been said and written of late about the crucial importance of the "human factor" in the process of development. Some scholars have gone as far as to suggest that education is more important for raising productivity than investment on farms and factories. In India, our plans have always regarded education, health and other social investments as an integral part of the process of growth; and it is fairly clear that extension work in agriculture or family planning programme or industrialisation in general require spread of education. But it is equally important to remember that a basic minimum of education for all is a fundamental value promise irrespective of its costs and benefits so that any choice between education and other forms of investment cannot be made in economic terms alone.

Today and Tomorrow

What has been said so far about incentives for savings applies equally to incentives for work and initiative or risk-taking. But can we argue that in so far as there is a conflict, for example, between economic progress and "basic minimum" for all, it is really a conflict between "a certain basic minimum" for the present generation and a somewhat "higher basic minimum" for generations to come? The argument is often encountered that the real problem is production and not distribution because even if everything is equally distributed, it would make little difference to the poverty of the masses but a great deal of difference to future growth potential.

Looked at this way, it is really not a choice between social minimum and economic progress in the present but between welfare of the present generation and well-being of the generations yet to come. There is certainly advantage in putting the matter this way as it resolves the area of present conflict. But the argument cannot be carried too far. In terms of basic human values, the present generation also has basic human rights and it is not necessary to invoke diminishing marginal utility or rate of time preference in order to save the present from the all-devouring claims of the future. At any rate, the conflict between economic progress and the desire to avoid concentration of economic power cannot be expressed as one between the present and the future.

Economies of Scale

The considerations that weigh most heavily in favour of concentration, however, relate more to "economies of scale" than to incentives for saving and effort. And it is perhaps not an accident that, in his cherished role as an exponent of unpleasant facts of life, an economist clings more fondly to this concept of "economies of scale" than to the need for incentives and the like. Incentives smack at best of the price one has to pay for regrettable but unavoidable human weaknesses and it is rather demeaning to wax eloquent in their defence. But economies of scale have the stamp of science, of the inexorable march of objective technology.

Consider, for instance, the large variety of contexts in which this particular concern for economies of scale is raised in defence of concentration. We cannot raise productivity in agriculture in all the districts of India. We must concentrate, instead, our limited resources on the most promising districts. Small-scale industry, which employs tens of millions of people, should not be artificially protected against factory production which is more efficient (and which might promote higher savings). Development of backward regions is a luxury at the present stage as regions already partially developed can make greater contribution to growth. Existing owners of plants should be allowed to expand in the interest of economies of scale before permitting new parties to set up new plants; and where now plants are necessary, they should be on a big scale and set up by people who command large resources. Rural electrification must be proceeded with caution. A few universities must be brought up to the highest standards before starting new ones. Patent legislation must be restrictive so as to provide incentive for research on a big scale.

In quoting all these examples, it is not our intention to suggest that there is no force in the arguments they imply. But it is clear that considerations of economies of scale crop up so often as being antithetical to the claims of social justice that we need to look at them—and at the supposed area of conflict—a little more closely. Experience has shown, for example, that the most promising areas from the point of view of raising agricultural productivity are very often among the poorer tracts. With some protection, small-scale production has shown much greater vitality in India over the past ten years than what most observers had thought possible. There are many instances where a new entrepreneur with modest means has more than made up for limitations of size by greater initiative and more careful attention to small details.

Nor can we forget that arguments about economies of scale can take many turns. After all, much of the impetus for rapid development of poorer countries has come from the so-called "theory of the big push"—the theory that economies of scale and interdependence of markets dictate simultaneous advance in backward countries over a wide front. It is this consideration which has also been the main plank in the justification for foreign aid and protection of domestic markets. The same ideas cannot be dismissed as altogether irrelevant in the context of backward regions within a country.

Moral Cost of Choice

In point of fact, we seldom carry concern for economies of scale to its logical conclusion to the exclusion of all other considerations. There is, for example, no conclusive evidence that land reforms which result in small peasant holdings are more conducive to higher production than plantation-type large-scale capitalist farming. (That they may be more efficient than feudal land systems is not the question here). But no one who

knows this part of the world and its problems of overcrowding on land would recommend free play of market forces in acquisition of farm lands. Here again, we do not take the question of reconciling efficiency with justice to be an open question. We decide upon a general framework which corresponds to our notions of social justice and try to look for all possible ways whereby it could be infused with as much efficiency as possible.

Much the same is true of other areas of economic policy as well—be they regard for small business, desire to replace credit from money-lenders by co-operative credit, and the like. The economist's habitual chiding about recognising at least the cost of any choice made, however well-meaning and necessary, has to be balanced by the reminder that, as heirs to a certain moral tradition, we are equally called upon not to take the costs for granted but to find ways and means of reducing them.

Problem of Concentration

Irrespective of whether or not there is conflict between economic progress and the desire to avoid excessive concentration and whether it is an open question how this conflict should be resolved in most cases, it is a moot point whether concentration itself is a significant danger in modern societies. Let us recall that it is not concentration by itself but the possible abuse of economic power that constitutes violation of social justice. But modern states have sufficient power over economic agents however big or powerful. Improvements in communications and economic information, growth of countervailing power, the emergence of a new professional class of managers, accepted policies of support to the small or the weak man, growth of social and economic legislation have all created a situation in which a few cannot easily corrupt or intimidate or hold to ransom the vast majority of the people.

Concentration also, while high and constant in degree, need not be in the same hands for long as competition and natural forces of decay will bring about some sort of reshuffling among those at the top. What might be called "rolling concentration" under the watchful eyes of the State, the press and rival groups alike is more an imaginary than a real danger so that we might just as well leave out this particular ingredient from our reckoning of social justice.

The position just stated has clearly a great deal of relevance for advanced countries such as the U.S. or the U.K. It is not without relevance even for countries such as India. Indeed, for large parts of the economy including agriculture and small industry, the choice between concentration and otherwise is hardly there for all practical purposes. In some of the other areas such as transport or power and similar basic utilities, most modern states accept social ownership or detailed state regulation. It is only over the limited area of organised industry that the danger of excessive concentration might be a real one. But even here, State control, vigilance of the press and countervailing power exercised by rival groups take away much of the sting from concentration in India as in more advanced countries.

Framework of Regulation

The difference—of degree—between India and, say, the U.S. arises from two or three factors. For one thing, the desire to progress rapidly and to catch up with others in as short a time as possible has necessitated a protected market with restraint on avoidable duplication of productive facilities so that the forces of competition have been weakened in the process. The reshuffling at the top and the equation of profits with initiative and enterprise cannot be taken equally for granted here; and the process of replacement of hereditary entrepreneurship by professional management has not yet gone far enough.

What is more, the very fact of extreme poverty lends an edge to the desire for equality. When practically everyone in the country eats and dresses alike and goes to more or less the same schools and hospitals, it does not matter very much to anyone if a few persons have millions of dollars tucked away in securities or real estate. But this is far from being the case in India. Politically also, despite the remarkable political consciousness at all levels, the danger of economic power vitiativng the free functioning of the democratic system cannot be dismissed as totally irrelevant; and the very acuteness of political consciousness among the masses requires greater regard for equality in an age and setting where ideological conflicts have not yet been overshadowed by affluence.

It is for this reason that India has sought to avert the danger of excessive concentration by the state participating in industrialisation as well as by a framework of regulation over industry. In many respects, control over industry in other countries is certainly none the less exacting than in India; but it is true to say that the framework of controls over industry here is a more detailed one. Other aspects of policy in India in search for social justice such as education and health facilities for all, special efforts to help the weak and the small and to increase the countervailing power of the farmer and the worker, restraint on inequality by progressive taxation and the like are all in line with the mainstream of enlightened policy in all countries. In regard to controls also, our attitude is flexible and pragmatic. If there is a departure—and it is a conscious departure in keeping with our needs and circumstances and values—it is in respect of desiring for the State a significant direct command over large-scale industrial production.

State Power

It is, of course, arguable that little is gained if concern for too much concentration of economic power in private hands leads us to concentrate similar power in the hands of the State. It is perhaps not an accident that one's denunciation of concentration of economic power in the hands of the state varies in inverse proportion to one's conscious or unconscious desire to defend concentration in private hands. But as ordinary citizens incapable of sharing significantly in concentration of either variety, most of us perhaps could settle for some of both if concentration is indeed decreed as the law of life by modern science and technology.

And finally, let us repeat what is perhaps implied in much of what has been said before that, when it comes to the guiding lights for social behaviour and policy, economic growth and even justice deserve, at best, only "two cheers". The ultimate justification for social policy belongs to the realm, not of justice or economics but to that of human dignity and the brotherhood of man. Our ideas of justice and economic feasibility must be made to bend incessantly towards these ultimate goals of human endeavour.

PROBLEM OF CONCENTRATION OF INDUSTRIES

CONTRIBUTED

DISPERSAL is a well-recognised principle in planning for industries. It consists of locating industries in such a way that raw materials and transport are used to the maximum benefit while bringing about development of backward areas.

Despite the soundness of the principle, industries still tend to concentrate. At present, the largest concentration of industries in our country has been either in the metropolitan cities like Calcutta, Bombay and Madras, which have been port towns serving a vast hinterland and where the first industries in the country took their birth, or in the steel and coal belt of South Bihar and West Bengal, where mineral resources exist in abundance.

In each of these regions further concentration of industries would aggravate problems. Traffic congestion, which is already serious, will worsen. Urbanisation will proceed faster than housing and social facilities can be built up. And the gap between the congested areas and the rest of the country in the matter of investment and job creation will widen further.

To illustrate the nature of the problem, it would be of interest to note that the population of Bombay, which was only about 1.8 million in 1941, rose sharply to about 2.99 million in 1951 and to 4.15 million in 1961. At this rate, it may be over 7 million in 1981. The problems of traffic within city as well as between the main town and the suburbs, and of basic amenities like water, fuel and housing, have already deteriorated very much. They would need huge outlays before they could be said to serve even the present population adequately.

In order to encourage dispersal of industries, the Government of Maharashtra announced a few months ago a series of concessions calculated to attract industries to nuclei in interior and hitherto backward areas.

The problems that mark the industrial map of Bombay prevail equally in Calcutta, Madras and Delhi. During the recent meeting of the National Development Council's Sub-Committee on Power and Transport, a number of States had emphasised the need to develop backward areas in their respective States and to attract industries to those areas. In a subsequent meeting which the Planning Commission had with the industrialists, the latter pointed out, not without justification, that basic infra-structure facilities of water, power and transport should be developed in these areas if industries could go there. The reason for entrepreneurs seeking to open new industries in already developed industrial areas, they said, was that such facilities readily existed there in addition to the fact that trained industrial manpower would also be available.

DURING the Third Plan, most of the States have either set up separate Development Corporations or have departmentally developed certain areas with this very end in view. The help rendered by them includes acquisition of land, provision of electricity, and laying of access roads. Very often, developed plots in these industrial areas were made available for the setting up of industries. The expenditure incurred by the States under this head is shown below :

	Rs. in million
Andhra Pradesh	... 7.50
Assam	... 1.50
Bihar	... 6.81
Gujarat	... 7.57
Jammu & Kashmir	—
Kerala	... 7.37
Madhya Pradesh	... 15.60
Madras	—
Maharashtra	... 11.44
Mysore	... 1.00
Orissa	... 1.70
Punjab	—
Rajasthan	... 1.33
Uttar Pradesh	... 26.20
West Bengal	... 5.83

It will be noticed that there is considerable divergence between the (estimated) expenditure to be incurred during the Third Plan by different States for the development of Industrial areas. In some cases like Punjab, Madras, Jammu & Kashmir, no expenditure will be incurred during 1961-66 specifically under this head. It would be worth while to examine individually for each State the scope for the development of industrial areas and the outlay required by them during the Fourth Plan period. A more uniform policy for outlay under this head for various States might also be considered. In any case, a substantially larger outlay is desirable.

Apart from the expenditure on the development of sites, State Governments are also giving financial assistance to the private sector units, either directly or through State Industrial and Development Corporations. The expenditure likely to be incurred during the Third Plan period by the different States under this is also given below:

	Rs. in million
Andhra Pradesh	... 21.40
Assam	... 6.25
Bihar	... 29.99
Gujarat	—
Jammu & Kashmir	—
Kerala	... 34.62
Madhya Pradesh	... 1.50
Madras	—
Maharashtra	... 5.00
Mysore	... 19.40
Orissa	... 53.70
Punjab	... 10.00
Rajasthan	... 4.03
Uttar Pradesh	... 14.00
West Bengal	... 0.02

In this case also there is considerable variation and there is perhaps need (in the context of the suggestions made at the National Development Council meeting and the meeting with industrialists) to increase the outlay and to consider criteria for such outlay for each State. In view of the reluctance of industrialists to go to States which are industrially backward, a higher provision for such States may be necessary.

AT the meeting of the National Development Council it was pointed out by the Minister for Industries and Power, Maharashtra, that, in spite of announcement of several concessions to industrialists in the backward areas in that State, his efforts had not borne fruit mainly because of the existing capital gains tax.

Where an industry wants to shift its manufacturing activities from inside Bombay city to outside areas, a very large percentage of the capital gains accruing from the disposal of existing premises has, until now, had to be paid as taxation. This, he said, was the single most important factor which had come in the way of State Governments persuading industries to move from congested areas to metropolitan outskirts or to backward areas. Suggesting modification in the taxation policy in this respect, the Maharashtra Minister cited the procedure in the United States where, if any party moved its manufacturing activities involving disposal of land and purchase of land elsewhere for continuing the same activities, capital gains tax did not apply.

At the meeting with industrialists, the same view was also expressed by Mr. Prabhu V. Mehta and some others. The instance of the Indian Oxygen and Acetylene Company was cited. The company purchased about 5,000 square yards at Rs. 3 a square yard in 1945 and adjoining this stretch they bought about 80,000 square yards at Rs. 7.25 a square yard in 1960. The present market rate for land with similar amenities is about Rs. 45 a square yard. If the benefits from this boom in land prices should be made to accrue largely to the units desiring to move away from the metropolitan areas, it would no doubt act as an important and substantial incentive. (The advisability of giving this incentive has now been recognised. It is one of the concessions announced by the Finance Minister in his Budget proposals.)

Another important suggestion made at the meeting for helping decongestion of metropolitan towns was the importance of laying arterial highways between such cities and the neighbouring areas. This point was raised by Dr A.Ramaswami Mudaliar and would be worth pursuing.

IN the course of the discussions, the question was raised whether the policy of dispersal could not be confined to new units and not applied to units already operating in metropolitan areas. The point for consideration, however, is that it is rarely possible for any manufacturing unit to envisage the kind of expansion it would go in for ten or fifteen years hence. Several units in the metropolitan towns find themselves very congested and not in a position to expand in the existing premises. In the circumstances, they prefer to shift to another location where they can have sufficient elbow-room. This might suggest that there should be no distinction between starting new units and expanding existing ones in the matter of industrial dispersal.

The main reason why industries tend to concentrate in advanced areas, as we saw, is the existence of infrastructure facilities. Besides, raw materials can be had easily either through ports or from the mines; markets are near; labour has the right kind of orientation.

State Governments, while developing sites for the establishing of industries will have to create at least the minimum facilities of power, water and transport and may also have to take the initiative in setting up technical schools and in labour-training programmes.

Very often, industries, coming to new sites are at present expected to meet almost entirely their needs of houses, schools and clinics. The responsibility for such social overheads in the initial stage ought to be largely that of the States which should take the initiative to provide them. They should be able to cover such expenses under the outlays for the respective overheads provided in the Plan. This important factor ought to be kept in view while working out details for the Fourth Plan.

APART from these general considerations, dispersal of industries involves special problems in each of the major industries.

Steel, aluminium, copper, zinc, oil refineries, fertiliser plants, mining and ore beneficiation plants, for example, have to be located solely on economic considerations such as proximity to raw materials sources and availability of cheap power and transport. Where there is a choice between alternative locations, the need to develop backward areas would have to come into the picture.

As regards industries like cement and sugar, their location, too, generally depends on the source of raw materials. It has to be remembered that even at present the criterion of development of industries in backward areas is borne in mind in licensing sugar and cement factories and no specific reorientation of policy might be needed in regard to these two industries. But greater emphasis might be placed on selecting sites for sugar industries within the areas where there is availability of irrigated land, a longer crushing season and higher sugar content in sugarcane.

We now come to the oldest of Indian industries—textiles. It is obvious that both spinning and weaving, particularly powerlooms, should be dispersed all over the country. Preference, however, should be given to the establishment of additional spinning mills in units in cotton-growing States. Traditionally, this industry is concentrated in the Bombay and Ahmedabad regions owing to ready availability of raw materials, suitable climate and nearness to markets as well as port. In view of the fact that operating conditions

(*Continued on Page 10*)

NEW HOME FOR SILKWORM IN DEHRA DUN

SILKS may be worn by only the rich, but it is not the rich who rear silkworms, spin the thread and weave silk fabrics. Silk is really a poor man's industry.

The silkworm, whose home in India has been Assam, Bengal and Bihar in the east, Kashmir and Himachal in the north and Mysore in the south, has now come to Uttar Pradesh. Within a decade U.P. has gained a place of note on the sericulture map of India. The State has had the late starter's advantage; it has begun with the latest techniques, and avoided the long period of trial and error.

The central silk farm at Premnagar near Dehra Dun is one of the most modern in India. It is now supplying seed eggs to Madhya Pradesh, Himachal Pradesh, Kashmir, and has sent a sample consignment to Burma even. The industry has made a big change to the lives of villagers all around Dehra Dun.

There are numerous mulberry nurseries, demonstration farms and seed farms in Dehra Dun district as also in Naini Tal, Saharanpur and Etawah districts. The industry is pursued on a modest scale in the districts of Gorakhpur, Rampur, Almora, Tehri and Pauri.

A silkworm lives for 45 days. It eats lots of mulberry leaves (a full grown larva weighs 12,000 times the newly hatched one and consumes 30,000 times its own weight of leaves), makes a cocoon for itself and goes to sleep. Each cocoon consists of 500 to 600 metres of fine thread.

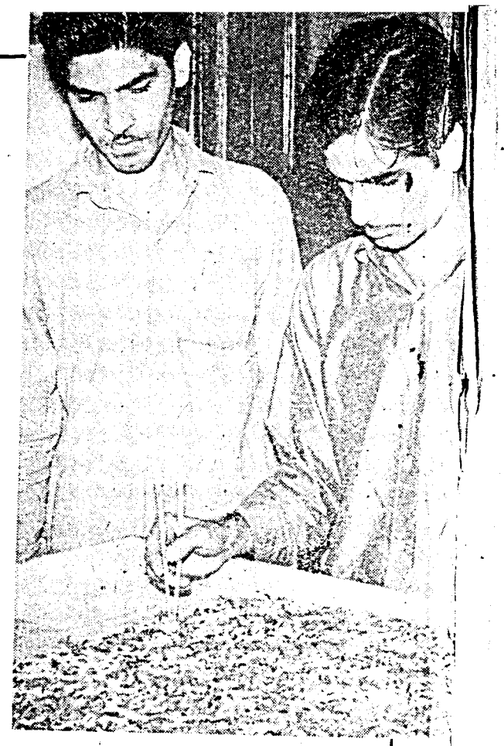
A feature of the Premnagar silk farm is a special incubation chamber with devices to regulate temperature and humidity. Unlike other States, U.P. supplies the entire seed free of cost in the form of early-stage silkworms instead of the conventional eggs. A high-altitude station is being set up at Jeolikot for rearing polyvoltine races.

There are 36 sericultural co-operative societies in the State. The apex body, known as the U.P. Resham Audyogik Sahkari Sangh, collects and markets the entire produce of cocoons and pays a commission of 10 per cent to societies. The State Government also allows a subsidy of 80 paise per kilogram on cocoons.

About 120,000 kg of cocoons are produced annually, ensuring a subsidiary income to about 2,000 rearers. The production is expected to double in a couple of years.

Besides mulberry silk, the State is also encouraging 'eri' and 'tassar' silk.

(Photographs and text from the U.P. Information Department).





Above : The Japanese superiority in the silk lore is acknowledged by the use of chopsticks to handle silkworms. Untouched by hand, the worms are healthier. Left below : Cocoons being graded. Left : Cardboard honeycombs which are used for cocoon formation.



PARTNERSHIP IN SOCIAL WORK

TARLOK SINGH

THE objectives of social work and its methods become more precise as social action proceeds. Therefore, the wider our concepts of social action and the more fully they are supported by social policy and resources in men and money, the greater the scope for social work. In this sense, the work of an institution such as this links up with the broader framework of economic and social planning, the objectives of policy, the role of social institutions and the means by which vital social ends are to be attained. The central purpose of social work, as indeed of planned development in a democracy, is to help groups and communities to develop the quality of self-reliance, to solve their own essential problems and to communicate a sense of opportunity and common interest to their members. Therefore, important as it is to provide relief and succour where needed, we have to envisage social work as a continuing element in the life of the community, built organically into its modes of functioning and behaviour. This means that in the development of social work we have to look more and more not only for areas of constructive endeavour but also for elements of continuity and growth. In other words, in planning for social work, primacy has to be given to enabling each community and each group to build up for itself institutions through which common ends can be best served, through which each member can contribute to the common weal.

Need for Community of Approach among Agencies

Many of the institutions necessary to accomplish these tasks already exist. Thus, State and municipal agencies serving different needs are key components in society's institutional apparatus. Sometimes they are looked upon and even function as agencies external to the community. It is an important aim of social work in its wider sense to help transform these agencies into services functioning close to the community and responding to its needs. Important as it is to secure trained workers for voluntary institutions, a great deal turns on the extent to which agencies engaged in administering public services are trained in the outlook of social work and can fulfil their role with the support and co-operation of the community. Indeed, the scope for constructive social work turns largely on the competence, understanding and sympathy with which the services for which State and municipal agencies are responsible become available to the community.

Until recently, in discussions on social work, the main emphasis has been on voluntary organisations and voluntary workers. Undoubtedly, these are essential. However, experience of planning over the past decade reinforces the view that, in the solution of major social problems, there must be combined action on the part of State and municipal agencies and voluntary organisations, and both must be informed by a similar approach to social problems. A continuing partnership between the two constitutes the essence of democratic planning. This scheme of partnership has to be worked out for urban areas as well as for rural areas and with reference to each specific field of social work. Problems which arise at the level of the community cannot be resolved by any public agency working alone. Therefore, it becomes necessary to find ways of securing co-ordinated action on the part of a number of agencies functioning on behalf of the State and local authorities along with the efforts of voluntary organisations. Again, it would be an error to think of voluntary organisations as comprising only social service agencies as such. There is considerable scope for professional associations such as those formed by lawyers, doctors, accountants, teachers and others to join together and participate in the constructive work of the community. Similarly, the enormous possibilities of action by trade unions by way of education and other forms of public service as part of a wider scheme of social work have been scarcely realised. Universities and educational institutions in the country too have important extension and community action to undertake. Thus, within each community there can be a continuously expanding area of partnership in social work, in which State and municipal agencies as well as a wide range of other organisations can co-operate in the work of the community. In such a context, opportunities for fruitful work by trained social workers will be virtually unlimited.

Growth in Training Facilities

The pool of trained manpower and its growth potential can be much larger than is generally realised. One of the most impressive features of development under the Five Year Plans has been the expansion of facilities for training in different fields. The programme of Community Development in rural areas called for increase on an unprecedented scale of facilities for training village level workers and of agricultural, co-operative and other personnel. Schools of Social Work in different parts of the country are now one of the most valuable sources for securing men and women trained in the skills and attitudes of social work. Rural Institutes, which have come into existence during the past ten years, have also considerable potential for personnel trained for social service in rural areas as well as for providing rural engineering services. In the rural areas, in particular, there is increasing need for combined working by those possessing technical skills and social skills. It might well be that if programmes of development for Schools of Social Work and for Rural Institutes were viewed together in relation to the various kinds of personnel needed for major national tasks, there would

From an address at the Delhi School of Social Work, University of Delhi.

be scope for a larger measure of specialisation as well as for wider opportunities of employment for the products of both sets of institutions.

On the whole, formidable as our economic problems are, the lags in the area of social planning have been greater. We have not yet gone much beyond the provision of elementary education, health and other social services. Even in many of these the gaps are still exceedingly large. The resources devoted to these services could perhaps be made to yield larger benefits to the community than they do at present. In any event, it is inevitable that the greater part of the energies of agencies functioning under State and local authorities should be utilised in the expansion of basic services. In other fields the role which these agencies can fulfil most effectively is that of overall planning, promotion, and civic support. The line of demarcation between the responsibilities of State and local authorities and of various voluntary bodies will vary in different areas, according to the state of readiness and the nature of the tasks to be carried out. But the central condition for success is the acceptance by both groups of institutions of the principle of partnership and of the need to make this partnership creative, lasting and flexible.

In this connection it is useful to remember that we have so far concerned ourselves only with the comparatively simpler problems. Once we decide on taking up in a big way such major tasks as work among women and children in rural areas, provision of supplementary and prevocational education for boys and girls beyond the age of 11 and for rural youth, programmes for the utilisation of our vast untapped rural manpower resources, rural housing and transformation of the rural environment, provision of housing and basic amenities for the urban poor, improvement and clearance of slums and other similar tasks, the resources of State and local authorities in men and organisations, even more than in finance, will be utterly inadequate. Unless they are supplemented on a large and rapidly growing scale, these tasks may prove to be well beyond our capacity to execute.

Compared to a decade ago, we have now much greater understanding of our social problems. A considerable amount of social research has been undertaken by scholars in the Schools of Social Work, in the universities and elsewhere. A great deal of precious experience has been gained, but it needs to be sifted and systematised more carefully than has been attempted so far. It is possible rapidly to accelerate our efforts in the solution of problems with which we are now fairly familiar. Many important conclusions based on study and experience are readily at hand. These can be woven successfully into the fabric of social action. There are other areas in which, through pilot projects, the main problems can be speedily identified and solutions found and applied more extensively. In whatever tasks the country takes up in the coming years, there will beever increasing need for men and women with an innate grasp of the social problem, able to feel one with the under-privileged, to work with the people and to help the community to bring out its best.

INDUSTRIAL CONCENTRATION

(*Continued from Page 7*)

can now be better controlled, the industry is capable of being dispersed from these traditional locations.

Paper and pulp: Pulp manufacturing facilities will have to be set up in the vicinity of the raw material sources, namely forests or sugar mills which could make baggasse available in large quantities. Although integrated pulp and paper mills have certain advantages, it is possible to set up paper mills separately fed with pulp from the central pulp factories. To a certain extent, therefore, there is scope for dispersal of paper factories.

Heavy engineering industries are a group that lends itself to greater dispersal because of the policy of equalised prices for steel and pig iron. Steel and pig iron are sold at the same price whether next to the steel plants or in far-off places. Because of this, dispersal and growth of industries has been taking place in areas such as Punjab, Maharashtra and Madras which are far away from steel production centres, and Government finds it possible to set up heavy engineering industries in places like Bhopal, Tiruchirapalli and Hardwar.

However, for the setting up of new industries, major economic factors such as availability of cheap power, transport of raw materials, and the ability to dispose of the manufactured goods without unduly long haulage may have to play an important role. It should be possible to have a list of suitable locations for each State which may be considered at the time of deciding on the location of new public sector units and their economies should be worked out in detail for such locations.

SUPERIOR STRAINS OF BAJRA & GRASS

THE Indian Agriculture Research Institute, Delhi has evolved three new hybrids for cultivation by farmers. They are (1) hybrid Bajra No. 1, (2) Pusa Giant Napier grass and (3) Pusa giant Berseem. All these have now been released for the the public.

The Bajra hybrid yields 100 per cent more grain and 30 per cent more fodder than the best varieties presently available in the country. It also resists disease and adapts itself to different climates and conditions from Punjab to Madras. It yielded 3,000 kilograms per hectare even during an adverse season.

The Giant Napier grass, a hybrid of elephant grass and Bajra, can yield one lakh kilograms of green fodder per hectare every year and is the most productive variety of grass. With proper irrigation and manuring, it can be cut once every month. It can grow in all States of the country. It has a rich protein and sugar content.

The giant Berseem yields 20 to 30 per cent more fodder than the varieties under cultivation.

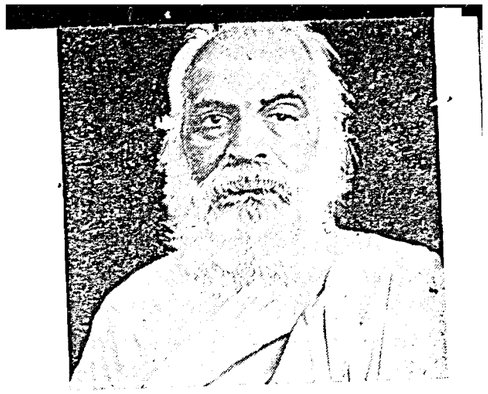
SOUNDS SIMPLE, IS SIMPLE

If every one of the nine crore Indian families started putting by one paisa a day, the savings would total to Rs. 165 crore in five years, nearly enough to build another Bhakra project.

ome Reminiscences
f Vithalbhai Patel

The Mischievous President

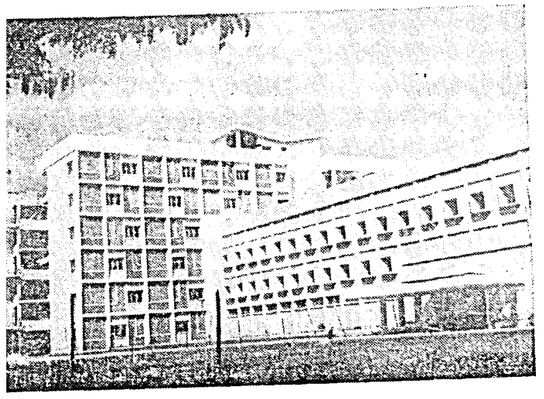
G. N. ACHARYA



THE Mahatma was the sun. Moving around in his orbit was a galaxy of men and women. Some hone like planets; others twinkled like stars. Among hem, within the orbit but not too close, was Vithalbhai Patel. He was the laughing star.

Gandhiji himself had a puckish sense of humour, iomely and kind. The Nehrus, father and son, could laugh spontaneously. Sarojini Naidu's zest for life was boundless. Barring such exceptions, most of the leading lights of the galaxy were earnest men who took themselves and their work seriously. They were filled with a sense of mission; they were discharging a solemn duty.

Vithalbhai Patel stood apart. He was an iconoclast, a non-conformist, a fierce individualist, a man who loved fun. Like his younger brother, the redoubtable Sardar, he had a tongue with a tang; and excelled in sarcasm. But unlike him, he was irreverent. He was not too bound by the magic spell of the Mahatma.



The newly opened building in New Delhi which houses a club and hostel for members of Parliament. It is named after Vithalbhai patel.

Vithalbhai had a penchant for mischief—in the best sense of the word. It could be said of him, as of the British hero, Hampden, that "he had a head to contrive, a tongue to persuade, and a hand to execute any mischief". The British bureaucrats, against whom he fought a continuous battle of wits, never quite got the measure of "the bearded bounder" as they superciliously referred to him. He had the last laugh—almost always.

He made no secret of his philosophy. Explaining his attitude to Civil Disobedience at a public meeting at Nadiad, he said: "I do not know how to win by love, nor am I Mahatma. I am a man who would embarrass, corner and then harass the opponent. So long as that does not happen, I am not at ease, and not to allow the government to have undisturbed sleep—that is the religion I believe in." (Formal English translation of Gujarati original).

When he contested a seat in the Central Legislative Assembly, Vithalbhai announced, in the very first sentence of his election manifesto, that he intended to "endeavour to the best of my capacity to embarrass and to obstruct the bureaucracy by all peaceful means, by all legitimate means, until and unless the national demands are conceded to the satisfaction of the Indian National Congress". When in his speech on the budget in 1924, he quoted this statement, another nationalist member, Mr Jamnadas Mehta, interjected: "At every stage and at every step". Vithalbhai readily accepted the addition.

His principal weapon was ridicule. The method devised could be simple or elaborate, but the end was always the same. There is a custom among pious Hindus of interspersing conversation with the name of a deity: "*Rama, Rama*," or "*Narayana, Narayana*". It could stand for a variety of feelings. It could be like the British interjection: "Oh, my Lord." or "Save my soul". Often it implies disbelief of what is said.

With Vithalbhai, his "*Narayana, Narayana*", almost became a political argument. At a farewell reception to Lord Reading when the retiring Viceroy had spoken in solemn terms of his love for India, Vithalbhai, who as President of the Legislative Assembly was occupying a prominent position, murmured, "*Narayana, Narayana*".

Every Hindu in the audience automatically broke into laughter. His Excellency wanted to know what the Hon. President had said. With a poker face, the Hon. President informed his Lordship that it was a Hindu

custom occasionally to recite the name of a deity. What was there in it to make them laugh? The British could really never fathom these inscrutable Hindus.

King and Khadi

But the British had their rituals too, called custom or protocol. Vithalbhai had to learn them the unpleasant way; but used them with effect. In the spring of 1927, he visited Britain to study parliamentary procedures. Lord Birkenhead was the Secretary of State for India. Protocol did not permit the Secretary to take note of the visitor till the visitor had formally "called" on him. But apparently the same kind of protocol did not apply to His Majesty the King. Vithalbhai, resplendent in his Khaddar dhoti and Gandhi cap, was received by King George V at Buckingham Palace on May 25.

His clothes were like a challenging political manifesto. King George was known for his kindness, courtesy and informality. What was to be a ten-minute formal visit extended to a political discussion of what Khaddar and Gandhi meant to India. The King was so interested at what Vithalbhai Patel told him that he wanted to know why he had not placed these thoughts before the Ministers. An interview with Birkenhead was arranged forthwith.

Birkenhead took to his visitor, who, however, refused to forget the "valuable lesson" in courtesy he had been given. The Simon Commission came to India next February. While all the high and mighty called on Sir John, the Assembly President would not. To inquirers, he made discreet references to the Birkenhead episode. The Government changed the Order of Precedence, putting the Chairman and members of the Commission above the Assembly President and pointedly brought it to his notice. "How does it concern me?" he asked, and added that it only proved the Nationalist contention that "the Royal Commission is but a part of the Government of India."

He resisted all attempts to arrange for the visit of Sir John and his colleagues to the Assembly Chamber. No passes were to be issued without his knowledge. The Viceroy, Lord Irwin, had to intervene to break the deadlock and sent Sir John to call on the President. But when he came, the President was in his bath, and there was nobody around at home except a *chaprasi* who knew no English.

After that Vithalbhai invited Sir John to tea and cordially invited him to sit in the President's gallery. Each of Sir John's colleagues had to call on the President and personally receive their invitations. This was, of course, Vithalbhai's minor, private war. More formally, the Assembly had already debated the Commission and refused its co-operation. But this was like the pickle that went with the main dish; and Vithalbhai relished his pickles.

When Vithalbhai was elected the first Indian President of the Legislative Assembly, he was asked how he would function. The Congress historian records that, "with his wonted wink in the eye and mischievous smile on his lips", he replied: "Just as I have done the duties of the President of the Bombay Corporation".

The year 1924-25, when Vithalbhai was President, was is the high-water mark in civic life. Earlier, the Congress, while boycotting the legislatures, had exempted the local bodies. That year, Sardar Patel was president at Ahmedabad, Pandit Jawaharlal Nehru at Allahabad and Babu Rajendra Prasad at Patna. They were doing great work; but Vithalbhai's performance was unique.

He was elected President on April 3, 1914, resigned on December 5, the same year, and was re-elected on January 5 next year, after having presided over four meetings on the basis of being elected every day. The resignation was the result of his refusal to attend any function in connection with the visit of the Viceroy, Lord Reading. But the Corporation, in which the Nationalist Party did not have a majority, insisted he must, because such attendance was part of the duties of the President. So he resigned on grounds of conscience. But he was re-elected unanimously because, even the Municipal Commissioner, a British I.C.S. officer, whom Vithalbhai had often harried, had to admit that he had proved "an ideal president", despite his boycott of the Viceroy and the fact he had managed to get the Municipality to accord a civic reception (not as cheap then as it is now) to the arch rebel, Mahatma Gandhi.

A Dinner That Died

But he had his fun too. There was his crack at the European and Indian members in western clothes. Under the guise of improving seating arrangements, he proposed that all tables and chairs should be removed and that members should squat on Khaddar *durries* spread on the floor. The proposal was lost, but all Bombay laughed at the acrimonious debate it provoked.

Vithalbhai had better success with the custom of the President's dinner to the Governor. It was a costly affair and there was always an "abundant flow of choice wines". This President, who sometimes came to the Corporation in a tramcar, could not afford that luxury. So he had a resolution passed that no alcoholic drinks should be served on the Corporation floor. The upshot of it was, "no drinks, no dinner." The custom died, unrevived.

As President of the Assembly, Vithalbhai was responsible for deeply significant and nationally important decisions. He fought a valiant and unrelenting battle for the rights of the House and of its President. But he had his quota of leg-pulls. One of his victims was an "aristocratic supporter" of the Government. Mr Gordhanbhai I. Patel, from whose lengthy biography of Vithalbhai some of the incidents narrated in this article are taken, very charitably refuses to name the victim, though the incident itself is set out in detail.

In brief, Vithalbhai pretended to encourage this man to speak more often, and arranged to see that in the absence of his secretary, he was fed with a draft speech at the last minute. As he was rolling off the ponderously written anti-Government sentiments, the Nationalist members cheered. But Sir Alexander Muddiman, red in the face, drove the perplexed man into the Government lobby when it came to voting.

Instances could be multiplied; but it is not necessary. Vithalbhai Patel paid the price of his patriotism, as many of his few workers in the mighty cause of freedom did. But he made no long face about it. He enjoyed what he was doing. He made his sacrifices as many others did; but he refused to walk about disporting a halo of martyrdom. For him, it was all in the day's game.

Silent Revolution Takes Place In

NAGALAND

FILLIP TO EDUCATION AND AGRICULTURE



Judges at a Naga sports meet

P. B. BARTHAKUR

POLITICAL news from Nagaland gets a great deal of space but the big progress that the sixteenth State of India has been making in development activities does not seem to be widely known.

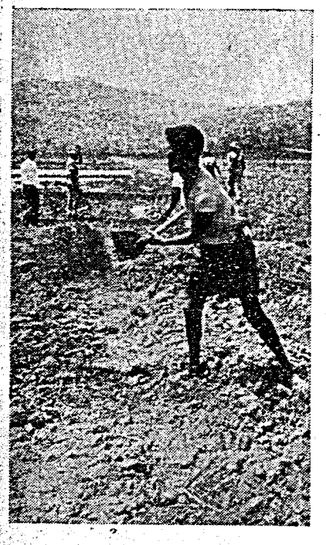
It was in 1957 that Nagaland became a separate entity, although it came into being as a full-fledged State only in 1963. The achievement in these eight years has been considerable, in spite of the attitude of a section of the Nagas, under the influence of the hostiles. Areas hitherto inaccessible have been opened up, good communications established, schools started, and health measures undertaken. Agriculturists have been receiving assistance of many kinds and there has been a rise in food grain production.

The Nagas' thirst for education is being increasingly satisfied. In 1957, there were only 328 lower primary schools in Nagaland. By 1960-61, another 130 schools had been added to the list. By last year the figure had grown by an additional 193, and before the close of the Third Five Year Plan, there will be 128 more primary schools. In 1963-64, there were 45,100 students in the primary schools, compared to 38,777 in 1960-61. The middle-school population was 9,346 in 1963-64, as against 6,573 in 1960-61. There are now 3,070 students in the high schools.

In order to induce more students to join schools, not only are books and tuition provided free, but in certain

areas free rations are also given to students in hostels. Before 1957 several hundred students had to go to Sibsagar down the hills for education. Now education is taken to their door.

Communications are generally a most baffling problem in all hill regions, and they are specially so in north-east India. Yet it is remarkable that Nagaland has made great headway within a short time. There were hardly 320 kilometres of motorable roads in the State before 1957; they have now has risen to 2,240 kilometres, which include 103 kilometres of national highway. A sum of Rs 2.8 crore has been spent on road-building during the past seven years and Rs 1.4 crore more will





Left : Farmers preparing the land for the next paddy season. Above : Children at a school in Kohima.

be spent in the remaining period of the Third Plan.

Five new hospitals were opened between 1961 and 1964 and six more will be opened during the Third Plan period. There will also be a tuberculosis hospital and nine dispensaries. Provision of good water supply is receiving special attention.

As in the rest of the country, Nagaland's development programme places emphasis on food production. Schemes for agricultural development in the hills generally take the form of popularising the system of terraced cultivation. More than 2,000 hectares (about 5,000 acres) of land were reclaimed between 1957 and 1960 and 3,000 hectares between 1961 and 1964. Agriculture officials of the State hope to reclaim a further 7,000 hectares, bringing the total area reclaimed to over 12,000 hectares. Water for irrigation is also being made available to the cultivators in increasing measure.

Distribution of better seeds to the cultivator, opening of seed farms, supply of fertiliser and improved agricultural implements are some of the other programmes of the States' Agriculture Department. Officials are also now working on a plan for starting a fruit preservation factory. An agricultural research farm and horticultural research farms will also soon come up.



Young Nagas undergo training in the National Cadet Corps

EMPHASIS ON ENLARGING FARM LANDS AND FORESTS

Luxuriant forests add to Nagaland's beauty and are also a source of great revenue. Proper harnessing of forest resources would bring about prosperity to the people. Forestry, however, is new to Nagaland, though in the initial years, some measure of success has been achieved. Practices in good forestry have been initiated. Afforestation of economic trees has started. More than 400 hectares were brought under economic plantation between 1957 and 1960 and about 160 hectares between 1961 and 1964. Another 100 hectares are likely to come under economic cultivation till 1966. The possibilities of promoting forest industries by installing a seasoning and treatment plant are being studied.



Officials inspect an irrigation canal at Jharnapani



A scene from a Naga village

Naga handicrafts are lovely and cheap and have great market in cities like Calcutta and Delhi where it has become a fashion to sport a Naga necktie or a Naga Shawl. A number of cottage industries centres and training schools have been set up in Nagaland recently. Sales emporia have also sprung up. It is interesting to note that large numbers of Naga young men and women are coming forward to be trained in weaving and embroidery work; some of them are from Assam. Tuensang, Mon, Dimapur and Kohima are some of the centres of production for beautiful Naga handicrafts. At Dimapur, there are as many as six cottage industries centres, where hundreds of lovely things

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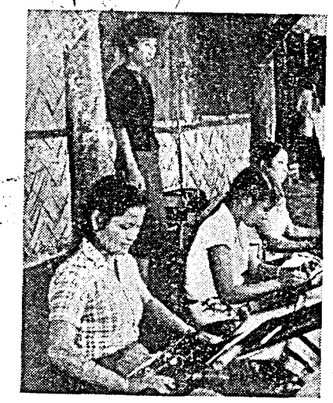


shawls, spears, *daos* and carved wood articles are produced. At Kohima there is now a polytechnic, where boys and girls are being trained in blacksmithy, tailoring, carpentry, paper-making and the like. Some study further to become skilled technicians such as electricians, draughtsmen and overseers.

To encourage and popularise cottage industries products, the Nagaland Government has organised a number of exhibitions at various district headquarters of the State. Nagaland has also participated in all-India exhibitions.

Thus, despite political discord, Nagaland has achieved a large measure of progress, and become a full partner in India's historic march to progress and prosperity.

Above: Rengma girls pounding rice in the traditional way. Below : Naga women weavers at the Cottage Industries Centre, Dimapur



QUOTATION BOX

There is a great demand for Pakistani bulls in China.

—"The Times of India"

I felt sad when I found people in our country more and more aid- and loan-minded. We seem to have reached a stage when we are unable to think about anything but outside help.

—Mrs Vijayalakshmi Pandit

Dear leaders, please don't trouble us for another five years. Whoever wins, please rule for five years.

—Found on a piece of paper dropped in a Kerala ballot box

Strikes by doctors is a symptom of poor mental health.

—Dr Sushila Nayar

It was a typing error. In the resettlement orders (of the Delhi Administration) the first digit in 1,400 (the number of families intended to be resettled) was missing. Consequently, arrangements were made only for 400 families.

—A report in "The Hindustan Times"

Like Mr Nehru, Mr Gulbenkian went to Harrow. Just think what both of them might have been without this disability! Mr Nehru a Mao tse tung, perhaps; Mr Gulbenkian a Mikoyan.

—Mr Malcolm Muggeridge in the "Observer" Week-end Review, London

India might not need a Food Minister if she produced wheat of the variety which I saw at the experimental farm of the Punjab Agricultural University.

—Mr C. Subramaniam

His (Mr Lal Bahadur Shastri's) is the constitutional role of 'first among equals, and the excessive modesty to which he is prone reduces even that fragile formula to equal among equals.

—Mr Frank Moraes

Co-operatives in general have now become largely a means for the well-to-do to appropriate to themselves all the facilities provided by the development programmes at subsidised rates.

—Dr K. N. Raj

As long as the country has a large surplus cattle population, our carnivora will not be seriously threatened.

—Letter to the Editor in "The Statesman"

From Washington through Whitehall to South Block, techniques have by now been perfected of so presenting a case to a President or Minister as to make it virtually impossible for the latter to arrive at any decision other than that suggested by the bureaucracy which is fast learning the usefulness of "experts" or "specialists" in strengthening its case.

—Mr Niranjan Majumdar in "The Statesman"

This country is as much mine, Frank Anthony's, Minoo Masani's as of Guru Golwalkar.

—Mr Ansar Harvani, M.P.

But is there any urgency to have an official language for the country?

—From a letter in "The Radical Humanist"

Let us hope that it does not mean reducing Sikhs and Scotsmen to the lowest common multiple or highest common factor (I can never recall which is which). The great and unique quality of the English attitude at its best is that Englishmen have no desire to see outsiders within their midst conform to their own shibboleths.

—Professor Hugh Tinker in a letter to the Editor, "The Times," London

The Government does not accept black flag demonstration as a right.

—The Madras Chief Minister

Ideas just don't come in committee.

—Picture caption in "Christian Science Monitor"

It happens very often that while certain scenes of films have been found to be indecent and cut by the Censors, posters depicting those scenes find their way to the walls.

—Letter to the Editor in "The Hindu"

Figuring It Out

IT is said a bank clerk can count a million rupees without knowing what a million rupees are. We all reel off large figures without realising their true implication. Now and then a good scientist or teacher provides the clue.

One of them talked on the B.B.C. recently on the age of the earth. He traced the history of the various theories and explained how the figure, generally agreed now, 4,500,000,000 years, was arrived at.

To enable the lay reader to grasp what four and a half billion years are, the scientist gave a simple measuring scale. Suppose the world was created exactly 24 hours ago, then the first apes came on the earth 20 seconds ago, and the first true men were seen only 2 seconds ago. Indeed the ice age ended not 10,000 years but only one-fifth of a second ago. On the same scale, the Battle of Hastings (or Ghazni Muhammad's expeditions in our own country) took place only one-fiftieth of a second ago.

The Fourth Plan outlay is to be between 21,000 and 22,000 crore rupees. What a large sum, we all say. It is certainly huge. It means spending almost 50 rupees per Indian over five years—or ten rupees per head per year or a little under three paise per person per day—something like giving half a banana to everyone every morning!

A Way To Learn Sanskrit

The popular game of junior government servants in Delhi now-a-days is to collect Hindi equivalents. So many of them have made their appearance in office corridors in the last few weeks.

In one large office the changeover (or non-changeover, if you will have it that way) on January 26 was signalised by the painting of the word "shauchalaya" in Nagari on every door which carried the label "Toilet". The words "Men" and "Ladies", however, were not translated.

Another office was more thorough. The Reference and Study Room of its Library became, simultaneously *anusandhan evam adhyayan kaksh*. This sort of thing is good. Because Hindi speakers can know what the Sanskrit words mean by looking at the English board.

Some government offices, of course, have long followed the practice of giving the familiar and the unfamiliar—the first in English and the second in Hindi. All India Radio has long had a *sahayak parivahana parivekshaka* (assistant transport superintendent). In the AIR's headquarters a unit is called *Ekansh* on the wrong mathematical reasoning of units, tens in hundreds.

There have also been some happy equivalents. The accounts branch of an office has been described as *lekha shakha*, taking the distaste out, and somewhat facilely suggesting that all that the accounts people do is to just write.

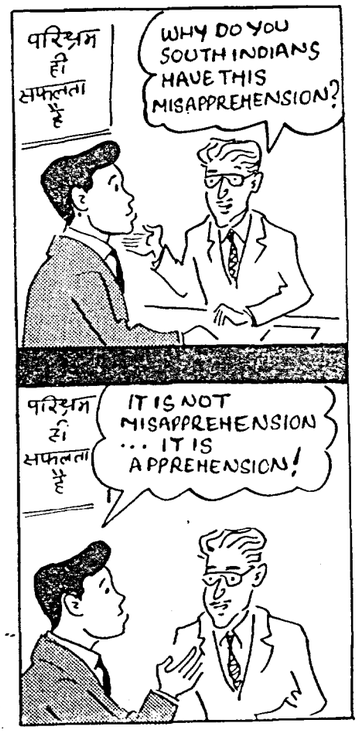
A wag in the Civil Aviation Department suggests that an apt rendering of air hostess would be *gagan sakhi*. That would carry a suggestion that the traveller by Air India or Indian Airlines would be *gagan sukhi*.

Until this year Hindi bulletins of All India Radio rendered Budget as *anumana patra*. In the southern languages this had an ominous ring, for the Sanskrit word *anuman* is understood there not in its logical connotation of 'inference' but as suspicion. In the absence of the English word, the Andhra or Kannada man would have understood the formidably respectable document as suspect.

This 'official' and 'associate' business has an interesting story. A visitor to Yojana Bhawan was asked whether he would have tea or coffee. And he answered: "I suppose I have to have, on conscientious grounds, both the official drink and the associate drink."

Reverting to Hindi equivalents, we must say the officially accepted list is not altogether exact. The most tricky of all notings on an official file is the one saying "Please discuss". The suggested Hindi equivalent is *aaiyen, charchaa karen*. What "Please discuss" really means is "come and listen to something I have to say which I don't want to note down." *Charchaa* suggests an equality between the participants which is somewhat alien to governmental procedures.

SHAMBU **by Malinda Topa**





IGNORAMAN

Wants to Know

If Moorkha Maha Sammelan was started by politicians or their followers.

Books

Managing Public Sector Enterprises

Management and Control in Public Enterprise by S.S. Khera. Asia Publishing House. 270+xiv pages. Rs. 16.

V.V. Ramanadham

THIS is an abbreviated version of Mr. S.S. Khera's book entitled *Government in Business* published in 1963. It includes a lot of expertly collected material on what happens *within* a public enterprise in India—an aspect which is nearly left out of most other books on the subject. The author is at an advantage in covering it, by virtue of his long experience in the field of public enterprise in several capacities.

The approach on which the author has laid particular emphasis is that one must have an adequate knowledge of "the total conjuncture in which managements are established and in which they function". Without this knowledge, one leads oneself into strange conclusions that lack the right perspective. Many of the narrations that the author has made of events as they occurred indicate the diversity of experiment that has taken place in the public sector in India in the context of organisation, the constitution of managerial boards, the participation of States along with the Centre in joint enterprises, etc. One of the interesting lessons that emerge from the book is that it will be purposeful to assess the many events of management and control in public enterprise in India over the recent years in the context of the composite picture of what they add up to.

An example of the skilful presentation of data, rich in accuracy and relevance, with which the book is replete, is Chapter 4 relating to some boards of management. Equally informative and uncommonly fresh in coverage is the chapter devoted to management at work. The comments on delegation and accountability, contained in Chapter 10, have the rare merit of emerging from an intensive experience which the author has subjected to useful analysis for communication to a wider public.

Apart from being a valuable addition to the literature on the Indian public sector, the book undoubtedly contains information that most other writers are unlikely to be in a position to have or reveal. For instance, it is not easy, but it is essential to get such facts as are cited on page 66 of the book as regards the committee of management in Hindustan Machine Tools which was "simply put to sleep", on page 110 regarding the product mix of the same enterprise, and on page 213 pertaining to the attitudes of certain managing directors in practice. The commendableness of the book rests, further, on its strong suggestion of the possibility of developing case studies revolving round events of which Mr. Khera has given plentiful illustration in the book.

POVERTY AND FARMING

India's Poverty and its Solution by Charan Singh (Second Revised Edition 1964). Asia Publishing House. 527 pages. Rs 26.

Sunil Guha

WHEN the first edition of Mr Charan Singh's book appeared in the wake of the Nagpur Resolution of the Indian National Congress on joint co-operative farming under the title "Joint Farming X-Rayed: The Problem and Its Solution", it caused quite a flutter and set many advocates of joint farming thinking. He brought to bear on his book his profound knowledge of economics and wide prac perience as U.P.'s Agricultur er, opposed the Nagpur R tooth and nail and conten peasant farming, as was i in most parts of the countr alone deliver the goods. revised edition the author h some new evidence to the la of supporting data he hac marshalled and has re-writt of the Chapters.

Part I consists of ten short and deals with types of organisation, features of joint farming co-operative an tive farming, production of employment, equitable dist of wealth, making demo success, impracticability o scale farming etc. The mai developed through these ch that all our plans, schen projects have to be evaluate light of four basic consid namely (i) increase of total or production; (ii) elimina employment and underempl (iii) equitable distribution of and (iv) making democracy a In the light of these consid he concludes: "It is an ecor small farms operated by an if necessary, manual pow individually worked, with suc co-operatively linked with ea in all economic activities otl actual farming or productior will best answer our needs a our problems taken togethe

The author cites several i to prove his point that small l would yield better results t operatively organised large h the case of the Bhoodan Shrikant Apte of Rander ne who on a quarter acre of l achieved miracles (page-64 finding of a recent study in that the intensity of cropp creases with the increase in of farms (page-95), etc. It i ever, doubtful if the achieve a Krishi Pandit on a small l in a remote corner of the really reflects what every smal in the country can achieve ev good extension education. Si the failure of a certain sec farmers in Punjab or el holding large farms to achieve intensity in cropping does no arily prove that this is, or to be, the general tendency large farms. The real test

premacy of small peasant holdings uld seem to be the scope it offers r undertaking long-term "durable erations" which strengthen the ability of the farms.

In this connection, the reviewer tempted to quote the following om a study of the Village Volunteer orce and Defence Labour Bank nducted by the National Institute Community Development, ussorie, in November 1963:

"A large majority of the peasant ltivators and tenant cultivators ere neglecting long-term 'durable erations' like levelling, bunding, ainage etc., the former because of e diseconomies of tiny farms and e latter due to insecurity of tenure hich was still there in spite of land form legislation. Thus, the discentives of the present agrarian ructure and diseconomies of small ale farming proved to be a stumbng block for the small peasants and e tenant cultivators utilising the arious inputs of agriculture provided the Government. It was also ointed out how in many cases the nall farms had very little absorpon potential for productive utilisaon of additional labour force." age 129)

Part II, consisting of thirteen apters, deals with the possible olutions to the problem of unconomic holdings and overcrowding agriculture. In Chapter 12 the thor examines the scope of clamation, redistribution and nigration and concludes that the ope for these is extremely limited. he absence of any reference in is chapter to the prospects of gricultural colonisation in the ajasthan Canal area seems an portant omission.

That "a high average level of real come per head is usually associated ith a high proportion of the workg population engaged in secondary d tertiary industries, and with the ansfer of population away from rimary industry" is too well-known; d one wonders if all the data and atements quoted by the author in hapter 13 to establish the case for dustrialisation in India were really ecessary.

The theme of industrialism is eveloped in the next three chapters d the question is posed: "What n India do to industrialise with o colonies or dependencies to exloit and with relatively limited land resources?" By drawing attention to the Russian experience, the author seeks to refute the contention that economic and social progress in India can be accelerated by forced industrialisation and suggests, rightly, that in view of the basic realities of the Indian situation and because of the problem of technological time-preference, a decentralised cottage and small industries sector must be assigned a vital role in our scheme of planning.

A very significant paragraph in support of this approach which the author has quoted from Horace Belshaw is worth mentioning:

"Small-scale decentralised industries of low capital intensity dispersed in the countryside would be an organic growth at comparatively little cost. They will strengthen saving and investment motives, because concrete results of their frugality and investments will be there to be seen" (Page 295).

The author lays considerable stress on improving techniques: "The techniques of the handicrafts and small-scale industries will have to be continually improved, subject to the paramount considerations, first, that no unemployment is created and second, that there is greater production for the same amount of capital investment" (Page 311).

In Chapter 18 the author deals with the problem of attitudes and innovations and elaborates how economic development is as much a function of progressive attitudes and innovations as of capital investment. In this connection he cites the examples of Japan and Israel, where the high quality of the human material proved to be the key factor in economic developments.

In Chapters 19 to 21 the author has focussed attention on the need for strengthening Indian agriculture and outlined the measures which would make possible a breakthrough in our otherwise stagnant agriculture. From the point of view of logical presentation, these chapters should perhaps have fitted better between Chapters 12 and 13. Also, the duplicated reference to the Nagpur resolution on co-operatives and the author's views on joint co-perative farming again in Chapter 20 could perhaps have been avoided.

The last two chapters are devoted to the problem of population and the need for its control. The old, familiar arguments are repeated with as much force as the author could command and the conclusion is reached: "The problem that faces India is exceedingly difficult. There is no 'open sesame' that will work the magic." The gravity of the population problem could, perhaps, have been presented in its proper perspective in the chapter "Need for Population Control" with the following brilliant observation of Elmer Pendell which the author has quoted elsewhere in the book:

"Most human beings are, in net effect, the opposite of helpful. A resource is a basis of benefits. When people are in excess numbers, any random portion of them is, for the rest of them, exactly the opposite of a basis of benefits. They constitute not a resource but a liability."

PUBLICATIONS RECEIVED

The President of Indian Republic by R.N. Misra. Published by Vora & Co. Bombay. 243 pages. Rs 15.

Economic Trends and Indications—A Perspective of the Fourth Plan, Vol. IV, by Bhikhalal Kapasi. 74 pages. Rs 5, $ 1.25, Sh. 9. *Economic Trends and Indications, Vol. V*, by Bhikhalal Kapasi. 31 pages Rs 7.50, $ 1.85, Sh. 14. Both published by Bhikhalal Kapasi, Chief Editor, Economic Trends and Indications, New Delhi.

Land Reforms in Uttar Pradesh by Singh and Misra. The Oxford Book Co., Calcutta. 262 pages. Rs 15.

Foreign Aid to India by Dr. Sudhakanta Misra. Published by Tirabhukti Publications, Allahabad. 72 pages. Rs 5.

Southern Economist, Vol. V Nos. 18-19 (Republic Day Number). Brought out by Southern Economist, Bangalore. 50 paise.

Fifty Years—The Cement Industry in India 1914-1964. Published by the Secretary, Cement Manufacturers' Association, Bombay. 87 pages.

Calcutta Productivity Council Newsletter Annual Number, 1964. Brought out by the Calcutta Productivity Council, Calcutta.

Community Development, Panchayati Raj and Sahakari Samaj by Rajeshwar Dayal. Published by Metropolitan Book Co. Pvt. Ltd., Delhi-6. 224 pages. Rs 10.

PANEL DISCUSSION

VOLUNTARY ACTION IN SOCIAL WELFARE

THE one theme that ran through the deliberations of the Planning Commission's Panels on Social Welfare and Backward Classes, which met in New Delhi recently, was the vital role of voluntary action in development and welfare. That such a role was emphasised in the context of welfare work for those sections of society who are living under serious economic and social disadvantages was only incidental. The main justification advanced for encouraging voluntary effort was based on the principle that voluntary participation in nation building activities was essential to keep the fountain-springs of a democratic system alive. The discussions did not, however, remain confined to a restatement of the first principles. Several suggestions were put forward on how best to translate in practice the policy of encouraging non-official participation. Considering that the meetings of the Panels were attended by Central and State Ministers and their senior officials, leading Members of Parliament and experts in social welfare, the consensus is likely to have some impact on the future course of action.

Need to Create Opportunities

The starting point was the assumption that men and women social workers, who were willing to give their time, talent and energy in the service of the community, were among the most precious resources available of a developing country. The vital task was to create conditions in which a growing number of such persons could get opportunities for creative and satisfying work. It was felt that disciplined service on the part of individuals and groups did much to foster the growth of leadership at all levels and to strengthen the community as a whole. Since one of the major aims of development planning was to enable each area and each community to solve its own urgent social problems and more especially to confine to ways and means of creating better living conditions for the weaker and the more vulnerable sections of the community, greater reliance on voluntary organisations was inevitable.

Proceeding on this agreed policy, the Panels emphasised the need for a clear demarcation of the responsibilities of Government agencies and voluntary organisations in the field of social welfare. They also called for a closer and continuous co-ordination between the State and voluntary organisations so as to avoid overlapping of effort and consequent wastage of resources.

Importance of Government Aid

The Panels also recommended that, in order to enable voluntary organisations to play their role more effectively Government assistance should be so regulated as to lessen their continuing anxiety to raise funds and to maintain competent and devoted workers on whom success depends. It was, therefore, suggested that apart from grants for specific projects and programmes, voluntary organisations, as a rule, should be aided in maintaining and developing their organisational structure with the help of trained workers. For this purpose, grants had to be both adequate and more continuous than had been possible in the past. It was agreed that in order to derive maximum advantage from Government agencies, great care would have to be taken in selecting the voluntary organisations. In order to avoid the growth of too many mushroom organisations, it was suggested that small local organisations should be encouraged to affiliate themselves or federate into larger organisations capable of providing specialised guidance and generally to make for steady and sound growth. It was hoped that in the measure in which voluntary organisations undertook responsibilities with Government assistance, extension of voluntary work in the field would not only make for economy but would also leave the personnel of Government more fre to attend to their administrativ tasks.

One of the practical suggestion made was about the establishment c volunteer bureaux or service centr so that men and women desirous c doing honorary work in their spar time would get the necessary in formation about the agencies throug which they could make their contri bution according to their interest and aptitudes.

An interesting aspect of the prc blems touched upon during the dis cussions was, what relationship shoul subsist between the panchayati ra institutions and voluntary organisa tions in the Community Develop ment Block areas. It was agree that they were not mutually exclu sive. The panchayati raj institutions even though they were conceive as people's associations, constitute the elected local self-government o the area. As such they not onl need not supplant voluntary organi sations but could in fact foster then so as to enrich and extend the deve lopment programmes within the juris diction of panchayati raj bodies.

An idea was also put forward tha educated youth should be drawn int constructive service for short, speci fic periods before they entered upo their regular careers. This shoul give them a creative outlet for thei idealism and the emotional satis faction of participating in the might enterprise of national development Further, as a result of direct asso ciation with the realities at the fiel level, they would be better equippe to start their own careers with proper perspective.

H.E.L. GENERATORS FOR POWER HOUSES

The Heavy Electricals, Bhopal has supplied four generating units o 10.6 MVA 11/132 KV each to th Assam State Electricity Board for th Umiam Barapani project. Of these one has already been commissione and the remaining three will b switched on shortly. Eight mor generator transformers are to b supplied to the Assam Electricit Board. Heavy Electricals has als received orders for supplying thre generating units of 60 mW each t the Punjab Electricity Board for th Pong hydro-electric power house

URGENT or ORDINARY?

SHEILA DHAR

"TRUNK booking?" the unseen voice shrieks urgently.

"No, no, no!" you say wearily. "Just me, trying to get through to Trunk Assistance myself".

The phrase 'trunks' falls upon the eardrum like an ill omen. It is menacing and pregnant with many meanings. One of the meanings appears to be that if you have booked a trunk call, you have signed your death warrant. The other is that you have made your bed and must now lie on it. There are more meanings, but all of them bear the same general tinge.

You have been keeping the dead black instrument company for three hours. But nothing happens. It does not even purr. And then your eyes light on the word Assistance. The three-digit number in red glows on the cover of the telephone directory like a beacon of hope.

"Ah yes, I shall cancel the thing", you say to yourself comfortingly. And it is now that the plot really thickens. How, for instance, will you cancel it? You need to get through to the deceptive "Yes, please" girl who now has the key to your life.

Yes, try dialling that number. Just try. No, it is not engaged. Rather, it is not *merely* engaged. It is a lot of other things as well. The first twenty-seven times, you do not even get beyond the first digit.

After dialling one digit you find yourself in communion with a hysterical voice. This voice accuses you of being Trunk Assistance. That is to say, this voice more or less takes the words out of your own mouth. You disconnect, and try again. Dial 'one', and again you are, not alone.

This time a harassed head of the family suspects you of being Allahabad University. You hotly deny this. The voice does not believe you for a moment and continues to press its suit. "Allahabad University? Hello, Hello, Hello, Halloa, Allahabad University? Hello—click, click, click, then a metallic shriek and once again—silence."

The twenty-eighth time you get two of the three digits. You are tired now, but you are not alone. You can hear kindred voices, splitting, breaking, anxious, shrill. You know that unseen hundreds share your fate.

I do not know whether telephone lines get jumbled or knotted up, or entangled or confused or worried or matted—or what. I have never physically noticed telephone lines. But some terrible fate obviously overwhelms telephone lines the moment they are touched.

It is a funny thing, but you never had any difficulty in *getting* trunk booking. The prompt voice at the official end was full of sweetness. In fact you recollect brightly that the voice had had a definite touch of 'come-into-my-parlour-said-the-spider-to-the-fly'. It all comes back to you now.

"Urgent or ordinary?" the girl's voice had cooed invitingly.

"Urgent" you had responded warmly, spontaneously, with the air of somebody giving a large donation.

You had given the particulars. She had presumably taken them down "Tikkilnumber geeforgolden threesenofor", the voice had barked drily at this point, giving up all further pretence. And then there had been that final click which cut you off from everything.

Three hours of waiting, of starting at every noise, of dialling the operator, claustrophobia and that choked feeling. The choice of possible activity, in all fairness to the situation, had been wide. You could bite your nails, or pace or fume.

If only you could get the operator and cancel this thing! Your mind reels at your helplessness. The voice of the operator haunts you. You are like a fly trying to crawl out of a dish of jam.

The thirty-fifth time it works! You get your three digits duly dialled. You get your operator on the line, and pour out your sorrows with a full heart. How could your urgent call not materialise even after three hours, when the line was in order you demand. Pat comes the retort "Complaint number off for faridabad, eeceeteenine" the girl snaps in parting. You will never, never hear her again. She goes out of your life, but soon somebody takes her place. Yet another voice, a fresh voice, presumably just beginning her eight-hour duty tells you cheerfully, "Sorry lines out of order".

POSTAL FACTS

There are now 92,000 post offices all over the country and over 84,000 of them are in rural areas. Of these 15,000 were opened in the past three years including 14,000 in rural areas.

Regular daily mail is delivered in about 3,00,000 villages. The number of 'No Dak Villages' has come down to only 230 from 3,000 at the beginning of the Third Plan.

The frequency of delivery of mails has been increased. Today only 61,000 villages get mail once a week in comparison to 73,000 such villages in 1961. The number of villages where mails are distributed at periods longer than once a week has also gone down to 7,000 from 14,000 in the past three years.

The Magic Wand for Efficiency in Output

OPERATIONAL RESEARCH

A FEW years ago, the railway station at Moghalsarai had developed a traffic bottleneck causing a good deal of inconvenience to the railway authorities as well as the users. Mr Jagjit Singh, a scientist, came to the rescue. He devised a simple method employing an additional shunting engine; it worked, and since then Moghalsarai has been having a smooth traffic movement.

Similarly the port of Bombay experienced a congestion of traffic. A number of ships carrying food awaited in a queue to be unloaded, resulting in heavy loss of time. Mr S.S. Khera, who was then Cabinet Secretary, evolved a method which helped quick unloading of ships and the congestion has since been removed.

The Bhilai steel works has adopted in its shops a technique by which certain work which normally took 30 days to finish is now done in only 10 days, resulting in twice as much additional output every month.

Every Device Is for A Specific Situation

These are a few instances to show how simple devices help to improve the efficiency in different kinds of establishments. But such devices or techniques are not always available ready at hand. They are evolved only after studying particular problems and the specific circumstances in which they occur. Every problem has its own peculiar characteristics and even the use of the best available machinery and equipment might not yield the desired results. The introduction of an apparently insignificant gadget, an unostentatious contraption, a simple formula or method might fit into a particular set of circumstances and set the whole machinery into proper working order as though by the touch of a magic wand.

The evolution of such new techniques and methods is a new branch of study and there is no end to new discoveries. This is what is known as Operational Research, and the innovations evolved have to be simple and economic. It is also necessary that these innovations have to be made available soon after the problem arises, so that output does not suffer. Simplicity and smartness are thus the essential characteristics of operational research.

Operational research is a very young branch of science. It came into prominence only during the Second World War to meet the needs of defence. Then it solved several problems such as those connected with the use of radar equipment, anti-aircraft guns and depth charges in submarine warfare. Operational research was first applied to defence matters by the Royal Air Force under the leadership of Prof P.M.S. Blackett at the beginning of the war and was soon taken up by all the British defence services. Probability techniques were used to determine optimal bombing patterns for mass raids, best methods for the employment of submarines, best deployment of guns and radar sets. It is no wonder that the science which thus proved its worth in the most trying situations of war should grow fast and spread into other fields.

Operational Research in India

India has played a pioneering role in the development of operational research. An operational research centre was set up in the Indian Air Force in 1943, with Mr I.H. Cole as its head. The Research and Development Organisation of the Defence Ministry has now different units doing operational research. They are: the Operational Research Group, the Mathamatics Division in the Defence Science Laboratory, the Weapons Evaluation Group, and the Institute of Work Study in Defence Science. In the civilian field, the Council of Scientific and Industrial Research (CSIR) has been doing operational research and its scientists also collaborate with defence scientists. The Indian Railways and some industrial concerns have also been conducting operational research in their respective fields.

In 1957, the Operational Research Society was set up to co-ordinate and bring together research workers in this field of science. The aim of the society is to ensure practical application and dissemination of the latest operational techniques. The society also brings out a journal to popularise operational research methods.

At present the operational research work in the country covers the fields of defence, railways, steel plants and administration and management. The application of transportation model and linear programming to solve certain problems of logistics and supply is the latest innovation in operational research by the defence services.

In the Field of Management

Lately, operational research is gaining ground in the fields of management, administration and programme planning, because it concerns itself with devising methods and techniques for efficient utilisation of men, money and materials. It helps achieve increase in production at less cost. In the beginning the operational research scientist was, in the words of Dr S. Bhagavantam, Scientific Adviser to the Minister of Defence, "an intellectual tool to help the military commander in the proper exercise of judgement and control"; now he has become a valuable asset to the administrator who is expected to take quick and correct decisions in complex situations. In the modern establishments, such as a major industrial project, various complicated factors are involved in taking a decision, and to take a correct assessment of all of them is often beyond the physical capacities of an individual. He therefore needs the help of experts who scientifically study the various technical factors, assess them in their proper perspective, evolve the most practical and economic alternatives and present an overall picture as briefly as possible. An operational research worker is such an aid to the executive. He, helps reduce considerably the possibility of an error of judgement. He also evolves the best methods of solving the problems.

There is a tendency in the industrial sector to over-accumulate inventories, thus blocking scarce materials which are badly needed for production. This results in the slowing down of production. Operational research helps to avoid such a wastage.

Mr Asoka Mehta, Deputy chairman, Planning Commission, announced at the recent symposium held in New Delhi that the Planning Commission had benefited by the results of operational research in the country and that at least four Major plants were being set up in the public sector with the help of operational research workers.

The operational research scientist is primarily a technical man. He works with formulae and graphs. He reduces the physical world to measurable quantities and mathematical models. Describing the methodology of an operational research scientist, Dr S. Bhagavantam says, "He can abstract the basic elements of tactical problems, of industrial problems, of economic problems and social problems, and formulate them so that they are amenable to known methods of attack and of solution. When the basic elements become too many for easy handling, he even devises methods of feeding them into computers and asking for possible solution at the output stage. Operational research study is the scientist's form of staff studies... If all the significant factors can be placed in the model, then and then only, does the result of the operational research study furnish the basis for action."

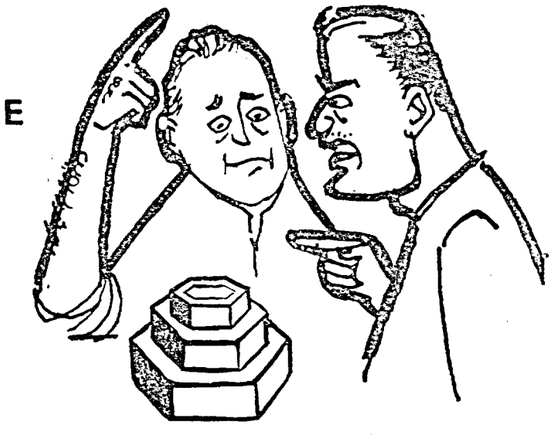
However, operational research study does not offer a complete solution to the problems of a decision maker. Mathematical techniques can produce solutions consistent only with the data put into the problem at the beginning. If incorrect data are fed in, the resulting solutions will also be incomplete. For making his solutions useful and effective, the operational research worker has to go to the field to study the problem on the spot and to build his mathematical models on the premises of the reality. Operational research thus introduces scientific method as an aid to human judgement.

The field and scope of operational research is widening. For instance, the recent symposium, organised jointly by the Defence Research and Development Organisation and the Operational Research Society of India, at Delhi last month, covered a wide range of subjects such as the optimum utilisation of equipment in the services, vehicular traffic congestion, market forecasting in chemical industry, maintenance of machines and rationalisation of office procedures. In view of its utility, this science needs for its growth and practical application a large band of scientific workers trained in its discipline. For this purpose, training centres have been set up at various places in the country.

CORRECTION

The author of the article 'Black Money, White Money', published in the Yojana issue of March 14, 1965, is Mr. R. D. Gupta, and not P. D. Gupta as printed. He is a lecturer in the post-graduate department of Economics, Government College, Ludhiana.

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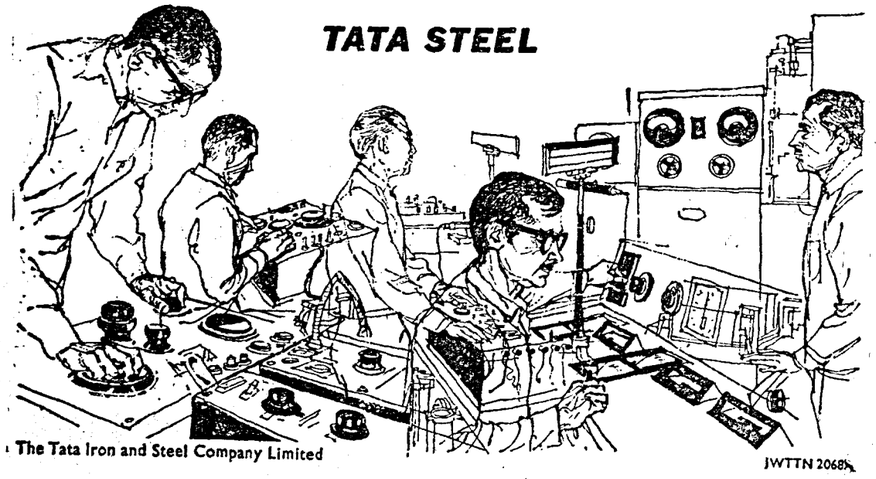
DA 64/31 2

Special steel for special tasks

In 1946, The Tata Iron and Steel Company started making dynamo grade electrical steel sheets on a commercial scale for the first time in India and are still the only manufacturers in the country. The indigenous production of these steel sheets, the basic raw material for the electrical industry, helped to bring about a phenomenal expansion of the fan and electric motor industries, and gave a fillip to the manufacture of switchgears, radio receivers, chokes for fluorescent lights, etc.

The manufacture of dynamo grade electrical steel sheets in India was made possible by the pioneering work done at the Research and Control Laboratories, Jamshedpur. Started in a small way in 1925, the Research and Control Laboratories today have three fully-equipped divisions—Chemical, Metallurgical and Refractories—where trained metallurgists carry on research on Indian steel-making materials, help meet operational problems and keep a check on the quality of the steel produced.

TATA STEEL



The Tata Iron and Steel Company Limited

JWTTN 2068

PILANI STARTS MAKING TV RECEIVERS

A PILOT plant to manufacture television receiving sets has been set up at Pilani (Rajasthan). Designed by the Central Electronics Research Institute, Pilani, the plant will reach its annual production capacity of 1,000 receivers within a year. The indigenous components in a set will be about 85 per cent. A receiving set is estimated to cost Rs 800.

The foreign exchange component for the manufacture of 1,000 sets would be Rs 1.50 lakh as against Rs 6 lakh, the full cost of 1,000 imported sets.

The institute will first produce 60 TV receiving sets to rent them out to television clubs and schools. The Institute will set up a servicing centre in Delhi to take care of the sets. A 43-centimeter set has already been tried and demonstrated.

The Institute has also developed electronic equipment such as flash tube, R.F. signal generator, digital frequency meter, transistorised voltage-regulated power supply unit, moving coil microphone, condenser microphone, sound level meter, diodes, five-band magnetrons, L-band parametric amplifier and microwave components.

Dhuvaran's Second Thermal Generator Commissioned

The Rs 30-crore Dhuvaran thermal power station, situated at the point where the Mahi river flows into the Gulf of Cambay, was formally inaugurated on March 6 by the Prime Minister when he commissioned the second thermo-generating set of 63.5 megawatts. The first was commissioned in December last.

Dhuvaran will supply 254 megawatt of power, raising Gujarat's capacity to 588 megawatts. The other two generating sets are expected to be commissioned by the end of this year.



MIG Planes to Be Made Next Year

India has received a dozen of MIG aircraft from the Soviet Union for defence purposes. Two more squadrons of improved version of MIG-21 will arrive in India by July.

The first phase of the manufacture of MIG aircraft in India will begin early next year with the assembly of parts received from the Soviet Union. The MIG project comprises three units to be set up at Koraput (Orissa), Nasik (Maharashtra) and Hyderabad. The Koraput and Nasik factories will build the engines and bodies and the Hyderabad factory will produce electronic equipment. The project will be completed in four stages in about four years. Indian MIG will be a modified version of the original MIG, incorporating the latest improvements.

PETRO-CHEMICALS TO BE SET UP IN FOUR CORNERS

Another complex of petro-chemical industriaes is soon to be set up near Bombay. One has already been planned around the Koyali refinery near Baroda. Two more such complexes, one in the east and the other in the south, are under consideration.

SOVIET SHEEP FOR JAIPUR

Twenty-five Russian Merino sheep —five rams and the rest ewes—have arrived at Mount Abu to help Indian experts to evolve an indigenous Merino breed. The sheep will be sent to the Jaipur sheep breeding station after acclimatisation at Abu.

Road Rollers Are Made In India

THE Garden Reach Workshops Limited, Calcutta, an undertaking of the Defence Ministry, which builds and repairs ships, has now begun to manufacture road rollers and portable air compressors required for building roads in the border areas. It is expected to manufacture 120 rollers in the next three years.

A prototype of the 8—10-tonne road roller was put on trial recently. The roller was powered by the Perkis diesel engine. All parts were manufactured indigenously and no imported component was used.

The GRW has already built a number of pontoons, port lighters, dock masters, launches, twin hull ferries and 200-tonne boats.

During 1963-64 the GRW carried out repairs to 570 ocean-going vessels. Major repair work was done in the case of the Indian Navy's 'Gomati' and Burma's 'Mayu'. The Indian dredger 'Cauvery' was also repaired.

The ship-building yard of the GRW is being modernised and expanded; obsolete machinery is being replaced.

The GRW made a profit of Rs 19.49 lakh on the total sale of Rs 181.86 lakh in 1963-64.

SNIPPETS

India's exports reached a record figure of Rs. 835 crore in 1964, showing an increase of Rs. 52 crore over the previous year.

Rupees 2.40 crore will be spent during 1965-66 to set up agriculture-based industries in 45 selected blocks in 15 States. In 1964-65, Rs 81 lakh were spent for this purpose.

The first two units of the Korba thermal power station being constructed in Madhya Pradesh are expected to be commissioned within a year. The Korba powerhouse will have four units of 50 mW each.

The revenue receipts of the Visakhapatnam port in 1963-64 amounted to Rs 216.96 lakh, an increase of Rs 32.28 lakh over that of the previous year. The port handled 18.49 lakh tonnes of imports and 16.72 lakh tonnes of exports.

A co-operative sugar mill will soon be set up in Kota district of Rajasthan at a cost of Rs 1.5 crore.

ROLE OF TEACHERS IN RURAL UPLIFT

His Status Must Be Improved if He Is to Be an Agent of Development

D. P. SETHI

OUR endeavour to bring about a revitalisation of villages rests on our faith in three basic institutions—the village panchayat, the village co-operative and the village school.

The panchayat is to be an agency with civic and development functions, the co-operative an instrument for economic growth and social change, and the village school an institution for enlightenment and cultural growth.

The other organisations we hope to have in the villages, such as *mahila mandals*, young farmers' clubs and even rural industrial units, are supposed to grow round these three basic institutions.

The village school, if it has to serve development, has not only to educate children but take care of the education of the rest of the community. It should help the village to understand that education has something concrete to contribute to its welfare; that the teacher is a useful person in the village; that he depends upon the community for his success; and that he, in co-operation with the community, can do a lot in village development. The school, thus, should develop into a central point of extension work and a centre for popularising innovations.

This idea has been accepted by almost all developing countries. *Our own Community Development programme has, from the very beginning, regarded the school teacher as a development worker at the village level as much as the Village Level Worker and Gram Sevika.*

The work of a teacher, it might be said, is to teach and no work should be given to him that will affect his primary duties. But the task before us is so huge that the teacher cannot but be drawn in. Further, a VLW is responsible for ten to twenty villages and he may not be able to give adequate attention to some villages which may be hard to reach, specially during the rainy season. Naturally, the help of the school teacher has to be enlisted.

This is all very well. But can the school-teacher play the part expected of him? *Looking at our village life, we can easily see that the school does not enjoy a place of respect in the village community.* Schools were grafted on to the village community by the foreign government or missionaries and they were built in accordance with the rulers' ideas of what was good for the people. Rarely did they organically grow from the community. In fact, the school supplanted the indigenous agencies of education.

The difficulties faced in enrolment, poor attendance and heavy wastage of pupils were only an index of the negative or indifferent attitude of people towards schools. So long as villagers remained unaffected by the changes in the larger society they did not value the school much. When education was found to be a passport to jobs, the rural people woke up a little, so as not to be left behind by city people. At best, the more enterprising looked upon schools as a means to individual betterment and escape from the poverty of rural life. *The relationship between education and the spread of new ideas for collective betterment was seldom realised or accepted.*

Although after Independence the attitude has undergone some change, the old ideas about the school, its functions and importance, persist. The villagers' attitude to the school-teacher has also not undergone a radical change. Their purpose in sending their children to school is strictly limited. What they want are salaried jobs for their children. To them a good school is one with 'good teachers', teachers who can get their children through their examinations. They are not bothered what he teachs their children. They do not expect the school and its teacher to concern themselves with the affairs of adults.

Thus, the villagers' conception of the role of the school is different from that of the planners. What shapes the role of the school and its teacher in the village community ultimately is the people's own purpose. *So long as the people do not value the school, the teacher cannot be an effective community worker.* The first need therefore is to get the people to value the school and its teacher as much as the planners value them.

An individual teacher may, here and there, become an excellent community worker, depending on his own attitude, his ability to work with people and, no less, his status in the village. Teachers have to be helped to develop these attitudes and skills. It is wrong to assume that every teacher appreciates the importance of his new role in the village.

The status enjoyed by the teacher at present varies from village to village and teacher to teacher. Some might regard him as a functionary; others might treat him as a person. In most cases his status as a teacher is very much determined by his status as a person, in terms of economic position, caste, age, etc. *The social structure of our villages is still hierarchical, and a teacher's place in this hierarchy determines his status and effectiveness as a community worker.*

A teacher belonging to the so-called low castes, working in a village where the people of a higher caste are in dominant position, may not be allowed to have any role in the community affairs. It is also important to note that village people associate high status with age and therefore a young teacher may not always be able to attain a high status in the community.

Thus we have to recognise that school-teachers have their own limitations in working as community educators and leaders. To be successful, they have to earn, through sincere efforts, a status for themselves in the community and the trust of the people. If they do not belong to the villages where they work, they should try to know the community and get themselves known to it.

Although our country has a number of selfless and devoted teachers working in villages, it cannot be denied that there are others who are not interested in their work and are even not qualified for it. This is perhaps due to the fact that the village school-teacher's job, as it is today, is not very attractive; very often, those who fail to get better jobs elsewhere go to villages as teachers.

Further, a well qualified town teacher, if posted in a backward area, would look upon it as punishment. Such a teacher is not likely to have much sympathy with the rural people. On the whole, village school-teachers are not happy and have little liking for their work. They have enough worries, the chief of them being how to augment their income. Those working in single-teacher schools are specially overburdened with work. How can they take on the additional load that working for the community involves?

The success or failure of the idea of associating the school and its teacher with development work in the village depends more on the factors listed above. Given all these, one more factor remains. If teachers have to work as community educators, along with other development workers, their role should be clearly defined. They should know what is required of them. Every new idea that comes cannot be put down on their plate.

With the teachers' role in development clearly outlined, they should be trained with development orientation. The people of villages, as well as administrators, must also be persuaded to change their attitude towards teachers.

NEW DEVICE TO BROADCAST FERTILISERS

A new mechanical device has been developed at the Agricultural Implements Workshop Thiruvayur, Tanjore District, which can broadcast fertilisers in paddy lands very effectively.

The gadget consists of a hopper and feeder-tubes mounted on a wooden float. Easy dispersal of the fertiliser is effected by the stirring action of a fluted rod passing through the hopper and manipulated by a handle. The openings in the hopper are controlled by a float operated by a lever. The fertiliser is allowed to drop in the small furrows formed by the boat-shaped furrow-openers fixed beneath the float.

The improved design with four tyres can be hauled by a pair of bullocks of average size. Yields can be improved by up to 20 per cent through this equipment.

ALL INDIA COMPETITION FOR PHOTOGRAPHS ON COMMUNITY DEVELOPMENT AND CO-OPERATION, 1965

Entries are invited for an All India Photographic Competition (black and white) on Community Development and Cooperation. The photographs should reflect the spirit and endeavour of the Community Development Programme in fields like Agriculture, Irrigation, Social Education, Rural Health, Women's & Children's programmes, Panchayats, Co-operatives, Schools, Rural Industries, etc.

Fourteen prizes will be offered for the selected entries as follows : First prize—Rs. 400. Second prize Rs. 250. Third prize—Rs. 200. Fourth prize—Rs. 150. 10 prizes—Rs. 75 each.

Two copies of each entry should be sent together with the negative. The photographs should be glossy prints of the size 10" × 12", suitable for reproduction. The prize-winning photographs and their negatives will become the property of the Government of India and the right to reproduce them in any manner and for any purpose shall vest with the Government of India. Each photograph should bear on the reverse the name and address of the competitor and detailed caption mentioning location, subject etc. (written in hand or typed on a separate piece of paper pasted on the back of the photograph). Any photograph or its negative entered for the competition irrespective of whether it has been awarded a prize or not, may also be used for putting up a Photographic Exhibition.

The photographs should be packed flat. The Government of India will not be responsible for their loss or damage.

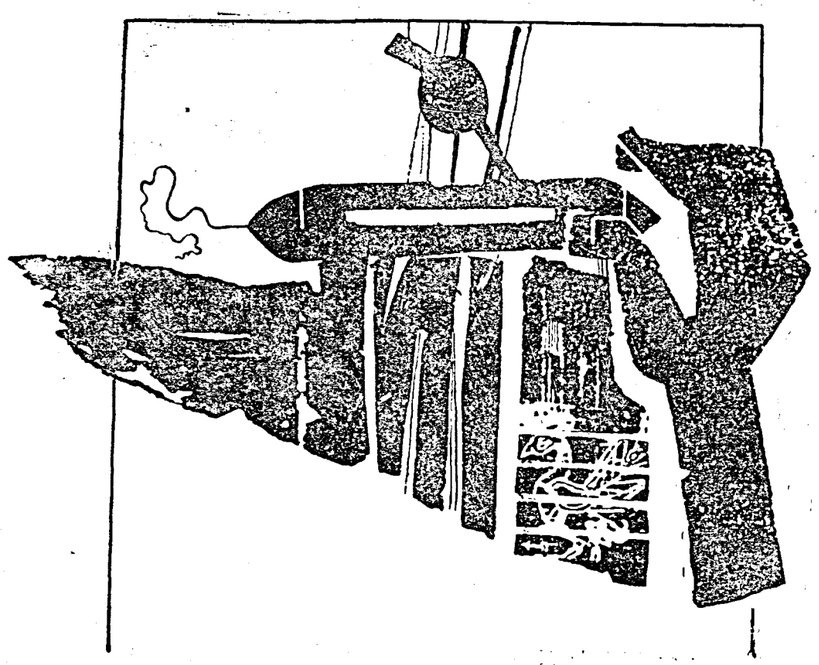
No person is eligible for more than one prize.

In all cases of dispute, the decision of the Government of India shall be final.

A. K. NARAYANAN, Section Officer (Publicity),
Ministry of Community Development & Co-operation, (Department of Community Development),
Room No. 372-A, Third Floor, Krishi Bhavan, New Delhi.

LAST DATE FOR ENTRIES : 1st JUNE, 1965

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WE YOU ASK US TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

PLAN STRATEGY

Prabhu Narayan Vidyarthi, Ranchi

1. Please explain the term 'strategy' as used in the context of planning.

2. How much amount of money is going to be spent in the Fourth Plan and where will it come from?

ANSWER 1: Strategy of planning may be defined as a policy or action which helps in the achievement of the desired objectives within a reasonably short period and with a minimum of cost. In the Third Five Year Plan, chapter II dealing with long-term economic development discusses various strategies which have been adopted for the successful implementation of the Third Plan.

ANSWER 2: The total Plan outlay of the Fourth Plan, according to the Memorandum, is estimated at Rs. 22,600 crore. The resources for financing the Plan will come from balances from current revenues, contribution of public enterprises, loans from the public including small savings, provident fund, etc., additional taxation and external assistance.

P & T Scholarships

R. N. Tiwari, Meerut

The Posts and Telegraphs Department gives scholarships to the children of its employees. Can you please give some more details about the scheme?

ANSWER: The scholarships are given to students to pursue higher technical education. The amount of scholarship is about Rs. 50 per month for four years. Two hundred scholarships are awarded every year.

The scheme was introduced in 1962 and so far 600 students have been awarded the scholarships. The annual expenditure to the Department amounts to Rs. 2.88 lakh.

Children of Class IV employees and Scheduled Castes and Scheduled Tribes employees are given special consideration in the selection.

Super Markets

K. K. Agarwal, Mandla (M.P.)

What is a Super Market? In what respects does it differ from an ordinary market? Are there such markets in India?

ANSWER: Super market relates to food retailing. In other words it is a grocery store. Basically the super market is a large volume operation carrying such a complete line of goods that the consumer can purchase all his needs at one store.

Super markets are very common in America, but modern super markets are yet to develop in India. Some stores in big cities like Delhi, Calcutta and Bombay resemble super markets.

Balanced Growth

K. T. Thimma Reddy, Mysore

Which technique—balanced, unbalanced or priority—has been adopted in formulating the Fourth Plan?

ANSWER: The main objective of the Five Year Plans is to ensure a balanced expansion of all our resources. In the course of drawing up the priorities of development, emphasis may be greater on one sector rather than on another; but this does not mean that the Plan follows the doctrine of 'Unbalanced Growth'.

Trade with ECAFE

B. Satyanarayan, Hyderabad

What was the proportion of India's trade—both exports and imports—with the ECAFE region at the end of each of the three Five-Year Plans and in 1963-64?

ANSWER: The share (in percentage) of India's trade with the ECAFE countries in the total Indian trade in the last year of each Plan and in 1963-64 was as follows:

Year	*Exports* (percentage)	*Imports* (percentage)
1950-51	23	17
1955-56	20	20
1960-61	22	19
1963-64	20	20

YOJANA BHAVAN DIARY

THE Planning Commission has set up a Panel on Social Welfare to advise the Commission on the formulation of programmes in the Fourth Plan. The first meeting of the Panel was held on March 7 under the chairmanship of Mr Tarlok Singh, Member, Planning Commission. The meeting was attended by Mr A.K. Sen, Minister of Law and Social Security, Mr S.K. Dey, Minister of Community Development and Co-operation, State Ministers in charge of social welfare from Mysore and West Bengal, leading social workers and Directors of Schools of Social Work.

The Panel set up four study groups to make detailed proposals for the social welfare programme in the Fourth Plan. The groups and their respective heads are: (1) Family and child welfare programmes—Mrs Achamma J. Mathai, Chairman, Central Social Welfare Board; (2) Voluntary organisations—Mrs Shiam Kumari Khan, M.P., (3) Beggary, vagrancy and juvenile delinquency—Mrs C. Chandrasekhar, Deputy Minister, Department of Social Security; and (4) Training and manpower plans—Prof S.N. Ranade, Principal, Delhi School of Social Work.

Prof. M.S. Thacker, Member, Planning Commission, is leaving on March 26 to attend the meeting of the United Nations Advisory Committee to the Economic and Social Council on the Application of Science and Technology to Development, to be held at Paris from March 28 to April 10.

Dr K.S. Rao, Joint Director, Central Statistical Organisation, has taken over the charge of the Planning and State Statistics Division from Dr S.G. Tiwari.

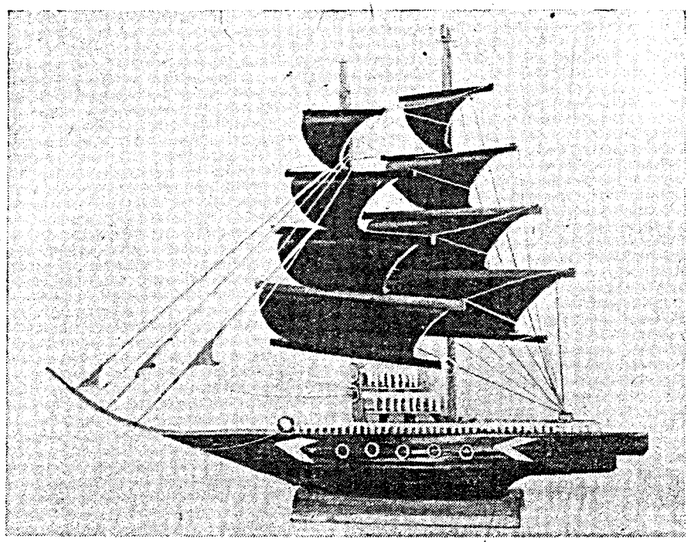
Mr B. Sitaraman joined the Training Division of the Central Statistical Organisation as Assistant Director on February 22.

Regd. No. D-876

PRIDE OF PLACE

III

Miniature Ships of Bengal



GUESS what the miniature ship, reproduced alongside, is made of. Wood? No. It is made of bamboo by craftsmen of Bengal. The keel, the mast and even the riggings are made from different parts of bamboo, and delicate fibres of green coconut have been used for the cords.

Bengal is a land of rivers, and throughout the ages boats have played an important part in the life of the Bengalis who have also been seafarers of note. For centuries Bengal ships carried religion, art and merchandise across the ocean to Japan, China and other countries. Tamralipti was one of the great ports of the world.

As Dr Radha Kumud Mookerji has pointed out, the numerous representations of ships found in the huge Borobodur temple in Java reveal the type of ships which the people of eastern India built and used. Down to the days of the John Company the merchant navies of Bengal did a flourishing trade.

The maritime traditions of the Bengalis are reflected in their literature and folk art. No ballads are so popular in Bengal as those giving accounts of the maritime adventures of merchants like Dhanapati, Srimanta and Chand Sadagara.

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APRIL 11, 1965

YOJANA

NTH YEAR 7

4 APR 1965



TOOLS FOR THE SURGEON

Pages 2—6

25 PAISE

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

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Although published on behalf of the Planning Commission by the Ministry of Information and Broadcasting, *Yojana* is not restricted to expressing the official point of view.

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COVER by T. S. Nagarajan shows Sivaraj (right) and Abubakar, two young technicians at the Surgical Instruments Factory, Madras, working on a unit of an air compressor (see pages 2-6)

NEXT FORTNIGHT

HEAVY BOILER FACTORY

Yojana Report

*

SCIENCE & AGRICULTURE

Letters

Economic Imbalances

A SMOOTH economic growth presupposes the maintenance of balance on many fronts. In a capitalist economy the tides are supposed to have full play. In a socialist economy the tides are sought to be shaped by planners. Ours is a mixed economy, which inherits the good as well as weak points of both.

Of the stresses in this system the best known is imbalance between agricultural growth and industrial growth. Agriculture in our country has failed to produce a marketable surplus on which the industrial workers can depend for their sustenance. We can neither postpone industrialisation until agricultural output registers an appreciable increase, nor continue industrialisation with a chronic food deficit for long.

The second imbalance stems from any possible wrong emphasis being put on either heavy industries or light industries. The amount of the additional purchasing power created by investment in heavy industries (after taking into account its full multiplier effect) should have some relation to the increase in the production of consumer goods and *vice versa*.

A third imbalancing force emanates from the field of education. Industrialisation brings in its trail a huge demand for technical personnel. Because of employment prospects in technical fields, students flock to science courses. Even those who do not have the necessary qualifications desire science education. This causes deterioration of standards and social friction.

A fourth imbalancing force operates in human motivations. Industrialisation involves a cultural change from spiritualism to materialism. The profit motive drives entrepreneurs to action. A materialistic outlook responds to incentives. Economic activity spreads and gets diversified with the advent of materialism. The urge to keep up with the Joneses becomes so acute that the distribution of the meagre resources of the economy gets distorted. Not all quality steel goes to the production of machine tools—a big slice of it also goes to the production of refrigerators and other household appliances which act as status symbols of a materialist life.

A rising standard of living is the mark of a progressive society. But as the unhealthy competition goes on in the field of conspicuous consumption, the society's propensity to save and conserve capital gets a setback. The aim often is to get rich quickly, by the shortest route possible, however mean, and keep pace with the snobs.

All these factors are at the root of our present-day troubles. Our success depends on our ability to remove, or at least moderate, the intensity of each of these forces without creating new ones.

Chandernagore. ASOK SOM

HURT ECONOMY

Lord Krishna taught Arjuna that the body is distinct from the soul. The people of our country should also be taught the distinction between languages and the economy. For every country the economy is more precious than the language. Disturbances in Madras State have hurt the economy of the country. The sufferers are the people.

Tanjore. R. V. IYER

ADULT LITERACY

THERE is nothing new in what children are doing in Maharashtra to spread literacy (*Yojana* March 14). Ask parents in any State, they will say that their children these days are teaching their parents lessons which they can hardly forget.

New Delhi P. K. BOSE

READER'S VERSE

Resolve the knots ! Work
with a will !
Glean lessons from defeat !
With grit, but cheer,
climb up your hill !
Let Him, the rest complete !

Chinsurah (W.B.) V.S.C.B.

NO NEED FOR APOLOGY

THERE is in the popular mind today an overhang of the sentiment which underlined the Mid-Term Appraisal of the Third Plan. Intentionally or unintentionally, much scrutiny has been done on the "failure" of the Third Plan in the recent past. Nearly all of the arguments used have been drawn from the shortfalls and weaknesses pointed out by the Planning Commission itself in its Appraisal of the first two years in the Third Plan. A touch of sophistication is then added by bringing in price increases, balance of payments difficulties, gestation lags and so forth in a manner that comes easily to the dilettanti. On this foundation of pessimism, further doses of the same mixture are added to paint a picture of current reality and future possibility in as dark a hue as possible.

Like many other lags that we should seek to shorten for the sake of speedier growth, this lag in the appreciation of current events also requires to be cut down. No economy remains the same year after year; and the Indian economy has certainly not stood still since the Mid-Term Appraisal. And yet statistics are picked out and observations made as though what was true of the first two years of the Third Plan is an adequate description of the state of the economy today. How, it is asked, can India ever reach the Third Plan targets when national income grows at no more than the growth of the population? Or again, when the Third Plan investments have given so low a rate of growth, what is the point in enlarging investment in the Fourth and subsequent Plans.

What indeed are the facts of the Indian economy at this point of time? It is of course true that national income as recorded in the official series—which incidentally, are generally accepted to be under-estimates—increased by about 5 per cent in the first two years of the Third Plan. But it is not true that thereafter the growth of national income has remained at the same low rate. In the third year of the current Plan, the increase in India's national income was between 4.5 and 5 per cent—that is to say nearly as much as in the first two years put together. And in the year that has just ended, viz. 1964-65, all the available information indicates an increase of the order of 7 per cent or so in national income. What has been realised in the first four years of the current Plan is therefore an 18 per cent increase in national income—and this is nothing to feel ashamed of either in comparison with the achievements during earlier Plan periods or in relation to growth rates attained by other countries in similar periods. If in the last year of the Third Plan, which has just begun, we try to maintain, if not improve upon, the performance of the last two years, we shall have secured over a five-year period an increase in national income of 24 to 25 per cent.

That is not all. As the American teen-ager would say, "a lag is a lag is a lag"—which is a picturesque way of emphasising that there is no lag which is endless. The lags that held up production in the initial years of the Third Plan have either ended or are about to end, in several specific cases. True enough, there will be others which have arisen since then; and in our impatience with all lags we forget the old ones that have run their time and concentrate only on the new ones. It is good that it should be so, inasmuch as the nation's betterment depends on a progressive shortening of the lag between investment effort and enjoyment of benefits. But it is also necessary to recognise that just as current investments will bear fruit some years later, current output increases will occur from investments undertaken some years ago.

A classic instance of this elementary fact is what has happened in the transport and power areas, since the Mid-Term Appraisal. We no longer talk about transport or power bottlenecks in the same sense in which we did in 1961-62. In much the same way, production in next year and the year after will very much be the consequence of what has been invested so far. More steel, more fertilisers, more aluminium and many other things will be available in larger quantities in the next two years; but more investment will also be undertaken in the next two years because of what we need in the latter part of the Fourth Plan. While we might quarrel as to how long or short the process of gestation of investment should be, we cannot make the lag vanish by the flourish of a magic wand. This is a fact of life in all countries and at all times. And the very desirable impatience that we should have for quick results should not blind us to the fact that not all of today's investment is meant for producing things today.

Our country, which has set itself the task of achieving in a few decades what was never attempted for centuries, has need to develop faith in itself. Others can help but cannot substitute the effort that we have to make ourselves. It serves little purpose in such a context to waste time in bemoaning temporary difficulties of the past—especially when so many new benefits have been garnered in the shape of real output as well as of experience. There is no reason for this country to feel apologetic about the actual growth over the past fifteen years.

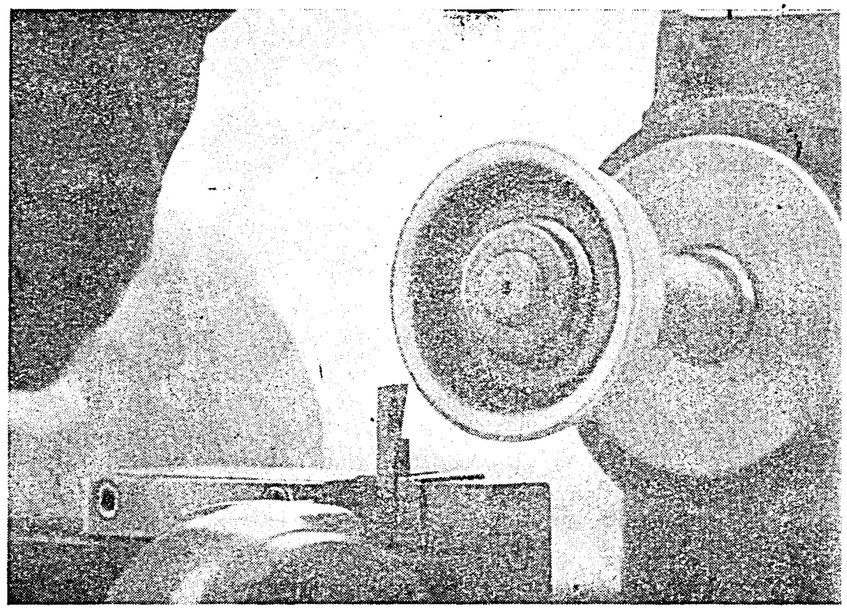
Tools For The Surgeon

Will Now Come From Madras

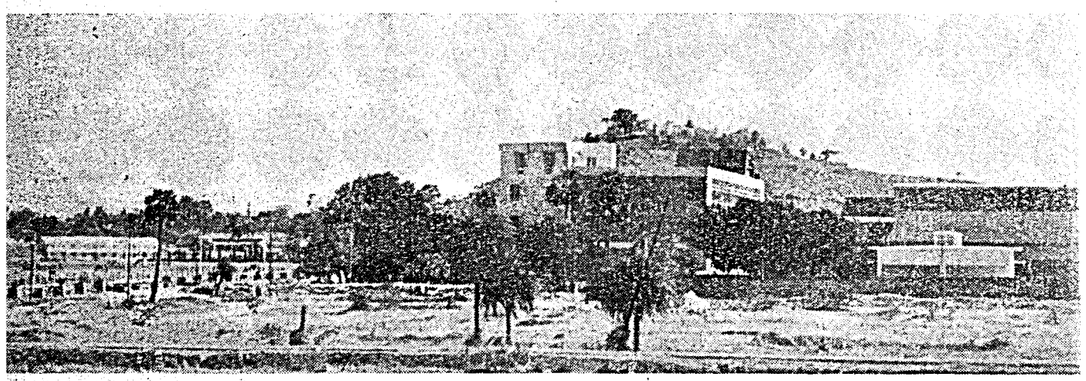
Yojana Staff Feature

Report :
KALI BISWAS

Pictures :
T.S. NAGARAJAN



Screws are vital components of surgical tools which are precision instruments. This grinder produces 'form tools' which will be used on automats for the production of these screws.





The Surgicals Factory with the famous St. Thomas Mount in the background. Right above : Compressed air is used as energy in certain stages of manufacture. Here is a 'stator', a part of an air compressor, being lowered for assembly by a team of young technicians.

NEARLY two thousand years ago a great "healer" is believed to have come to Mylapore (in Madras city) from the Holy Land of Jesus to propagate his message of truth and love. He was St. Thomas the Apostle, often called the doubting Thomas. Indian Christians believe that he was martyred on what is now the St. Thomas Mount. In his memory the Portuguese built a church at this spot in 1547 which still stands.

Barely a kilometre from this historic mount where the Apostle is believed to have laid down his life a new "healer" is coming up with Soviet collaboration. It is a factory which will manufacture surgical instruments of various kinds which our hospitals so badly need. This is the first factory in Madras city to be built in the public sector. The speed and efficiency with which the project is being completed is an example of the excellent co-operation between the Governments of U.S.S.R. and India and the State Government of Madras.

The Surgical Instruments plant is one of the three units of the Indian Drugs and Pharmaceuticals Limited (IDPL) which was set up in 1961 with an authorised capital of Rs. 20 crore to manufacture a wide range of antibiotics, synthetic drugs and pharmaceutical medicines in our country with Soviet collaboration. The other two are the Rs. 22.38 crore Antibiotics plant at Rishikesh (see *Yojana* February 28) and the Rs. 19.80 crore Synthetic Drugs and Pharmaceuticals plant at Sanatnagar, Hyderabad.



Surgery in Ancient India

Surgery is a very ancient art and, in one form or another, was practised by primitive men. Minor operations including amputation of fingers were common and circumcision was an everyday affair in the central Asian countries. One of the oldest manuscripts in Egypt, written as far back as 3,000 B.C., contains some accounts of minor surgical operations.

In India surgery was a fairly developed science as early as 1400 B.C. Ayurvedic surgeons were skilled in plastic surgery, particularly skin-grafting, and they "operated for stone in bladder and were adept at amputations, but like all surgeons of antiquity, they shunned the amputation of an entire limb." The well-known exponents of ancient Indian surgery were Susruta, Vag-

bhata II, Chakrapani Datta and Bhava Misra. They have left interesting works on surgery and surgical instruments. The art and skill of Indian surgery later found its way into Greek medical science during the time of Hippocrates (c 460).

Growing Demand for Surgical Implements

With the rapid expansion of hospital facilities in the country in recent years the demand for surgical instruments has also been growing fast. Most of our surgical instruments are at present being imported. In 1963-64 India spent Rs 74 lakh in foreign exchange on the import of surgical, medical and dental instruments and appliances not including the electrical ones. This is a field in which India can ill-afford to continue to be dependent on imports because of the rapid expansion taking place in medical services. The Government therefore decided to set up a plant at Madras with Soviet collaboration. An agreement was signed between the Indian Drugs and Pharmaceuticals Ltd., and Technoexport of Moscow for technical co-operation, supply of equipment and production processes and for training Indian scientists and technicians in the U.S.S.R. A detailed project report was received in 1962. The Madras Government donated for the purpose 207 acres of land and the foundation-stone of the administration block of the project was laid in September, 1962.

Work Nearing Completion

When I visited the project site early last month I saw the erection and installation work proceeding simultaneously. Hundreds of people were busy equipping the machine shop with heavy imported and indigenous machinery. Huge forging hammers had been installed and the pneumatic compressors to run the hammers and machines were also being placed in position. It may be of interest to know that lathes and drilling machines installed here are all manufactured at the Hindustan Machine Tools, Bangalore. Only the highly specialised machines have been imported from U.S.S.R. Almost all the Indian engineers who are engaged in the erection work are young men of an average age of 28 years.

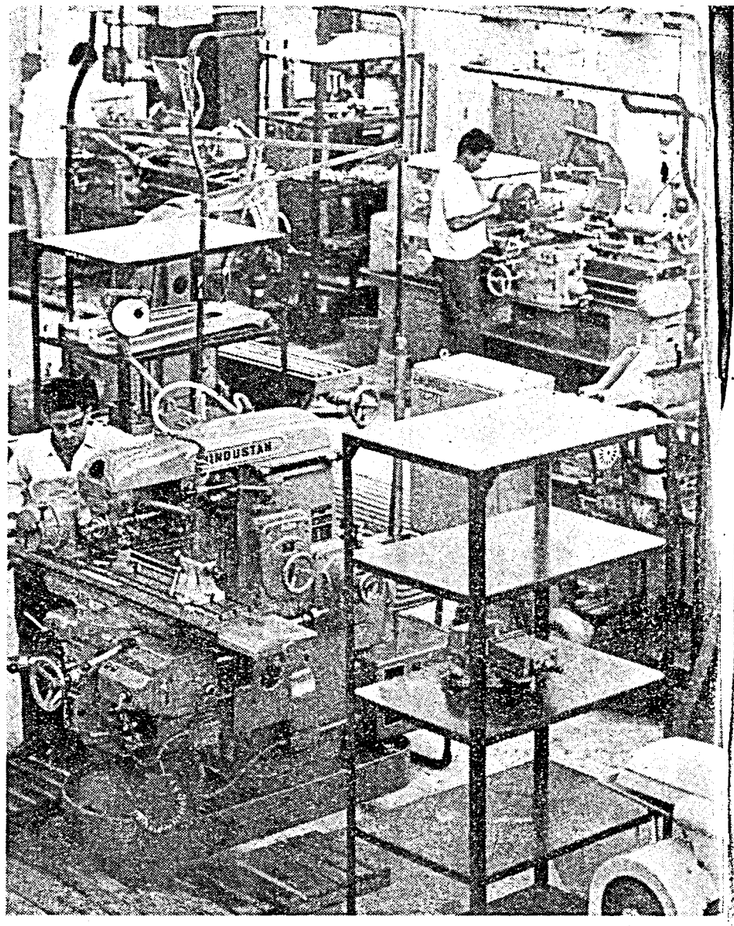
The Surgicals plant mainly comprises machine, assembly, heat treatment and electroplating sections, a tool room and repair shop and three laboratories, one each for measurement, chemical and metallographic analysis. Rigorous laboratory tests will be applied at all stages of production.

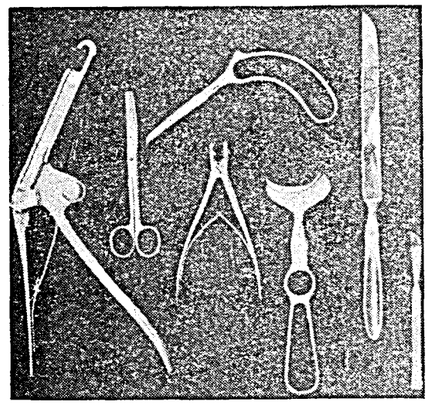
The nerve-centre of the project is the tool room which went into production in October last year. There I saw hundreds of Indian technicians working on precision lathes. Under the supervision of the USSR-trained Indians they were manufacturing precision instruments like cams, collets, gauges and templates. These were being produced in multiple sets according to Soviet designs which would run the machines required for manufacturing surgical instruments.

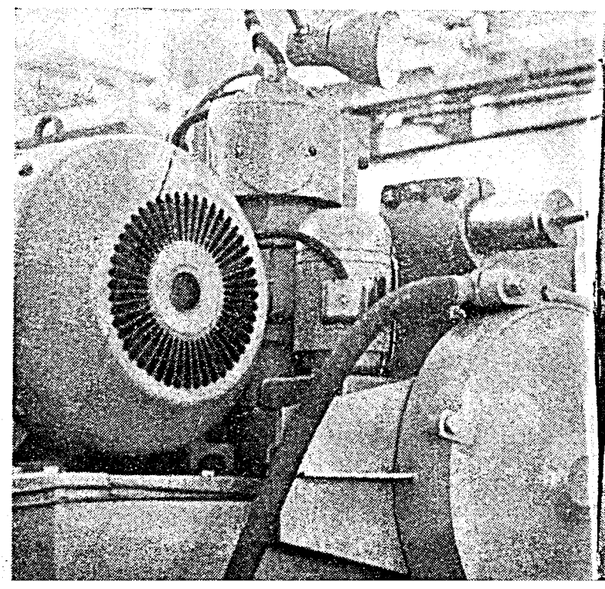
The Surgical Instruments factory is not one of those massive projects that we usually associate with the public sector. It is really a small one, the investment being Rs 5.25 crore. The factory itself occupies 70 of the 270 acre site. The township, which is nearing completion, occupies 130 acres of land.

In the first instance accommodation is proposed to be provided to 50 per cent of the staff. Of the 644 houses 400 have been taken up for construction. Of these, 200 have been completed and allotted to the employees, the rest is expected to be completed shortly. The township, built on modern lines includes all amenities—electricity, drinking water, a dispensary (to be soon developed into a well-equipped hospital), a primary school, an employees' co-operative society, a post-office, a public telephone booth, recreation clubs for both men and women, a park, a canteen and transport for the employees living in the city. Water (734 cubic metres a day) for the factory and the township is being supplied by pumps from a number of infiltration wells, and power (4MW) is being taken from the general grid of the Madras State Electricity Board.

The most important raw material for the factory is special quality steel and this will be imported in the initial stage. When in full production, the plant will require 470 tonnes of special steel a year. The cost of



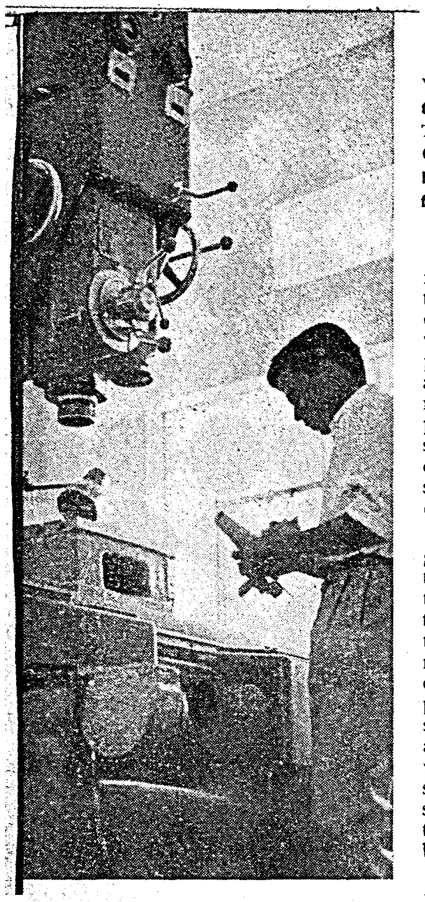








Above : Mr. Korovin, a Soviet expert and Basu Mallick, the tool room foreman discuss a point—in the background are two technicians working on a power line. Left : K. Subramaniam grinding a plug gauge which will be used to check instruments. Above left : the Tool Room, already commissioned, with its Soviet made and HMT produced machines. Centre : These Russian tools are among those which will be produced at the Madras factory.



V. Radhakrishnan, a technician from the Industrial Training Institute, Guindy, will operate this jig boring machine which has come from U.S.S.R.

machinery imported from USSR would amount to Rs 63.5 lakh and that of indigenous equipment Rs 44 lakh. The bulk of machinery from the USSR has already been received and enough raw material, tools and measuring instruments have been put to use. The plant is expected to manufacture 2.5 million pieces of 166 varieties of intstruments a year. The maximum number of pieces of one type alone is expected to be as many as 500,000 and the minimum 200. To start with, trial production of 35 selected types of instruments will begin in August this year. The factory will provide employment for 1,200 persons.

Manufacturing Process

Like any other metal or alloy, steel also tends to revert to its natural state through what is called corrosion. The steel used for surgical instruments also cannot escape this eventual fate. Therefore the manufacture of surgical instruments calls for a very high skill of metallurgy. The principal qualities of surgical steel are strength, hardness and minimum thickness, ensuring complete protection against corrosion. The steel should withstand the effects of constant sterilisation in water, steam and chemicals and the action of body fluids.

The process of manufacturing surgical instruments is highly complicated and requires a variety of operations like forging, machining, heat treating, grinding and polishing. After the steel is cut according to the required size by the guillotine machines and hacksaws the pieces are passed on to the forging section for stamping operation. From there they are sent to the machine room where, with the aid of jigs and fixtures, a series of operations takes place such as, boring, drilling, milling, turning and off-hand grinding. After being assembled in another section the pieces are passed on to the heat treatment section where they undergo a hardening process. Then they are electroplated and polished and finally inspected before delivery.

Thirty-one Soviet experts are expected to help in setting up the factory and bringing it to the full production level. Eleven of them are already working side by side with Indian technicians. A group of 35 Indian technicians who were sent to the USSR for training have also returned and they have taken positions in the various branches of production. One of them was Mr S.C. Bhattacharya, superintendent of the tool room. He was confident that with the training and experience gained in the USSR Indian scientists and technicians would be able to produce standard instruments. Beides, there are a number of other technicians who are being trained in the training shop. "The entire process calls for high skill and precision," he said. "Every stage of production here passes through rigid tests, thorough inspection and quality control."

Mr Ghei, one of the Soviet experts, was confident of the high quality of production of the factory and praised the Indian technicians trained in the USSR. "They are a fine lot. They have learnt much and I am confident they will be able to deliver the goods."

Factory to Produce 166 Types Of Instruments

Interview

with

H. G. V. REDDY

Project Administrator, Surgical Instruments Factory.

DO we import surgical instruments or manufacture them in our country?

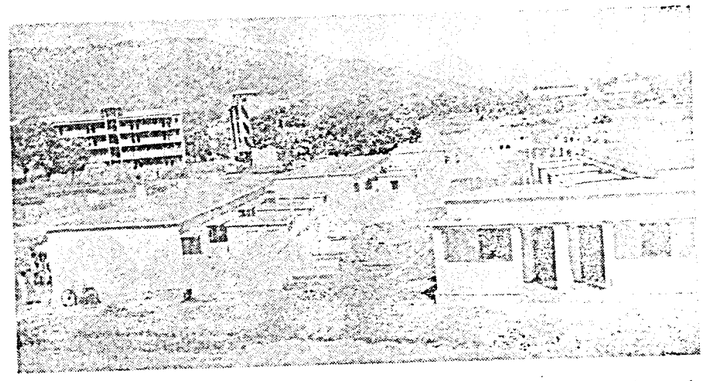
We have been importing a large number of instruments from countries like the United Kingdom and Germany. During the second World War and subsequent imposition of restrictions on imports, steps were taken to foster the manufacture of surgical instruments as small-scale industry, mostly at Sialkot in the Punjab. After Partition, however, production of instruments began in a small way in the private sector at other places like Calcutta,

(*Continued on Page 20*)

TOMORROW'S BOOM TOWN OF MAHARASHTRA

THANA-KALYAN

A Shining Example of Co-operation



The industrial housing colony at Thana, planned and built by the Housing Board

V. V. GOKHALE,
Collector, Thana

STATISTICS which reveal severe regional imbalances will continue to perturb the planners and administrators everywhere for a long time to come.

If we start with the extraordinarily interesting comparison of India's total Third Plan outlay of about Rs 10,000 crore with an annual expenditure of Rs 7,000 crore—Rs 35,000 crore in five years—on smoking and drinking alone by the Americans, who are only one-third the number of Indians, then I think we would be in a shock-proof state of mind and would be less affected by the minor shocks of statistics in India.

Maharashtra, for instance, has only 6 per cent of its gross cropped area under irrigation, as against 17 per cent in the whole of India, and the road mileage per hundred square miles in Maharashtra has not even reached 50 per cent of the Nagpur plan targets.

However, Maharashtra appears to have made satisfactory headway in such diverse fields as family planning, national savings, contour bunding, mechanised fishing, housing, electrical power consumption, co-operative processing and industrialisation. Maharashtra accounts for 40 per cent of India's trade, 30 per cent of banking credit granted, 24 per cent of banking deposits, 25 per cent of industrial activity, 20 per cent of electricity consumption and 15 per cent of India's motor vehicles.

These figures are however likely to mislead us, if we do not take into account the huge and disturbingly disproportionate share of Greater Bombay in this prosperity. About 75 per cent of the value of industrial output in Maharashtra, 84.5 per cent of its electricity consumption, 64.3 per cent of total factory employment and 50 per cent of the motor vehicles in Maharashtra are accounted for by Greater Bombay!

Rise of Thana

The backwardness of the rest of Maharashtra would be obvious from the startling figure of 496 kW per annum of per capita electricity consumption in Greater Bombay as compared to only 11 kW in the rest of Maharashtra.

The hinterland or the districts adjoining Greater Bombay have now started sharing its prosperity partly because of sheer congestion and lack of room for expansion, and partly because of systematic and planned efforts by the Government towards the development of satellite townships and industrial areas.

The Maharashtra Industrial Development Corporation is an autonomous semi-Government body with a current annual budget of nearly eight crore of rupees. It is mainly concentrating at present on the integrated development of new industrial areas with organised schemes for water supply, power, roads, drainage, firefighting and other amenities. To start with, a layout was prepared for 300 acres near Thana town and plots were auctioned to entrepreneurs for setting up small and medium industries. More than 250 new industries are taking shape in this area of which a few have already gone into full production. Some pioneering industries in this region are:

(1) A readymade garment factory using automatic machinery. It uses handloom cloth to manufacture gents' and ladies' bushcoats and shirts with special designs, and the entire production is exported to America as "bleeding Madras".

(2) India's first rubber regenerating plant using old tyres and other old rubber goods, and a total investment of about Rs 75 lakh has gone into production.

(3) Addressing and embossing machines, radios, scientific instruments and automobile parts are some other units.

Nearly 4,700 acres of land are being developed by the Maharashtra Industrial Development Corporation in the Thana and Kalyan tahsils in the vicinity of the Ambernath, Dombivli, Kalyan, Thana and Badlapur railway stations with provision for various amenities.

The rapid industrial growth in Thana district during recent years has been mainly concentrated round about the Thana and Kalyan urban area, and there are good reasons for it. In the first place, these areas are on the outskirts of Greater Bombay and railways and roads branch out conveniently from here towards Ahmedabad, Agra Road and Poona-Bangalore route. Secondly, the Thana Creek along with the Ulhas and Kalu rivers offer facilities for water supply and disposal, and they have been responsible for attracting a large number of chemical and allied industries. Lastly, the completion of the Eastern Express Highway, the Diva-Panvel Railway and the Sion-Panvel Road, on which work is progressing, have enhanced the importance of this area for industrial location.

The number of registered factories has increased from 493 in 1961 to 639 in 1964, and the labour employed has gone up in this district from about 21,200 to 52,700.

If we consider also those employed in the decentralised powerloom industry in Bhiwandi area, the salt industry, small industries in Bassein, Dahanu etc., and the labour employed in the constructional activity for new factories in the Thana-Kalyan region, and the Tarapur Atomic Energy Plant, the total labour gainfully employed in the Thana district would come to one lakh. Nearly one-third of the population in this district consists of the scheduled tribes or the Adivasis whose standard of living is extremely low.

Shape of Things to Come

But there is considerable scope for more employment opportunities for several years to come as we can judge from the large number of licences issued under the Industries (Development and Regulation) Act for this area. Between 1951 to 1964, 365 licences were issued for new industrial enterprises. It is expected that new industries which are expected to be put up by 1970, will give employment to not less than 40,000 more men directly and involve a fresh investment of nearly Rs 150 crore.

Some of the largest rayon, pigment, dyestuff, chemical and pharmaceutical factories and woollen mills are in production already in the Thana-Kalyan region. To these would be added such new projects as the large petro-chemical complex which is taking shape on the Thana-Belapur road with an ultimate investment of Rs 50 crore. The first plant is expected to go on stream in 1966-67. The polyester fibre (terylene) plant of M/s Chemicals and Fibres of India is developing in the same area and is expected to go into production shortly. Other large chemical industries would be making carbon black, phosphoric acid, caustic soda and chlorine, regenerated rubber, borax and boric acid, potassium permanganate, pharmaceuticals, electroplating salts, organic chemicals, raw material for nylon yarn, polyestrene paints, sulphur products, detergents, pigment colours, fatty acids, plasticisers, and the like.

Among the large engineering industries coming up in the new areas are aluminium products, automobile parts, dyes and tools, tin containers, welding electrodes, transformers, injection-moulding machines, electrical goods, steel castings and forgings.

Co-operative Projects

Besides these impressive projects in the private sector, several enterprises in the co-operative sector will bring prosperity to the interior areas away from Thana and Kalyan. For instance, two co-operative spinning mills, with capacities of 12,000 spindles each, are being planned in the Bhiwandi area. This will be a part of the plan for 30 such mills in the co-operative sector in Maharashtra. There are nearly 20,000 powerlooms in the decentralised small industry sector in Bhiwandi area and the co-operative spinning mills are expected to provide yarn for these. Well organised industrial estates are being planned in Bassein and Palghar for which funds will come from the Government and co-operative societies. Land for these estates has already been selected and construction of sheds is expected to start in the near future. Since fast running railway trains stop at these stations and the Bessein bridge work has already been taken up in hand to link up the Western Express Highway directly with the Ahmedabad Road, these two industrial estates are expected to prosper very fast. A third estate at Dahanu Road on the Western Railway is also possible in the Fourth Plan.

A large dairy farm and bottling plant scheme costing Rs 5.25 crore on the lines of the famous Aarey Milk Scheme in the Vankas-Dapchari Adivasi area has been taken up by the Dairy Development Commissioner for Maharashtra and an initial investment of Rs 45 lakh is expected to be made before the end of the Third Plan. A large number of people from the Adivasi areas are expected to benefit by this scheme in which 10,000 she-buffaloes from Greater Bombay would be shifted on land exceeding 3,400 acres and involving the construction of a dam on the river Viroli at a cost of Rs 1 crore. The project can be linked along with a number of small co-operative and individual dairy units in the neighbouring Adivasi areas so as to give encouragement for decentralised dairy activity, coupled with a large central bottling plant.

Work is already in progress for the Tarapur Atomic Energy Project which is expected to generate 3,80,000 kW of electricity during the Fourth Five Year Plan. The total investment for the project would be Rs 48.5 crore. It is expected to go into commission by the end of 1968. The current estimate of power generation cost is about 3 paise per unit of electricity which is cheaper than the cost of power generation with oil.

Nearly 4,000 acres of additional land would be coming up under salt manufacture by the end of the Third Plan primarily in the Bassein, Palghar and Dahanu tahsils. This in turn would lead to new chemical projects based on salt.

The co-operative sector is expected to offer good scope for development of this industry in the rural areas.

Impact on Adivasis

With the formation of eight new tribal block projects in the Adivasi areas of this district (and ten more in the Fourth Plan), a beginning will now be made for an organised attack on all fronts to solve the problem of poverty in the backward areas of Dahanu, Mokhada, Talasari, Murbad and Palghar. On the other hand in urban areas like Thana and Kalyan towns, we see the spectre of ever-increasing slums, labour unrest and crime, severe shortage of housing, effluent nuisance and unplanned growth, which call for urgent attention.

A beginning has been made with the preparation of town-planning layout for five important villages around Thana, clearly demarcating green belts, residential and industrial areas. Adherence to this layout is observed in allocating land for new industries. Similar layouts have been prepared for Bhayandar and Meera villages, Kavesar near Thana, and the areas near Ambernath, Dombivli, Badlapur Kalwa and Trans-Thana Creek which is being developed by the Maharashtra Industrial Development Corpration. However, considerable planning and study is yet necessary to aim at better local administration for running the new satellite townships. The present arrangements of village panchayats controlling various issues pertaining to allocation of land, and other facilities cannot be considered adequate, as the Panchayats are neither properly staffed nor adequately trained. They cannot be expected to meet the challenge of rapid industrialisation. There is urgent need to prepare Master Plans for the entire Thana-Badlapur area in order to effectively check unplanned growth, and also to ensure better and smoother urban development.

The Local Self-Government Institute, Bombay, proposes shortly to carry out a study for possible joint action by the municipalities of Kalyan, Ambernath, Ulhasnagar and Dombivli. A high level committee of the Government has also been formed to study the whole aspect of the growth of Bombay-Panvel area. The Maharashtra Housing Board has already taken up the construction of 850 tenements near Thana for industrial workers, and more land is being made available to the Board near Kalyan, and on the Thana-Badlapur road. It has been estimated that not less than 50,000 people are living in filthy slum areas, mostly encroaching on Government lands in urban areas. A large construction programme by the Housing Board is most essential not only to provide for industrial workers, but also for other low-income groups, and for slum-clearance in the Thana-Bhiwandi-Kalyan complex.

An executive engineer has been specially appointed recently by the public health department for attending to the problems created by trade wastes and effluents. Constant guidance and supervision by this department is expected to help in minimising the effluent nuisance. A laboratory may also be set up for studying effluent problems for specific industries.

The Thana Manufacturers' Association and the Kalyan-Ambernath Manufacturers' Association have been organised by local manufacturers and they try to take up problems of a common nature with various authorities. There is considerable scope, however, for widening their activities and even for taking up a small part of the burden of public administration wherever possible. More public participation and co-operation is vital and necessary in such growing urban areas as it is in the rural areas.

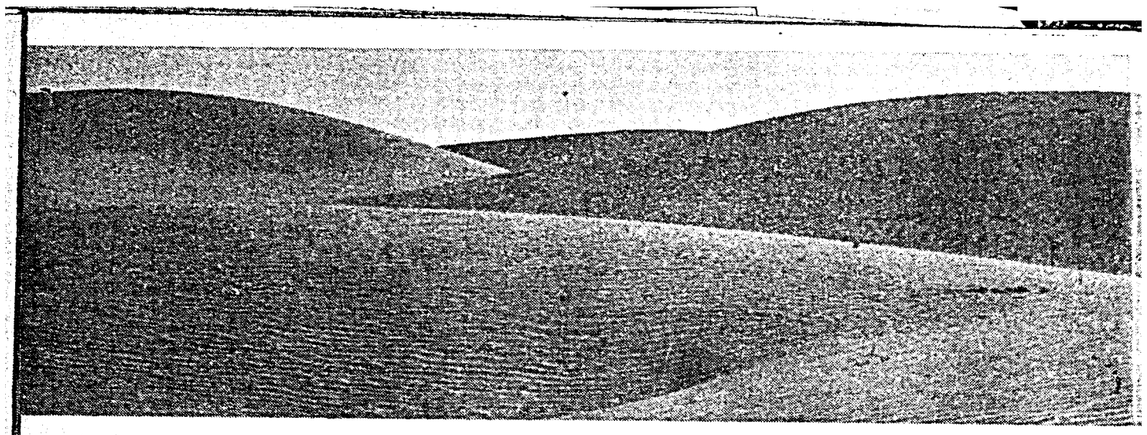
A difficult problem for the Government offices in this district is the alarming increase in the number of resignations of clerks and staff, many of whom are attracted by the higher salaries in the industries. A comparison of the scales of pay, office stationery and equipment, and other amenities available in Government offices as against the facilities in private industries would be revealing.

It is an encouraging sign that there is a steady growth of the co-operative sector. The co-operatives obviously cannot directly help in meeting th public needs in such fields as educ tion, public health, and local admini tration; and the co-operative growt in its turn needs the growth bureaucracy for its control an guidance. Yet, within limitations, th co-operative movement is renderi increasing service in such fields agricultural credit, food procur ment, holding the price line, rur industrialisation and prevention wealth concentration.



Rayon cones being examined at a Kalyan factory

India has placed orders with a British fi for eight computors of the most advan type, i.e. 1900 series. This type can h units attached to it to undertake a vari of tasks including playing music...] Union Government has set up a pane eleven scientists to advise the Governm on animal husbandry.



SCIENTISTS DISCUSS

Can India's DESERT LANDS *Be Brought To Life?*

JOHN P. CORREA

THE visitor to Jodhpur can choose from a variety of multicolour postcards: the eminently relevant Maharajah's palace perched above on a crag like a crowned castle constructed as a memorial to famine relief; the low range of light-brown sandstone city where brick and mortar are never used; the fantasy of colour, the tie and dyed skirts of Indian women and turbaned men appearing like a defiant proclamation of the will to live against the desert; the convoy of caravans of donkeys and disdainful camels humping along the sandy trails; the spray of peacocks, parrots and pigeons; the air force centre; the procession of statuary of giant-sized Rajput warriors, gods and goddesses; the dancing fountains, the honeycomb of temples and the quiet pools in the 'neem' green garden groves. But beyond these representations over 100 Indian scientists and international specialists, who assembled here recently took away recollections of new advances in science from this city poised to grapple in the heart of the desert with the challenging problems of arid India.



This arid India ranges from inland Rajasthan, South East Punjab to seaboard Saurashtra, the littoral plains of the Rann of Cutch, Gujarat and marginal strips in Maharashtra and Mysore which suffer drought year after year and up north, the bleak cold desert frontier of Kashmir, Gilgit and Ladakh, located 12,000 feet high—a zone comprising 132,000 km, nearly one third of India's total area.

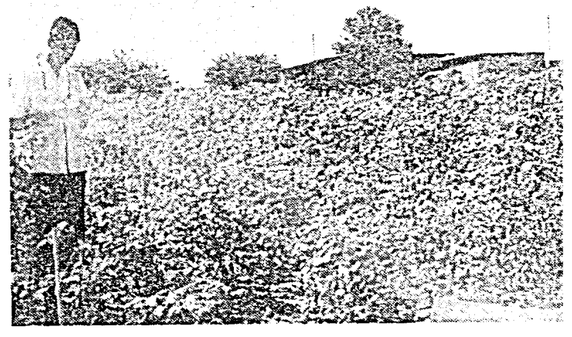
For the 60,000 families in Rajasthan and its environs, water is a creator; its absence means desolation. In these parts one member of the family is daily assigned to haul water from long distances and to waste water is a sin against society. The importance of future water supplies can be understood when we consider that the arid zone population of over 20 million people may rise at three times the present rate within the next 10-20 years.

Can this hot and cold Indian desert be transformed and made to bloom? Is Rajasthan fertile country or is it a continuation of the Sahara desert creeping towards the Indo-Gangetic plains menacing the Indian capital at the rate of $\frac{1}{2}$ mile a year—a conclusion arrived at by scientists at the 1952 New Delhi symposium ?

What macro and micro climatological factors have shaped these arid lands from geologic time? Was it climatic change, geology or despoiling ancestors that brought about this unproductive state in a region where once the Saraswati and Luni rivers flowed and nurtured ancient Indian civilisations, 3000 BC?

Can solar energy and wind power be harnessed today to assist the Indian farmer or the soldier guarding India's frontiers?

There is the problem of flooding of Suratgarh and Bikaner, of lack of water for agricultural use in the plains of Cutch which are affected by salinity and waterlogging. On coastal Saurashtra and Gujarat the reclamation of saline soils is a necessity. How can these lands be freed? How can brackish and inland salt lakes and marshes be desalinated and used on desert farms? How efficient can the farmer be in his application of water for crop production, pastures, forest trees? What measures should be taken to improve the animal breeds and control epidemics and pests? What are the socio-economic problems of the Indian gypsy tribes with their migrating flock of sheep, cattle and goats overgrazing the land, of the illiterate nomads and of the flight of settled communities in a changing situation? Must they be condemned to a low standard of living, and will their eclipse have disastrous consequences?



A special variety of cotton plants which will bring life and prosperity to Rajasthan's desert lands are grown in this Nursery at Bikaner

These were some of the many problems which came under scrutiny during the International Symposium on the *Problems of the Indian Arid Zone* sponsored by the Union Ministry of Education and UNESCO at Jodhpur. Over hundred research papers were read by plant ecologists, physiologists, climatologists, tropical meteorologists, soil scientists, hydrologists, desert agronomists, silviculturists, geographers, solar physicists, water engineers and social scientists.

For arid zone planning an adequate range of surveys is essential. At the meeting, ecologists from the Indian Botanical Survey presented, on an ecosystem basis, particular aspects of the flora of Saurashtra coast and of the neighbouring islands.

Assessing ecological baselines and potential, Dr Satyanarayan of the Central Arid Zone Research Institute (CAZRI) observed that vegetation by itself was not an adequate criterion for recognising plant communities. He grouped plants on the basis of land forms and on this basis defined their structure and floristic characters.

Scientists recommended the introduction and domestication of edible cucurbits and groundnut. These are useful as livestock feed and as oil producers. Key economic plants like *guar* for gum and crops like grapes, date palms and olive, the medicinal plants aloe, *datura stramonium*, *inoxia*, Licorice, senna and henbane could be profitably established as a means of checking the desert. Some of these plants were already being experimentally tried at the CAZRI.

Attention was called on the recolonisation of the desert by pioneer plants by CAZRI scientists and

ecologists from the Birla Institute of Science and Technology at Pilani. Adaptability trials of several plant species reported showed that *Acacia tortilis* from Israel and the Australian *eucalyptus camaldulensis* had wonderful adaptability to Indian conditions and even excelled the indigenous varieties.

For anchoring the shifting sands which cover an area of 280,000 sq. miles, Indian foresters suggested fixation with mesquite (*Prosopis* sp.) calligonum, jujube, *dalbergia*, *neem*, *erianthus* and *lasiurus* grass.

On a Rajasthani safari, the scientists visited regenerated pasture lands, a nursery of the desert at Pali, saw scientific tree planting which had transformed isolated places near Jodhpur and took a close look at the face lift of a wayward sand dune near Bikaner where plants were impressively coaxed by Bhimaya, Kaul and co-workers.

Kaul pointed out: "Science is no magic wand nor can its mysteries and moods be known completely. This growing point in ecology is but a start, an encouraging process. We have no run-off hills. Given water and more judicious use we can and should produce results. Look at the granary of Rajasthan in the heart of the desert— Ganganagar, Suratgarh, with its wheat, oilseeds, cotton. There is the green luxury of Gajner with the wild life sanctuary, lying deep in the Thar, preserved by the Indian princes. This is really starved land, a fertile desert."

The importance of grass cover pioneers in the desert economy and as a means of stabilising drifting sand dunes was stressed by Dr R.O. Whyte, F.A.O., Grassland and Fodder Adviser to the Indian Government. A survey of some of the villages around Bikaner had shown that perennial grass indicated good range land possibilities. Whyte spoke of the need of a great reserve of genetic variability of polyploid series. S. P. Raychaudhuri, Specialist in Land Resources, Planning Commission, disclosed a picture of the fertile soils of South-east Punjab and East Rajasthan lying between the Indus valley and the crescent of Aravalli hills.

Real desert soil occupies an area of 10,600 sq. miles.

Dr W.B. Sundara Rao of the Indian Agricultural Research Institute emphasised the need for a survey of the minute soil flora, the salt tolerant strains to combat plant pathogens, and nitrogen fixing bacteria.

Agronomists were agreed that an important aspect of soil management is wind erosion measures to protect the soil from blowing off and to conserve moisture. Preparatory tillage for quick penetration, strip cropping and stubble mulching, the provision of windbreaks and shelter belts would check erosion hazards. Indian scientists found that a local bunding practice called *mer-bundi* could speedily increase water intake by the soil and yield rich crop pasture.

Abichandanai and his associates (CAZRI) showed that in a bare fallow in sandy loam soil, evaporation after the rains reaches only 45-50 cm while below there is a rich subsoil with 5 per cent moisture. This novel practice would have to be applied judiciously with shelter belt protection and wind strip cropping since it might encourage the hazard of erosion, warned the Indian agronomists.

Where livestock population reaches over a million and uncontrolled grazing has whittled away the soil cover, it is essential to have a protective vegetative cover.

> "Reversion to desert conditions and the development of bare ground and sand dunes is directly related to overgrazing more than any other single cause," analysed Dr. George Maxey of the University of Illinois, U.S.A. "Grazing studies now being conducted might be materially speeded up and supplemented in the hope that optimum grazing practice can be initiated by the stock owners at the earliest possible".

Dr C.D. Ahuja (CAZRI) reported that with adequate fencing and continuously controlled grazing at the level of 70 per cent utilisation of estimated available forage range production was increased substantially. This was reflected in increased animal production.

Agrostologists from CAZRI who conducted studies on grazing from 1960-63 at Pali reported that plant cover increased under sheep grazing.

Scientists refuted the windborne and marine inundation theories of the origin of the salt basins and dunes of West Rajasthan. Aerial photographic studies on the landscape of Central Luni, the desert river which runs into the sea only after heavy rains but during the dry season lies disorganised, had confirmed that salt basins and salt depressions were relics of dry drainage channels. This integrated drainage system has a history older than the Himalayan rivers. Besides the old Pachbhadra basin, new ones are being formed on the lower reaches of the smaller tributaries, Ghose discovered.

Study Results of Bellary District

Mr Vaidyanathan of the Andhra University said that in semi-arid Bellary in south India, which is strewn with domes and whalebacks of black soil and islands of granitic hills, extensive soil erosion is due to rainwater discharged by sheet and rill wash.

Production problems in this basaltic Bellary tract where black cotton soils are poor in structure and low nitrogen and phosphate were discussed. Mr Chattopadhyay said that his findings showed that the soil could be improved by the application of farmyard effluents, green manures and by mixed farming. Soil moisture itself could be used for suitable crop production, spacing and plant population rotation and cropping system.

Tillage and Water Use

A promising lead in desert cultivation, said Dr N.D. Rege of the Union Ministry of Food and Agriculture, is dry farming techniques for the arable lands. This ingenious practice depends on timing the rainfall and holding it in the soil and using it as soon as possible through crop adjustments. "Our tillage practices should be so adapted to conserve moisture", said Mr. Rege. He observed that this successful pattern of cultivation was practised by Hopi Indians in arid America. He believed that the Chinese corrugation system of irrigation was a productive approach.

Attacking the problem of desert research from archaeological, palaeobotanical and hydrological viewpoints, Indian scientists were agreed that the desert should be carefully

(Continued on Page 27)

My Friend Narcissus

I see him every day before the mirror in the office toilet room. He comes in the morning at the stroke of ten and promptly takes his position before the mirror. He removes his spectacles, washes his hands and mouth, looks at himself in the mirror and goes to his room.

At 11 he comes again to the toilet room, this time with a glass tumbler. He keeps it on the basin and looks at his image in the glass. He admires it from a distance, and is obviously not satisfied. He moves closer, softly mops his hair, pouts his lip, grins and blinks—all in mechanical sequence. The waiting tumbler is then cleaned and filled with water but his eyes are always screwed on the mirror. Before turning away he has again a look at himself in the mirror—a final look.

Around noon he is back again. This time there is a slight change in schedule. He washes his face, wipes it with a hanky and pulls out a comb from a pocket. The hair, being sparse, is somewhat unruly but with a little sprinkling of water it is soon subdued into position. Then the comb starts working in one frantic bid to part the forelocks which are, alas, very conspicuous by their absence. The face turns right, then left; the head bows in obeisance and springs back in defiance. His hair has been parted, but is the parting line straight or crooked? He is not sure. He goes through the motions again, grins and finally gives up. It is not bad after all!

At 2 p.m. the gentleman is back again. This is the hour after lunch and the stroll. He is now all set for toilet again. Everything about him is evidently in disorder. The trousers need a little pulling up and the necktie a little unskewing. This done, he opens out his palms and caresses the Clark Gable moustaches with the fingers, raises his face and tosses it right and left. An Elvis Presley tune, whistled in subdued tones, provides the musical background to the operations. Abruptly the music stops. He is seeing in the mirror the familiar face of a colleague reflected and he turns aside with a 'hullo—how-are-you-here' look. The contact with the mirror is snapped and so it is time to leave. He then leaves the room, his shoes clicking like an infantry man at march.

At 3 p.m. he is back again in the toilet room, but for an entirely different reason. The chewed *pan* has to be spat out and the mouth has to be washed. He seems relaxed now, and is in no hurry. The hair, the collar, the tie are all in order. It is time for a cigarette now. Through the mirror he watches the blue smoke rings soar up in space.

Five O'clock and it is now time to call it a day. Back to the mirror again. The face gets a thorough washing. water is gurgled and spat out noisily, the hair is combed, the necktie is adjusted and he faces himself in the mirror confidently. A smile lights up his face, a chuckle follows and the tune is back on his lips. He is now all set for the evening, away from drudgery for the day. To hell with tomorrow.

Did you ask who he is? He is my friend, Narcissus, minus looks. You can find him everywhere—in office, in cinema houses, the wayside *pan* shop, a restaurant—in fact everywhere where you have a mirror. Did you ask me how I happened to spy on him? The toilet room is right opposite my room, and since I have nothing to hide and everything to see, I keep its doors open.

K. B.

QUOTATION BOX

Shastri Wants a Jail-Term.

—Heading in "The Hindu"

Regarding your report of my dance at the Albright-Knox Festival of the Arts, I was not "Stark-naked". Both Miss Rainer and myself were covered completely with a thick coating of mineral oil.

—Letter from Mr Rober Morris in "Time"

What is needed is a spark which our leadership has not given (to the country which is ready to go ahead). We are waiting for some to light that spark.

—Mrs. Vijayalakshmi Pandit, M.P.

Three hundred million underprivileged people who get only four chhataks of food a day will be forced to live on half a chhatak or less in five to seven years.

—Dr. R. M. Lohia, M.P.

The recent riots in Assam and the language riots in Tamil Nad are a shock treatment to the growing, advancing nation. Such shock treatments will continue in future in order to awaken the country and the people.

—Acharya Vinoba Bhave

I requested the Central Bureau of Health and Education to send me a pamphlet. I have received a reply, along with a price list of the Bureau's publications, stating that I should arrange to remit Re. 0.25 in a Government Treasury, or send a crossed cheque or crossed postal order for the amount. This letter cost the Government Rs. 3.65 by way of postage.

—A letter from a reader in Los Angeles (USA) in "The Hindu"

Playing 'ragas' to a Western audience truly was not as simple as playing to a knowledgeable home crowd. But once the initial unfamiliarity has been overcome, Western audiences show far greater understanding than an average Indian gathering.

—Mr Ravi Shankar

Government of the mediocre by the incompetent for the helpless.

—Mr Nath Pai, M. P.

It was not Macaulay, but Raja Ram Mohan Roy, Max Muller, Vivekananda, Tagore, Gandhi and Nehru who brought the benefits of the English language to our people and made them both nationalist and world-conscious.

—Dr Gopal Singh, M. P.

Tourism has become very popular all over the world as I could see from my recent tour abroad.

—Mr V. P. Naik, on his foreword to guide book on Maharashtra.

The power of Rajas and Rulers —including the power of Lal Bahadur and Ram Kishan—is decreasing whereas the power of industrialists is increasing.

—Mr U. N. Dhebar at a meeting in Chandigarh

WORLD HEALTH DAY FEATURE

WAR AGAINST SMALLPOX WILL NOT END WITHOUT TOTAL VICTORY

ONE day when Emperor Napoleon was about to set off for the wars, he was listening absent-mindedly to a letter being read out to him for orders. It contained a request for the liberation of an English prisoner. He was about to say 'no' when Empress Josephine, who was nearby, remarked: "But it is Jenner who is making the request." Napoleon immediately changed his mind: "Ah, Jenner! I can refuse nothing to Jenner."

If Edward Jenner were alive today no one in his senses would deny him a favour, however big. For this was the man who has saved millions of human beings from disfigurement or death. This dreamy, bird-watching Englishman who loved nature and the countryside had an ambition to set up practice in surgery and pharmacy. One day a young country girl, who had just recovered from cow-pox, came to him for consultation and she told him this was just as well because it gave her immunity against the dreaded smallpox.



This child from Congo was one of 100,000 victims of smallpox in the world two years ago.

PICTURES: WHO

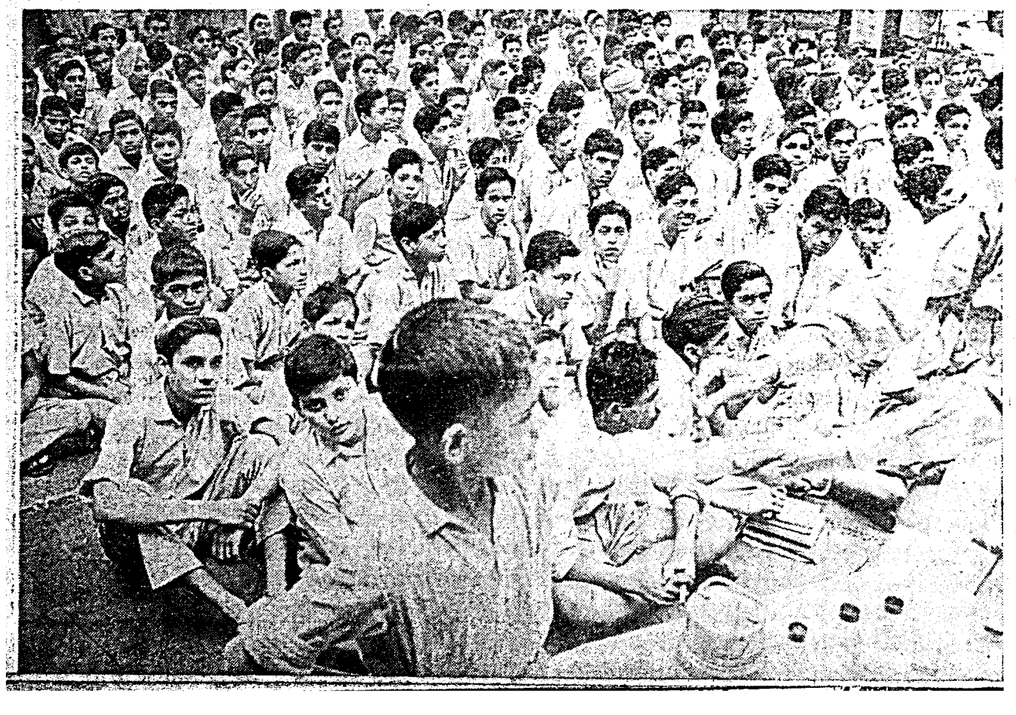
It was not long before he met a milk-maid with cow-pox sore and James Phipps, a boy of eight, on whom he could experiment. May 14, 1796 is a day which mankind remembers with gratitude. It was on that day that Edward Jenner inserted some of the liquid from the milk-maid's large pustule on the arms of James Phipps. After a brief illness the boy was well again. Later he inoculated Phipps with matter taken straight from the smallpox pustule and was delighted to find that the boy had developed immunity to the disease.

Edward Jenner thus broke the secret to prevention of smallpox and thenceforward he spent many years perfecting the vaccination method and conducting an impassioned campaign for its world-wide adoption. Country after country in Europe hailed Jenner's discovery and people volunteered in their thousands to undergo vaccination.

It Spared Neither Kings Nor Commoners

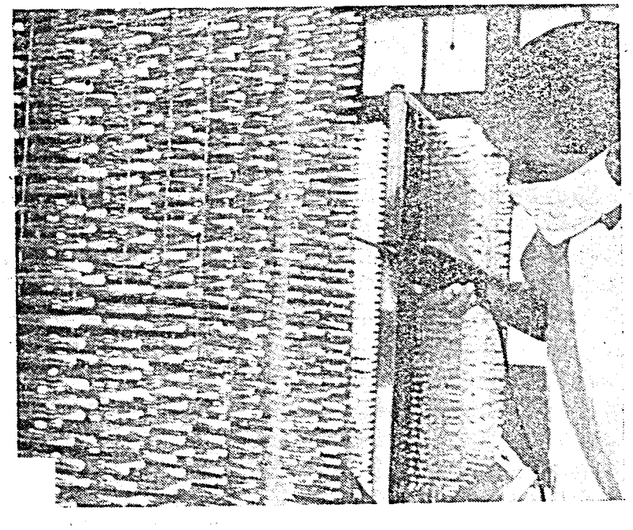
Thus an enemy, as old as the hills, had been defeated. For countless centuries this scourge had ravaged all countries in Asia, Africa and Europe. It had spared neither kings nor commoners. Age or sex or climate made no difference. The mighty Pharaoh Ramses V was a victim of smallpox. Early in the 4th century when Rome was attacked, the epidemic had desiccated the population and accelerated the Empire's decline. Many of the Crusaders contracted the disease and their return to Europe in 1096 contributed greatly to the spread of the disease throughout the continent. Later it invaded the Americas and Iceland. In 1770 in India, three million people died of the disease. The mortality from smallpox in our country was appalling: 500,000 persons succumbed to this disease in the year 1873-74. Unarmed against this terrible enemy in the past, man could only submit to its horrors and bemoan his fate. The disease was so common that the scars left on the face of those who recovered were regarded as normal.

OVERLEAF



Left : During the National Smallpox Eradication Campaign in India in 1972 all the schoolchildren were vaccined.

Right : Pressure vacuum drying of the vaccine in use at the King Institute of Preventive Medicines, Madras.



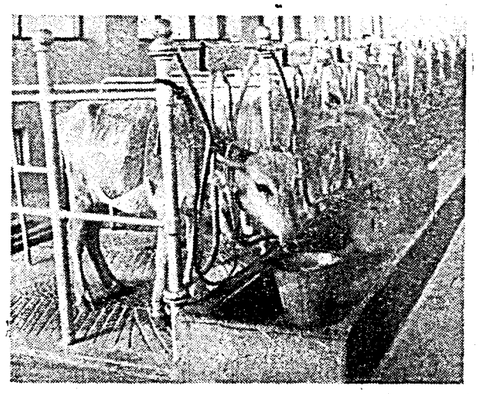
DEFEATED BUT NOT EXTERMINATED

The menace has still not been wiped out completely from the world. *In 1963, over 100,000 cases of smallpox were recorded and 25,000 of them succumbed. Of these 60,000 were reported from India, Indonesia, Pakistan, Nepal and Afghanistan, and many African countries also reported large epidemic outbreaks. In Europe, smallpox invaded Sweden, Poland, Germany, Hungary and Switzerland. Widespread vaccination and swift preventive measures during epidemics have freed many countries of smallpox. But the disease persists and flares up dangerously where health services are inadequate.* In this jet age when people travel frequently in large numbers from one part of the world to another, the eradication of smallpox is a global problem. No country is really free from infection unless the disease is completely rooted out from the planet.

In 1962 a gigantic eradication programme was launched in India. By May 1964, 53 per cent of the total population of nearly 450 million had been vaccinated. The World Health Organisation has made available a considerable quantity of vaccine for India's campaign, while U.S.S.R. has made direct donation of 450 million doses. India has now started producing freeze-dried vaccine with WHO and UNICEF assistance.

The prevention of smallpox is no medical mystery. There is no complex chain to confuse the transmission of the disease. No animal or parasite carries the virus. Man alone harbours it.





Above: At Geneva, the areas infected with smallpox are marked on a big map.

Left: Freeze-dried smallpox vaccine, suited for the tropics, is prepared from virus grown on the skin of calves.

NATIONAL CAMPAIGN FOR ERADICATION

Smallpox is easier to deal with than many other diseases. Vaccination—simple and inexpensive—gives solid protection over a number of years. But to banish the disease from the world much still remains to be done.

The aim of a national eradication campaign should be to vaccinate 100 per cent of the population of a country where the disease is endemic. Experience has shown that a vaccination target of 80 per cent of the population is unsatisfactory.

The crux of the whole operation is vaccine. Smallpox has been eradicated in many countries in the temperate zones of the world through the use of liquid vaccine. In hot climates, however, this quickly loses its potency. The recent material has provided medicine with a stable vaccine which can be stored successfully in any climate. In every eradication campaign, therefore, top priority is given to freeze-dried smallpox vaccine. Every batch of vaccine has to conform to minimum requirements of potency.

The procedure for national eradication campaigns has three phases: the Preparatory, the Attack and the Control. Each phase has to be completed before the next can start. The Preparatory phase covers collection of data and assessment of the country's epidemiology, social and economic conditions and the level of health and education of the population. The Attack phase is the main part of the eradication campaign, but its success depends largely on the thoroughness with which the earlier phase has been conducted. In the Attack phase, coverage in many areas will best be achieved through house-to-house visits rather than by bringing the people to vaccinating centres. The aim is to vaccinate the entire population in the shortest possible time,

(*Continued on Page 28*)

HOW NOT TO BE SIMPLE

It is not officials that can make a language grow—not even teachers, but authors and those who use it for their daily needs. Hindi or English, the language used for official work quickly degenerates into officialese. In the last issue we gave some examples of Hindi officialese. The late Verrier Elwin, in his autobiography, has given a delightful example of English officialese.

Elwin was a member of two committees, and even so noted a writer of English had to bow to makers of administrative prose. Rather than paraphrase his words, we quote Dr Elwin:

> The Community Development people are devoted and intelligent. The only trouble is that I often just cannot understand what they are talking about. And, what is even more disconcerting, they cannot understand me.
>
> For example, where I would say 'How do you do it?' they say, 'what is your methodological approach?'

In one note I remarked that 'when tribal girls go to the towns, they sometimes become tarts.' This caused a lot of trouble. I was hauled over the coals at a very high level for using the word 'tart' in an official document. The sentence was then revised for my instruction to show me how one ought to write. 'When females belonging to the Scheduled Tribes become acculturated to the socio-economic conditions of urban society, they become psychologically maladjusted and adopt anti-social practices. That is what necessary: that is what people understand.

Stamp Of Science

Whether their economy is "developing" or "affluent", people everywhere have a common problem—the food they eat. In a developing country, handicapped further by poor performance in agriculture, as in the recent food shortage in India (was it real shortage?) complaints came like flood into newspaper and Government offices about foodgrains, oil, milk, butter and every blessed thing that man consumes, being adulterated stuff. Water, dust, sand, powdered stone, chalk and God knows what else, were said to have found their way to edible articles. The responsibility for effecting this happy marriage between the edible and the unedible was laid squarely at the door of traders and middlemen who know where to draw the line between private profit and public good.

But from "affluent" societies comes a different story. Dr Hargreaves, a U.S. food specialist, is credited with the statement: "the recent increase in aplastic anaemia and leukaemia is at least partly due to the widespread use of insecticides".

Far more interesting is the research that Lady Dartmouth has made on the food, vegetables and fruits sold in England. In a forthright speech to the Central London Federation of Townswomen's Guilds (reported in *The Guardian*), she drew attention to the unseen hazards that people in her country run into. You go to the butcher and ask for a cut of beef; you don't know that the animal had been given tranquillisers. You buy some cod from your fish monger and you don't know that it has been preserved in ice impregnated with antibiotics. The milk you buy could be from the udder of a cow injected with penicillin for protection against mastitis. People who know better say that penicillin in milk gives humans dermatitis and urticaria which is a nasty skin disease. The bread you get from the baker is heavily bleached with a resulting loss of 38 vitamins. Eggs and chicken, too, bear the stamp of science. The eggs were laid by drugged, battery hens. The hens have been injected with hormones "which cause sterility in animals and have a very sinister effect on humans". As for vegetables, she says, they might contain toxic pesticides and fruits might have their share of arsenic sprays.

We in India have also made a beginning in modernity. People old enough will recollect for you the long battles that Mahatma Gandhi fought against polished rice. But who cares? Gifts of civilisation are not so easily given up.

SHAMBU — **Malinda Topa**





IGNORAMAN
Wants to Know

If STATISTIC means
an unemployed person,
does STATISTICS mean
the number unemployed?

Books

Influence of Non-Bank Money

Financial Intermediaries and Monetary Policy in a Developing Economy by Alak Ghosh: The World Press Private Ltd., Calcutta, 1964. 136 pages. Rs. 9.50.

R. G. Nayak

THE main object of the book is to show the importance of the non-bank financial intermediaries in relation to monetary policy both in developed and under-developed countries.

The author has discussed in chapter 2 the Gurley-Shaw thesis and the Redcliffe Sayers thesis. In the United States Gurley and Shaw have focussed attention on the growth of non-bank financial intermediaries and the problems posed by their rapid growth for monetary policy. According to them, growth of non-bank financial intermediaries encouraged in part by the competitive handicaps imposed on commercial banks for purposes of monetary control, progressively provides close substitutes for money and thus increases the liquidity in the economy. Presence of these close substitutes to money makes the traditional methods of credit control somewhat ineffective. They therefore contemplate an extension of the Central bank's regulatory instruments to cover the non-bank financial intermediaries. In England the Redcliffe Committee's report has developed the 'liquidity theory.' According to the committee, the central piece of monetary action is not the supply of money but the structure of interest rates or the state of liquidity of the whole economy. If monetary policy has to be effective it has to influence the whole structure of interest rates and the entire liquidity of the economy in the broadest sense. The Committee has advocated a combination of control of bank advances, of capital issues and of consumer credit to this end. Though the committee has considered the growth of the non-bank financial intermediaries as posing a substantial threat to monetary stability they have rejected the proposals for the imposition of the bank type control over these institutions. The different policy implications of the two views arise from the differences in the set up of financial institutions within the two countries.

Chapters 5,6,7 and 8 deal with the role of financial intermediaries in the Indian economy and the problems posed by them to the monetary policy of the Reserve Bank of India. The author recognises that the majority of the newly created specialised financial institutions in India are either Government-owned or are participated in by the Government and hence they could easily be controlled by the Government (page 79); that the Indian non-bank financial intermediaries are almost incapable of creation of loanable funds (page 91); that building societies, hire-purchase companies, sales finance organisations and chit funds have not grown on a large scale in India (page 127); and that under the Banking Laws (Miscellaneous Provision) Act of 1963 ample powers have been given to the Reserve Bank of India to deal with non-bank financial intermediaries who accept deposits (page 127). These recognitions, by implication, indicate that in India the non-bank financial intermediaries have not posed any serious problem to the monetary policy of the Reserve Bank of India.

Though Prof Ghosh suggests that the regulatory powers of the Reserve Bank of India should be increased to deal with non-bank financial intermediaries, he has not convincingly proved either that these powers are essential because the non-bank financial intermediaries act against the policy of the Reserve Bank of India nor has he shown precisely in what way, in his opinion, the regulatory powers of the Reserve Bank should be widened. He discusses the problem of bringing the indigenous bankers under the purview of the Reserve Bank but offers no specific recommendations in this connection.

In the last chapter, the author has suggested that the non-bank financial intermediaries have a new role to play in mobilising hoards and their diversion into investment according to Plan priorities. He considers that this requires a good deal of control of the Central bank over important categories of non-bank financial intermediaries in addition to commercial banks. He is not specific in what directions he thinks that the control of the Reserve Bank should be extended for this purpose.

The book is full of repititions. Probably the author has tried to convert a few class-room lectures into a full-fledged book by this technique.

TOOLS FOR THE FARMERS

Report on Improved Agricultural Implements in Madras State (October 1963). Committee on Plan Projects (Agricultural Team), Planning Commission, New Delhi. 106 pages.

M. K. Ramamurthy

IF agricultural progress by means of better implements is limited, the record of Madras State presented in the report by the Committee on Plan Projects is fairly reassuring. Mr A.P. Jain's observations as to supply and distribution as also manufacturing on a large scale will certainly spur improvement in view of the new importance acquired by farming. Variations in implements used are due to soil and irrigation as well as climate. The scope for advance rests on the fact that 45 per cent of owners of the cultivated area have reasonably large holdings and can afford to adopt better implements like iron ploughs drawn by stronger bullocks while cheap power may encourage the use of electric pumps in wells built in recent years by the grant of Government subsidy.

Shortage of iron and steel has hampered progress, but the experts are convinced that the departments concerned can do more to encourage good farmers by getting a bigger quota of essential materials. A hopeful sign is the interest already evinced in power tillers for wet cultivation. Of course, a number of implements for manual operation are already available. The cheapening of the cost of improved tools available is in the forefront of extension work in future and mould board ploughs can be sold through co-operatives and panchayat unions, if they employ qualified persons to undertake repairs.

Demonstration by special staff can help encourage sales of sprayers etc., and hiring out small tractors is not the only means of modernising cultivation by saving time and labour too. There is a growing interest in mechanised farming, and in places like Coimbatore, the results seen are encouraging. It is assumed that fewer and better tools are the result of efforts to improve agriculture and the farmer has been ready and able to replace bullocks by oil engines. The most significant finding is that farmers in Madras have no prejudices and the State Government must do more to spread knowledge and use of the improved implements.

ON SOME WRITERS OF INDIAN HISTORY

A Study of Methods of Historical Research and Narration of P.K. Gode, J.N. Sarkar and G.S. Sardesai on Historiography—by S.R. Tikekar. Popular Prakashan, Bombay, 1964. 71+8 pages. Rs. 6.

S. V. Desikachar

"THE best historian is one who historicises to quench his own thirst for pure knowledge." The three savants possessed this quality in the highest degree. While Sarkar was devoted to the study of Aurangzeb and the later Mughals, Sardesai applied himself to the history of the Maratha nation. The two studies being linked up as the obverse and the reverse of the same coin, their close partnership was of particular value for the advancement of knowledge. We are indebted to them not only for their brilliant historical writings but also for unearthing a good part of the source materials and making them easily accessible to scholars.

Gode's field of study was Ancient India, but he did not specialise in a particular dynasty, period or aspect in the conventional sense. He attended to odds and ends, but when totalled up they constituted something very substantial to rank him among our topmost historians. He wrote learned articles on the history of kite-flying, writing materials, hair-dyes, *tambula*, *jilebi*, and what not. With his encyclopaedic knowledge and his systematic methods, he helped in solving many a chronological problem. The present study brings out the dedicated life led by these eminent scholars, their personal problems, and the caste, regional and other prejudices they had to encounter in their academic pursuits. Reference is made to some of the problems they had to face as historians to show that their methodology was sound, thorough and objective. It is more a laudatory and appreciative work in a general sense than a systematic study in methodology.

SOUTHERN ECONOMIST

Southern Economist, Volume-V: Nos. 18-19. Republic Day Number 1965.

UNTIL a few years ago the number of Indian journals and periodicals devoted to economic and financial matters could be counted in hand. The fact that now there are so many is surely a measure of the wide interest planning in this country has evoked. The *Southern Economist*, as far as one can discern from its leading article and notes in this Republic Day number, stands for impartial and objective journalism, and promises to make a contribution to the moulding of public opinion in the right direction. The leading article pleads for 'an incomes policy linked to productivity' but points to the pressures which the vested interests may apply in thwarting the emergence of such a policy. The note on the appointment of the I.G. Patel Committee to go into the question of the abolition of the managing agency system admirably sums up the experience elsewhere thus: "Companies can be managed better by alternative systems and managing agencies can well be a hindrance in the way of securing optimum efficiency". That on the Food Corporation of India points to "the difficult task facing the Corporation in breaking the invisible link between the farmer and the trader-cum-money lender". Among the special articles N. Nagaraja's "Marketable Surplus in India: Problems and Progress", T. Edwin's "Trends of Public Expenditure in the States", S.M. Veeraraghavachar's "Union-State Financial Relations in India", and Prof. V.K.R.V. Rao's "Workers' Participation and Ownership" deserve special mention. The variety of the topics and the lucid manner of their treatment make this Republic Day number a 'must' reading for students of economics and all those interested in Indian planning and economic development.

S. G.

PUBLICATIONS RECEIVED

Growth Without Inflation. 148 pages. Rs. 15. *All India Household Survey 1962 (Occasional Paper No. 13)—A Summary Statement on Income Distribution in Rural and All India.* 23 pages. Rs. 2.50. *All India Rural Household Survey 1962—New Insights into the Propensity to Save in India.* 5 pages. Re. 1, *Cost Price Structure of Iron Ore.* 102 pages. Rs. 7.50. *Domestic Fuels in Rural India.* 131 pages. Rs. 12. *Summing up Pattern of Growth of States (Occasional Paper No. 12).* 41 pages. Rs. 4.50. *Techno-Economic Survey of Goa, Daman & Diu.* 275 pages. Rs. 20. *Distribution of National Income by States 1960-61.* 216 pages. Rs. 15. All published by National Council of Applied Economic Research, New Delhi.

SURGICALS — Interview

from page 6

Bombay, Madras and some towns in Uttar Pradesh also.

The plant will produce 166 types of instruments. Do they cover all the types required for various cases of surgery?

In all, there are as many as 1,800 varieties of instruments which are used all over the world. The 166 types to be manufactured in our country have been selected after consultation with our leading surgeons and the Soviet experts. In fact, they cover a fairly wide range of indispensable instruments required for surgical cases in our country.

What are the raw materials required for manufacture of these instruments?

Mainly stainless steel and carbon steel.

Many are familiar with stainless steel. But what is carbon steel?

Stainless steel which is normally used in making vessels is not good enough for making surgical instruments. We have therefore to use a special type of stainless steel, according to Russian metallurgical specifications. As regards carbon steel, we have to use different types of such steel for different instruments. The difference between the two is, in the latter the instruments will have to be electroplated whereas in the former, no such plating is necessary.

Do we get these steels locally or have we to import them?

Certain qualities of steel are to be produced at Durgapur, the Mysore Iron Works at Bhadravati and the Tata Iron and Steel Company, Jamshedpur. For the present, we have to import 310 tonnes of stainless steel and 180 tonnes of carbon steel a year.

What are we doing to meet the shortage of these special steels in the country?

The Directorate-General of Technical Development in the Ministry of Industry and Supply has taken up this problem with industries in the public and private sectors, and it is expected that production of these steels will be undertaken by some of them.

When do you expect your plant to go into full production?

We expect to reach the target—2.5 million pieces of instruments a year—in 1968. However, production on a trial basis of 35 varieties of selected instruments will begin from August this year.

Which are the most important instruments you propose to produce first?

Initially, we shall manufacture common instruments like scalpels, surgical scissors and forceps. These are the instruments which are in great demand in hospitals, particularly from rural areas. Gradually, we shall start producing other varieties. The idea is to meet as far as possible the demands of rural hospitals and also to add to the equipment of hospitals in urban areas.

By the end of the Third Plan we would have 14,600 hospitals and dispensaries and 86,400 medical practitioners in our country. Do you consider 2.5 million pieces of instruments enough for our requirements?

No. As you know, the numbers of hospitals as well as doctors are not adequate to meet the demands of the country. The 166 types of instruments which we propose to manufacture are expected to cover 70 per cent of our present requirements, the remaining 30 per cent being served by the private sector. With the growth of population at the rate of more than 2 per cent per year, and the corresponding increase in medical facilities, the demand for hospitals and doctors will also go up, creating a corresponding increase in the number of surgical instruments.

Have you any plans for expansion to meet the growing demand?

Yes. We are already considering adding more items on the manufacture list during the Fourth Plan period. In fact the facilities available in the present campus will enable us to more than double the installed capacity.

What about prices? Do you propose to sell instruments at competitive prices?

We shall sell our products at reasonable prices. Let me explain. The cost of imported instruments is high due to the duties and taxes payable on them, as compared to the indigenous products. The quality of indigenous products is not generally high. We would therefore release our instruments against prices which should be cheaper than those of imported varieties, but a little higher than those now being paid for the indigenous products. This is because of the high cost of imported raw materials in the initial stages of manufacture.

We had been importing surgical instruments from the U.K. and Germany. Can you tell me why we have sought Soviet help for manufacturing these?

We are getting Soviet help in many spheres of our economic and industrial activities. This unit is one of the three industries initially agreed to be put up in India by the Soviet Union, the other two being the Antibiotics Plant in Rishikesh and the Synthetic Drugs Plant in Hyderabad. Surgery has in recent times made remarkable advances in the Soviet Union. In fact, for the first time in the world Soviet surgeons have introduced what is known as arterial surgery. Their knowledge and skill in making precision instruments will help us a great deal in the manufacturing process.

Your plant is to go into full production in 1968. Would it be behind the construction schedule?

Not at all. Rather we are far ahead of schedule. According to initial forecasts, the plant should have started production by the middle of 1966. As you know, our tool room began production from October 1964—more or less a year earlier. The main plant will be commissioned by August this year, with the erection work practically completed.

May I now ask you one last question? As the Project Administrator, do you visualise any particular problem?

Well, I don't think there will be any major difficulty as such. I am an optimist. In case a problem arises, I am confident that it will be solved.

For every six per cent growth in economy, electricity output has to increase by 17 per cent.

ELECTRICITY AND ECONOMIC GROWTH

FREMONT FELIX

Planning and Development Consultant, Gibbs and Hill Inc., U.S.A

WHEN I visited India in January, 1965, to participate in the Symposium on Steam Power Stations, I discussed India's power programme with Prof M. S. Thacker, Member of the Planning Commission. Arising out of this discussion, both through our work on the use and growth of energy throughout the world and through the participation of our organisation in the design and construction of three of India's newest thermal plants, I thought I might bring out some of the aspects —as seen from a global point of view —of what the development of India's electric power programme will mean to her economic growth.

Although India ranks now as the fifteenth most important country in the world in the generation of electric power,* her present per capita use of 60 kilowatt-hours per year is exceeded in two-thirds of the 165 countries of the world.

Since our world analysis of "Electric Growth" has brought out that the per capita use of electricity, besides being, as is well-known, one of the most valuable indices of the standard of living, provides a definite indication of the rate of expansion of electricity generation which should be maintained in order to stimulate and support specific rates of economic growth, we shall review these general findings on the basis of India's present status.

*The fifteen countries are: United States, U.S.S.R., United Kingdom, West Germany, Japan, Canada, France, Italy, Communist China, East Germany, Sweden, Norway, Poland, Czechoslovakia and India.

Most Important Source of Energy

Through its use in industry, agriculture, transportation as well as in commerce and in community and residential living, electricity penetrates directly or indirectly every facet of a nation's life. At all stages of industrial development, the use of electricity emphasises human and technical progress. Electricity represents the most finely controllable form of energy, equally applicable to the heaviest and to the most sophisticated mechanisms in fulfilment of the most important tasks demanded of industry, and on that account electricity takes on always an increasing share of the total consumption of energy as a whole, measured as the sum of the commercial sources—coal, oil, natural gas, water power, nuclear power—and of the non-commercial sources—firewood, charcoal, waste products, etc.

It is of interest to note that the share of non-commercial sources of energy—which now approximates to 50 per cent of India's total consumption—will continue to decrease rapidly, since the use of non-commercial forms will grow at a very low rate while the consumption of commercial forms of energy will increase at a rate commensurate with that of industrial production.

Of the total use of commercial sources of energy, India's generation of electricity will consume, in 1965, only 16 per cent, but this share will keep on increasing, reaching 19 per cent in 1975, 21 per cent in 1985, and so on. (As a matter of comparision, in the U.S.A. this share will be 26 per cent in 1965).

With this mention of the broad reasons for electricity's rapidly growing share of the total energy consumption, we can now pinpoint, on the basis of our world studies, that for India an estimated rate of expansion of electrical energy of approximately 17 per cent per year for the next five years should be aimed at, in order to make it possible for the industrial, commercial, as well as transportation, residential and other electric power needs to be met, so that all the sectors of the economy can contribute to the attainment of the 6.3 per cent overall growth rate target, on a constant price basis, of the Fourth Plan.

Growth Rate of Electric Power

Since this rate of expansion is within the range of the electric power target of the Fourth Plan now under consideration, we shall briefly dwell on some of the questions which it may suggest:

For instance, even taking into account the increasing participation of electricity in an economy which aims to achieve an increasing level of industrialisation, why should the growth rate of electric power (17 per cent) be nearly 2-3/4 times that of the economy as a whole (6.3 per cent)?

The answer will become clear if we restate the question in terms of yearly totals, not growth.

If we assume that the national income and electricity generation in 1965 is Rs 100 and 100 kw. hours respectively, we are simply saying that in order to attain an income of

Rs 106.3 in 1966, India shall have to provide 117 kw-hours of electrical energy, which means that the electricity content of India's economy in 1966 would be just 110 per cent of what it is in 1965.

In order to obtain a definite measure of electricity's share in India's national income in the years to come, we are, therefore, tabulating our own estimate, solely based on our world study as applied to India, since it can be fully expected that any difference between these and official figures would not affect the very general relationship which we would like to establish.

Year	Population in million	National income Rs crore	Cost of electricity	
			Rs crore	Percentage of national income
1965	485	17,000	550	3.25
1970	545	23,000	868	3.77
1975	610	30,000	1,430	4.76
1980	685	37,000	2,167	5.77
1985	775	46,500	3,214	6.95

Whether we project our imagination to 1980 by which time the kw-hour per-capita use in India will be comparable with today's use in Lebanon, Greece or Mexico, or to 1985 when it will approach Ireland's level of consumption today, we can easily realise how relatively minor the cost of electricity will be to India in terms of the national income to which it will contribute so substantially.

In preparing these figures and reflecting the economies to be effected by the successively larger sizes of units which will be used, as the size of the average unit gradually increases from 62.5 to 125, 250 and 400 mw, we have assumed a gradual decrease of the cost of the kw-hour, which would come down in 1980 to a figure 10 per cent higher than the delivered average cost in 1963 of all the kw-hours generated in the United States.

This factor of economics achieved through size increase is of definite importance, since, on a constant price basis, it results in approximately a 2 per cent annual reduction in the cost of each kw-hour, which is approximately twice the yearly gain we have analysed in a comparable correlation between the use of total energy and national income. In this latter case, the combination of technological improvements and of the size factor brings, on a nationwide basis, about one per cent more income each year than the year before, for the same expenditure of total energy. Although this 1 to 2 per cent reduction may appear to constitute only marginal gains, it contributes to offsetting the yearly attrition in the value of practically all currencies.

Having shown that even at the fast growth rates under contemplation the cost of electricity will always constitute a relatively moderate share of India's total domestic product, we may briefly mention that, from the investment point of view, the provision of the additional electric power plants and transmission and distribution systems required also represents a moderate percentage of the yearly total capital expenditure outlay. India's 11 to 12 per cent share of total capital expenditure on electricity is very much in keeping with the corresponding allocations made in a number of countries which have reported these investments.

The above considerations having pointed to the general conformity of the Indian electric power programme with what would be regarded as its desirable importance in relation to India's national economy, it is of interest to estimate the rate at which electric capacity additions should be programmed to ensure that the national income growth targets will be either met or closely approached.

On the basis of our own studies, we would estimate that the achievement of a 6 to 6.3 per cent growth rate for India's economy would require a yearly increase in electrical energy of 17 per cent per year, which can be met with what is being considered for the Fourth Plan, *viz.*, 22 million kw of installed capacity by 1970-71. But for correlating these additions to India's electric capacity with the desired rate of economic growth, the main emphasis should be on achieving consistent and continuous growth rather than on meeting exactly specific targets on specific dates.

It is of interest to note that in order to achieve for India's national economy, during the subsequent years, growth rates gradually tapering from 6.3 to 6 to 5½ per cent, the rate of addition of about 2,200 mw per year during the Fourth Plan should become 3,000 mw per year during the Fifth Plan and 3,400 mw per year during the Sixth.

Easier to Plan Electricity Output

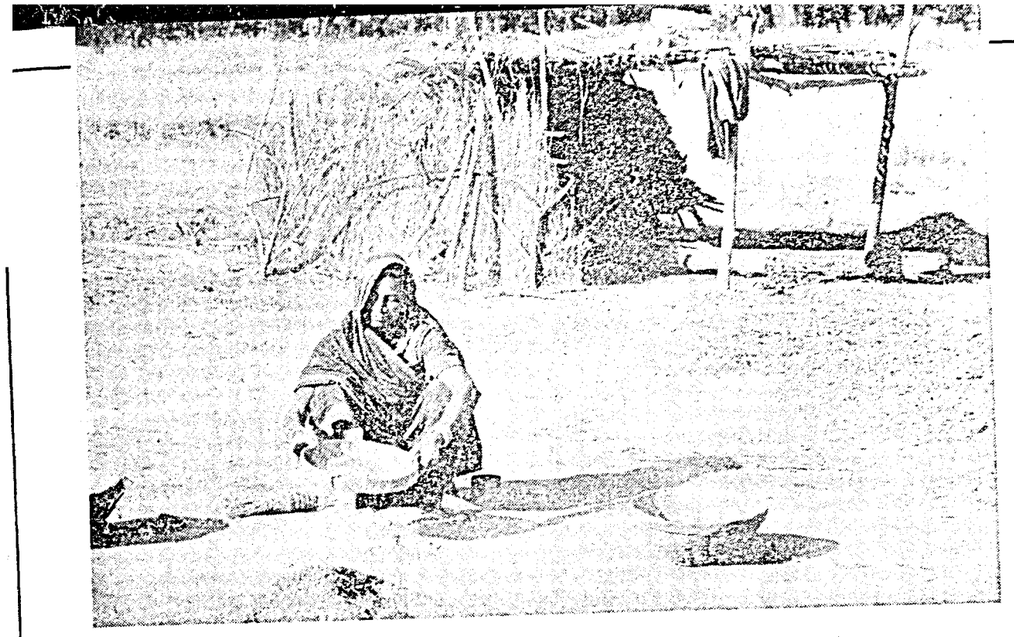
The fundamental flexibility of electric capacity planning will always make it possible to readjust the power programme on a continuing basis, taking full advantage of the fact that every aspect connected with power generation can be programmed with a greater degree of accuracy than in most other branches activity.

This will make it possible, without any loss of investment, to correct any under-or over-fulfilment during the same or the subsequent Plan period.

Also, the unique flexibility of electric power will make it possible to adjust any important changes which may develop in the geographic pattern of the load, as long a the main regions and the States within each region are suitably interconnected. This, in itself, illustrates one of the basic claims of electric power to a "higher priority", so to speak, because the ultimate destination of electric power can readily be corrected in case of unforeseen changes in the location or importance of sizable load blocks,. Electric power which may become superfluous in a specific region can be transmitted to other areas to meet the demand by industry and other new needs.

The ability to be provided by interconnection to transfer instantaneously the energy resources of any part of India to any other area is an economic necessity and, together with the availability of adequate generating capacity, the interconnection of all of India's electric systems is a major and rewarding goal to-

(Continued on Cover iii)



LOVE and Roof Tiles

SUPPOSE you had one acre of cultivable land and a family of five to support with no education or scope for employment. What would you do to make an honourable living? Abandon your home and migrate to town? That is exactly what many Gonds and other Adivasis have done in Madhya Pradesh. It is just as well because able-bodied men and women are needed in towns and mining areas.

But Chamru and his wife had different ideas. I first spotted them through the binoculars as I sat on the lawns of the Supkhar forest rest house on a February morning. The couple seemed to be busy doing something all the time—sweeping, kneading, sieving. I watched them day after day and never found them idle from dawn to dusk. My curiosity was aroused.

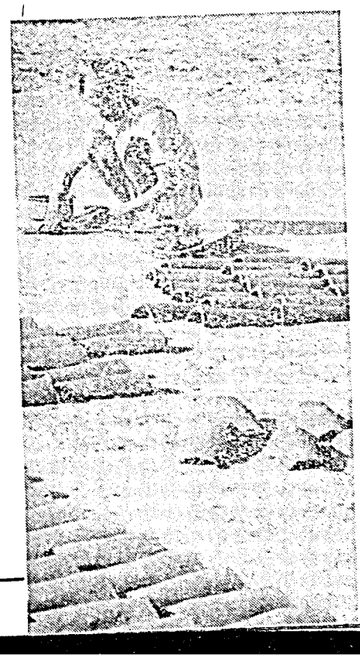
In this tiny village of Gonds and Baigas situated in the heart of the tiger land of Madhya Pradesh about 320 kilometres from Nagpur, people tend cattle, grow paddy, brew *mahuva* liquor and poach when they can. When Shikaris camp here for tiger hunt, they make some extra money as beaters.

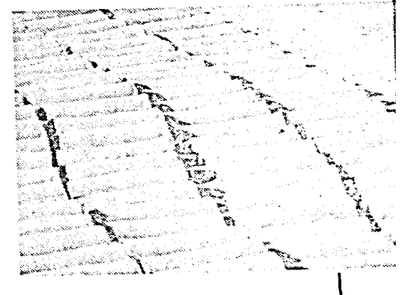
Faced with starvation Chamru, too, was tempted to migrate to Balaghat in search of employment. But Binju, his wife, stoutly opposed the idea. She did not like to leave her land and native home. "Why shouldn't we make roof-tiles?" she asked. "But where's the potter's wheel?" Chamru countered. There was no money to buy one. For this she had a ready solution. "Why not make the tiles from moulds?"

So Chamru and Binju started making tiles. In the beginning their daily output was 20 tiles and speed came with practice. They now make over 100 tiles a day and earn about Rs. 50 a month, enough to supplement their income from land. Their three children tend the cattle and collect the dung for manure.

How did Chamru like this life, working ten hours a day and every day of the week? The answer was simple and touching. "I know no fatigue", he said, "because my Binju is always by my side and shares my work."

S. S.







TWO STEEL CASTING PLANTS

Two iron and steel casting plants are to be set up in the public sector with assistance from Czechoslovakia. Agreements for the two projects were signed in New Delhi on March 25.

One of the two plants will be located at Wardha in Maharashtra. It will have an annual capacity of 12,000 tonnes of steel castings, including alloy castings, and 8,300 tonnes of steel forgings.

The other plant, to be situated at Jabalpur in Madhya Pradesh, will manufacture 15,000 tonnes of finished iron castings mainly for use in the vehicles for defence services.

Czechoslovakia will prepare project reports for the two plants and also finance the projects from its second credit given to India.

Pre-fab Factory Doubles Output

The Government-owned Hindustan Housing Factory produced pre-fabricated houses valued at Rs 1.51 crore in 1963-64. The production has doubled in value in two years. It earned a profit of Rs 5.11 lakh for the year (Rs 4.15 lakh in 1962-63).

The factory has taken up the manufacture of pre-fabricated large panel houses. It built 16 such flats for the Delhi Development Authority.

Latest IMF Credit

The International Monetary Fund has granted India a standby credit of 200 million dollars (Rs 95.2 crore). The credit will help India to tide over its present foreign exchange difficulties.

The credit can be drawn over a period of one year.

India has already drawn 100 million dollars (Rs 47.6 crore), half of the promised credit, in currencies of six countries—17.5 million dollars each for Canada, West Germany, France, Italy and Japan and 12.5 million dollars for Australia.



HSL's Earnings Touch A New High

The Hindustan Steel Limted earned Rs 186.60 crore by selling iron and steel materials and by-products in 1963-64, an increase of Rs 55.90 crore over the sales in the previous year. Exports of iron and steel materials were valued at Rs 72.60 lakh and those of by-products at Rs 23 lakh for the year.

The company made a profit of Rs 45 crore for the year (Rs 24 crore in 1962-63).

The production of steel ingots at the three steel plants under the Hindustan Steel Limited was 97 per cent of the rated capacity, as against 83 per cent in 1962-63. The production of saleable steel amounted to 94 per cent of the rated capacity, as against 76 per cent in 1962-63

U.S. Loan for Varanasi Plant

The Export Import Bank of U.S.A. has given a loan of 17 million dollars (Rs 8.1 crore) to the diesel locomotive works at Varanasi. The loan will provide dollar exchange for importing components to be used in fabricating 80 diesel locomotives.

Earlier, in 1963, the Bank had given a loan of 19 million dollars (Rs 9 crore) to the Varanasi works.

NEW SAVINGS CERTIFICATES

A NEW type of National Savings Certificates will be on sale at all post offices from June 1. The certificates will mature after ten years and will earn 80 per cent as interest at the end of the ten-year period. The annual interest rate works out at over 6 per cent on compound basis.

The certificates can be held only by individuals, singly or jointly. The maximum limit is Rs 25,000 for single holding and Rs 50,000 for joint holding. The certificates can be encashed after two years. They can be assigned to nominees, pledged and transferred.

Those who buy National Defence Certificates on or after April 1 can convert them into these National Savings Certificates from the same date as the original issue.

From April 1, the deposits of individuals in the postal savings bank, both new and old deposits, will earn a tax-free interest at the rate of 4 per cent.

The Cumulative Time Deposit Accounts opened on or after April 1 will earn a tax-free bonus at maturity in addition to the existing maturity value.

Telephone Target Overfulfilled

The Indian Telephones Limited, Bangalore has achieved the Third Plan target of three lakh new telephones in 1964. The target has been revised to four lakh and more than 90,000 of new connections are expected to be provided this year.

With the completion of coaxial cable project and the cross-bar trunk automatic exchange schemes the facility of subscriber trunk dialling will be made available to 30 important towns. The rate of expansion of telephone facilities in India is the highest in the world.

The Employees' State Insurance scheme covered 26.64 lakh industrial workers at 206 centres all over the country at the end of December 1964. It is expected to benefit 30 lakh workers by the end of the Third Plan.

FORUM EVENTS
Reporting the Activities of College Planning Forums

Results of a Social Survey in a Madras Village

Attitude To Education, Savings & Prohibition

THE Planning Forum of Chikkaiah Naicker Mahajana College, Erode (Madras), in collaboration with its Social Service League conducted a socio-economic survey of Kasipalayam, an adjoining village, in November last.

Kasipalayam has a population of 1,020 (600 males and 420 females) but the survey confined itself to collecting data on 84 families with a total of 454 members. Of these 13 were joint families, one having as many as 19 members. Nine families had seven members each, including husband and wife, three children and parents. Four had more than seven members and the remaining families had less than seven members. There were four single families consisting of married couples.

The Forum found that the village lagged behind in education. In spite of the existence of a college and several schools in Erode, barely 3.2 kilometres from Kasipalayam, only 54 children attended primary schools, 28 middle schools and 14 boys and four girls, secondary schools. In the families surveyed there were nine children who had not learnt the three R's.

As regards property and income, the Forum found that four families had no property, six had livestock only, 15 had both houses and livestock and the rest had only landed property. As for annual income, two families earned more than Rs. 10,000; three had an annual income ranging from Rs. 5,000 to Rs. 10,000 and five were within the range of Rs. 3,000 and Rs. 5,000. Of the remaining, 41 families had an income of less than Rs. 1,000 a year. The income of the rest of the persons ranged from Rs. 1,000 to Rs. 3,000. The per capita income on the basis of the number of people surveyed came to Rs. 316.47.

Asked about their views on prohibition, 90 out of 130 said that they were against the measure.

The survey revealed that the only method of savings adopted by the families was to keep gold and jewels. In all, 84 families had in their possession 915 gold sovereigns. Only 20 had radio sets. Though only few families had taken up insurance policies, other methods of savings, such as bank or post-office accounts and prize bonds were not followed.

In its report, the Forum admits that there were some obvious limitations to the survey. Families were classified as single and joint on the basis of married male members. The number of joint families being limited; the actual property that belonged to each married male member in the joint family had not been taken into account. There was no way of ascertaining the value of the property of the families except on the basis of declarations made by the owner. So the possibility of under estimation is always there. Also, according to the report, the Forum had not been able to find out the earnings of those who worked outside the village, mainly in the railways. In spite of these drawbacks the Forum feels that the survey has been able to create a sense of social consciousness among the members of the families surveyed, besides emphasising the urgent need for exploiting the educational potentialities of the village.

The Forum also celebrated the National Plan Week and arranged essay and elocution competitions on "Democratic Socialism' and "Our Five Year Plans and Socialism".

INDIGENOUS PRODUCTION OF CAPITAL GOODS

Committee to Report on Capacity

THE Planning Commission has set up a ten-member technical committee to make a quick assessment of the maximum capacity of major engineering units in the public and private sectors to meet the capital goods requirements of the Fourth Plan. The committee will take stock of the requirements of capital goods for major industries like steel plants, mining, cement, sugar etc., and review the extent to which they can be met from the major projects in operation and those under implementation.

The committee will take cognisance of the major gaps in indigenous production and recommend steps for filling them expeditiously so that imports on that account could be reduced to the minimum. Besides considering expansion of existing projects and planning new ones, the committee will also examine additions and adjustments in the production programme of both the existing units and those under implementation.

The committee, which is to submit its recommedations within two months, consists of the following members: Dr A. Nagaraja Rao (chairman), Mr P.C. Kapur, Mr M.M. Suri, Dr K.S. Chari, Mr S. Moolgaokar, Dr B.D. Kalekar, Mr S.S. Jagota, Mr K.B. Rao and Mr K.M. George. Mr B.C. Mathur will act as member-secretary.

* * *

AN eight-member technical committee has also been set up by the Planning Commission to assess the needs of electrical equipment for generation, transmission and distribution of power during the Fourth Plan period.

ARID INDIA

From Page 12

deluged once again to become productive.

Spadework by archaeologists had revealed that the Ghaggar river in north Rajasthan, now bone dry, flowed during 2,600 BC. Reconstruction from historical and archaeological evidence revealed that different sets of settlements did not come to an end because of invasions, earthquakes or pestilences. It is not unlikely, said Dr B.B. Lal of the Indian Archaeological Survey, that the dried-up river may have spelled doom.

Vishnu Mittre, the Indian palaeobotanist from Lucknow, who recorded evidence of fossil rain forest flowering plants in ancient Rajasthan and the Thar suggests flooding the desert with a judicious use of a network of parallel and horizontal dykes to alter the environment. "The new Rajasthan Canal should feed them perennially until the water table has risen sufficiently. Sand binders should be planted on a large scale and dykes should be populated with aquatic plants," he said. The management of vegetation on this 'experimented basin' should be phased over Five Year Plans. The water table with profuse vegetation will change the sandy soils into loamy ones, predicted Vishnu Mittre.

Dr Rode of Udaipur University recommended a scheme to bund the Himalayan streams in the Simla region at suitable altitudes and divert the Sutlej waters. With the Bhakra Nangal project this can be realised, he said. From the dams, channels can be led into the dead rivers of Markhananda and Ghaggar. He warned that in the early stages much seepage would result but this would elevate the water table. This is a prerequisite for banishing the desert. Without realising this fact, Dr Rode said, all efforts would be temporary palliatives.

Dr H.L. Uppal, Director, Land Reclamation, Irrigation and Power Institute, Amritsar, who investigated ground water flow in certain Punjab districts to see if increased recharge from the Ghaggar and Bhakra Canal had produced any effects, reported that the river was the principal source of recharge. Seepage from irrigation channels was another source, he said, but it affected groundwater only locally. The inflow from the reservoir had increased to such a considerable extent that the water table had risen to an alarming extent. Uppal proposed a canalisation of the river in its entire catchment which would check this upward rise.

Water-minded scientists from the the Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, are coming to terms with salinity. They have reported on the technical and economic feasibility of desalting water. They estimated that the cost of converted water was 4-6 times more than that of fresh water and suggested the possibility of improving converted water production by diverting concentrated brine to nearby salt works for further processing or for recovering by-products like heavy water.

According to the salt chemists from Bhavanagar and Defence Laboratory scientists at Jodhpur, either electrodialysis as such or in combination with ionexchange could be used for treating brackish water.

The installation of windmills for pumping water for domestic purposes and minor irrigation, grinding corn, supplying power cutting water would make substantial contribution towards development and prosperity, the Bangalore scientists envisaged.

Water Conservation

Citing the use of the Jawai dam, Adyalkar believes that scope for water conservation exists in the damming of water of small streams. When lakes and reservoirs go dry, deep dry wells are the only source of water, he said. Discovering water is not everything, scientists know. Water has also to be fit for consumption. Samples of ground water from three development blocks in Central Luni were classified for irrigation purposes. It was found that normally used irrigation waters were not likely to produce alkalinity in the soil.

Assessing the efficient uses of water resources CAZRI hydrologists observed that groundwater resources are recharged slowly by the hilly catchments in Udaipur and Ajmer. They found no evidence of a continuous aquifer in the Luni tract.

From a study of daily rainfall during the last 20 years, hydrologists think there is scope for low surface storage tanks for good catchment areas. A dug-out type pond with minimum area exposed for evaporation is useful. Small underground tanks also reduce evaporation and percolation losses. Scientists agreed that all these would contribute as water points for grazing animals.

Indian scientists think that in the production of forage in rangelands, soil and water conservation practices including water spreading, bunding and furrowing has great scope in the desert.

Water engineers and geologists were of the opinion that careful coordination with water agencies in Rajasthan and the Indian Government was necessary to develop a vigorous water programme. The effects of development of new water supplies resulting from the Rajasthan Canal and from exploration and development of tube wells by the Exploratory Tubes Organisation may well have far reaching effects in water resources management in arid Rajasthan.

Is the Climate of Arid India Changing ?

Some scientists believe that the climate of arid India is changing. Observation of the monsoon had revealed that the mean annual rainfall over the arid land had not changed. There has been no significant trend, testified Dr P. Jagannathan, a W.H.O. observer from India, and no appreciable accentuation of the Rajasthan desert or extension of desert conditions over adjoining areas during the last 70-80 years, though an increasing trend in rainfall had been observed in semi-arid Bellary in the rain shadow of the western ghats.

According to Dr Subrahmanyan of Andhra University, a study of prolonged drought and aridity has indicated climatic shift. Evidence from the Bhuj and Jodhpur stations had shown wider ranges of oscillation. In rare years they even became dry sub-humid as in 1926

(Bhuj) and 1917 (Jodhpur). The migration into the semi-arid state is less frequent by far in the case of southern India. Jodhpur, after 1920, the climatologist said, showed signs of descending aridity with 4-2 years in successive decades up to 1950.

The CAZRI climatologists considered the extent to which climatic classification reflected the actual floral pattern of Rajasthan. The correlation between climatic change and changes in vegetation was found convincing to them.

The bulk of the population in Rajasthan is rural and concentrated around water sources. Their outlook is medieval and only 19 per cent live in towns. Most populous is the green Aravalli belt and the land between the Sutlej and the Ghaggar.

East Rajasthanis lived in wind corrugated hollows, being dependent on them for drinking water and for the manufacture of salt. "The desert is a scene of constant change", said Prof Ali. It attracts migrants from the east and north during the monsoon phase while an exodus takes place in both directions in adverse weather. What have affected the frequency of settlements are railways, mining and salt pans. Lignite, beryl, sandstone and glass add to Bikaner's importance; gypsum to that of Lankaransar, Suratgarh and Jaisalmer; Fuller's earth to Jodhpur; and Makrana is Rajasthan's marble town.

Increased fragmentation of land, uneconomic and unavoidable duplication of assets, further pressure of livestock on land, caste factions and inter-caste dynamics have released forces the socio-economic implications of which are not yet clear. Planned social change has not made much headway.

The sands of time in arid India are running out. Though the desert is still there and the mirage may mock and there can be no blueprint level for its quick recovery with problems still to be solved, the most urgent need is to draw up detailed inventories of the natural resources from reconnaisance surveys and achieve practical results in areas which are over or unwisely exploited, said Dr C. S. Christian of CSIRO (Australia).

The ability of these desert lands to raise productivity would depend on the human factor. It would depend upon the sincerity and determination and vision of India's scientists, administrators, extension agents, farmers, teachers—the people themselves.

In an India under emergency, her scientists have initiated an interdisciplinary assault on the desert. New scientific insights have been revealed and new directions indicated. Today India can afford to neglect these crucial problems only at its peril.

War on Smallpox

(*Continued from Page 16*)

and, in any case, within three years. The Control phase of the campaign will last for some years after the Attack phase is complete. It may be integrated into the country's public health services or combined with other control programmes—for example against malaria. In this phase each outbreak of smallpox must be followed by a careful investigation and the main activities will include the vaccination of newborn babies, immigrants and floating populations. Among the chief obstacles to complete success are lack of funds where smallpox is prevalent resulting in shortage of trained personnel, inadequate facilities for freeze-dried vaccine production, insufficient transport and cold storage space for vaccine.

It is outrageous that 160 years after the discovery of vaccination, we should have failed to make full use of this weapon against this dread disease. While large parts of the world have been rendered safe from this epidemic, the world is still threatened from outbreaks. This gigantic task can be handled successfully only through international co-operation in a well-defined sphere. Such co-operation is already much in evidence and what the developing countries can do to hasten the total eradication of this menace to human well being is to integrate the vaccination campaign with public health services and educate the people, some of whom still show resistance to this preventive treatment.

YOJANA BHAVAN DIARY

The National Development Council Committee on Agriculture and Irrigation met on March 22 and 23.

A delegation representing the various cotton interests headed by Mr Chimanlal B. Parikh, met the members of the Planning Commission on March 25.

A meeting to consider full utilisation of sugar capacity in 1965-66 was held on March 26.

A West German Delegation met the members and officials of the Planning Commission on March 31.

A two-day conference on regional transport surveys began on April 1 under the auspices of the Joint Technical Group for Transport Planning.

Mr L. Mazairac, Deputy Director, Dutch Youth Volunteer Corps, met Mr M. Butt, Joint Secretary, Planning Commission, in connection with the operational agreement for Dutch voluntary corps programme in India.

SNIPPETS

The following three public undertakings have raised additional capital (amounts stated against their names) in equity shares of Rs 1,000 each: The National Coal Development Corporation—Rs 10 crore; The National Mineral Development Corporation—Rs 1.91 crore; the Madras Industrial Investment Corporation—30.43 lakh.. Women's co-operatives in the country produced articles valued at Rs 75 lakh in 1962-63. There are 2,400 women's co-operatives in the country with a total membership of one lakh and a share capital of Rs 24 lakh The General Electric Company of U.K. is supplying electric plant and equipment valued at 550,000 pounds (Rs 71.5 lakh) for the expansion of Durgapur steel works. Most of the equipment has already been shipped from U.K....India's fish catch amounted to 10,45,700 tonnes in 1963. The total fish production in the world that year was 46.4 million tonnes...Rajasthan produced minerals worth Rs 8 crore in 1964-65. The State Government earned Rs 1.09 crore as royalty on this production. The State Government has decided to undertake mining of gypsum...About 5,000 families displaced from East Pakistan have been resettled in Tripura Territory....The Jabalpur district in Madhya Pradesh collected Rs 36 lakh in small savings in 1964-65...

YOU ASK US WE TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

EXPORTS OF HANDICRAFTS

D.N. Varma, Bareilly

What are the handicrafts articles that we export and what is our annual income from this source?

ANSWER: The handicrafts we export cover a wide range of articles, from costly jewellery and gems to inexpensive *agarbathis* and bangles. Broadly they fall into three groups—artware, textiles and other fabrics, and utility and decoration articles. Some of the more popular items are: woollen carpets, rugs, hand-printed textiles, art metalware and precious stones.

The exports were valued at Rs. 30.68 crore in 1963-64 and Rs. 21.53 crore in 1962-63.

CONSOLIDATED FUND

S. Bhatia, Bombay

What is the Consolidated Fund of India? When was it constituted and how is it operated?

ANSWER: The Government of India operates three funds—(1) Consolidated Fund, (2) Public Account and (3) Contingency Fund. These have been constituted under the provisions of the Constitution of India. All the receipts and expenditure of the Government are covered by these three funds.

The Contingency Fund has been created to meet the contingency expenditure only. It has a standing balance of Rs. 15 crore and, after any contingency expenditure, it is replenished year to year from the Consolidated Fund.

The Public Account relates only to the public funds such as the bank deposits, insurance, provident fund and savings certificates. Money lying in the Public Account does not belong to the Government, and it is paid back some time or the other to the public, or can be utilised by the Government in an agreed manner. No approval of Parliament is necessary for making due payments from this fund.

The Consolidated Fund consists of all the money received by the Government by way of taxes, customs, duties, loans and other measures. Money can be withdrawn from this fund only in accordance with law and for the purposes and in the manner provided in the Constitution. All expenditure made by the Government draws on this fund. The expenditure is of two types: (1) 'charged', *i.e.*, approved by the Constitution for specific purposes for which Parliament's approval is not necessary, and (2) voted, *i.e.*, for which Parliament's approval is necessary from year to year.

Estimates of expenditure to be met from this fund have to be presented to the Lok Sabha in the form of demands for grants. These demands generally cover the requirements of each individual Ministry or Department. These demands form part of the annual budget.

Similar funds are there in the States too.

ELECTRICITY & GROWTH

from Page 22

wards which continuing attention should be directed.

Importance of Interconnection

The economies of size are further enhanced when the isolated system requirement, that reserve capacity matching that of the largest unit be provided, can be waived. Even though there is no time difference within India, its sheer size creates substantial opportunities, through a two-way flow between interconnected systems, for taking advantage of staggered loads.

Also the fullest utilisation of India's hydro-electric potential and the most rational development of nuclear power—where the benefits from size are still pronounced—all point to the desirability of as rapid a realisation of interconnection as may be achieved. "In union there is strength" might well be paraphrased to read "In interconnection, there is strength *and* saving for India".

In the above considerations, we have concentrated on the ultimate goal, the generation and availability in increasing amounts throughout India of the quantities of electric power which will spearhead the growth of the economy in the directions where the greatest overall benefits can be achieved.

How will these considerable amounts of power be generated?

Basically speaking, largely from coal and water and, to a lesser extent, from oil, with the expectation of an increasing contribution from nuclear power, on which India is adding to the experience being gained from realisations overseas.

Whereas the actual installed capacity may not be very different for thermal plants and for hydro-electric plants, the former will be used more as base-loaded plants and the latter as peaking plants, thus widening the gap between the thermal generation and the hydro-generation totals.

Had space permitted, we would have attempted to touch on the parallel importance of the other sectors: agriculture, Industry, Mining, Transport, Services, Construction, etc., which together with electric power make up "India's team" in the achievement of national growth, but they are, to various extents, all dependent on electric power, and the special flexibility and other features of electric power to which we have referred, will, we hope, partly explain why we concentrated on this one member of the team, out of several, each of them of major importance to over-all success.

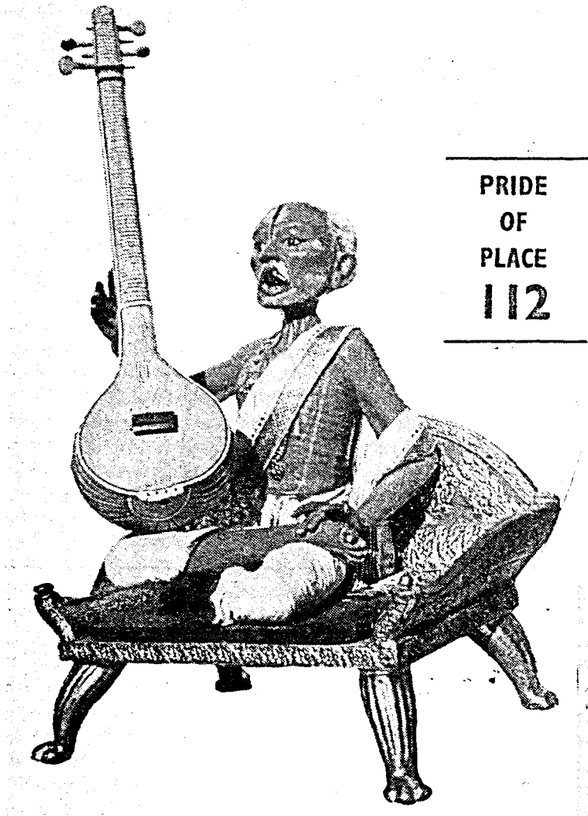
YOJANA

APRIL 25, 1965

NINTH YEAR 8

25 PAISE

PRIDE OF PLACE 112







KINNAL DOLLS

Photographs by
T. L. RAMASWAMY
Feature : Courtesy 'Prajavani'

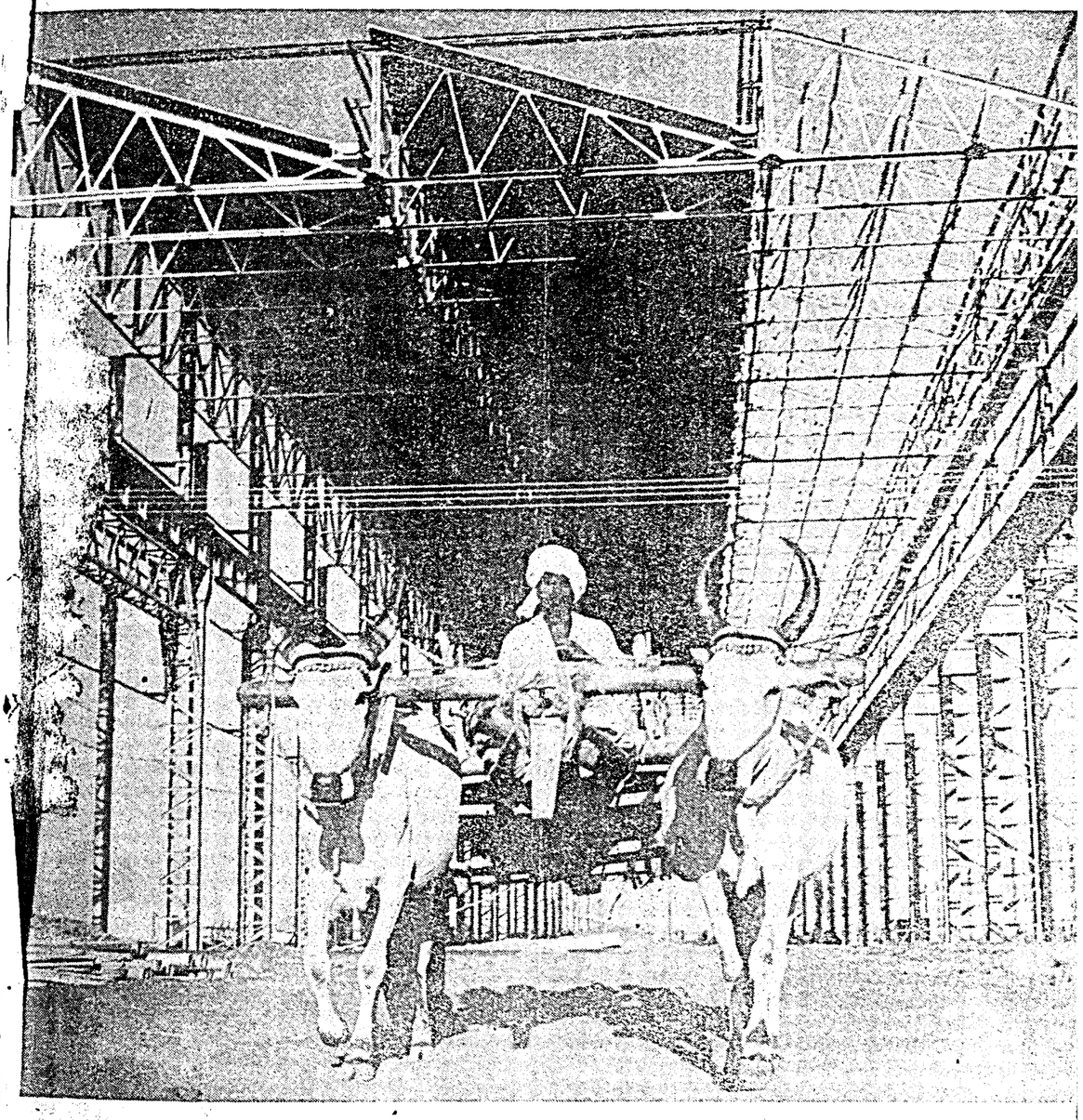
THE two place-names that spring to mind when we think of South Indian dolls and toys are Kondapalli and Pondicherry. Another place which was once as famous as these, but has lately fallen into oblivion, is Kinnal. Until two or three decades ago the toys of the place were popular throughout Karnatak and were known even outside.

Kinnal is a village in the Raichur district of Mysore State. It is the the home of several families of traditional doll-makers. It is said that they have plied the craft since the day of the Vijayanagar empire. From certain records it would appear that they are the descendants of the sculptors and decorators of the temples and palaces of Hampi. Kinnal thus had known prosperous days. Even now several examples of Kinnal can be seen in the palace at Mysore. But so rapidly did the demand for the products die out that most of the craftsmen took to other jobs, and the few families that continued with doll-making took to imitating the socalled 'modern' designs. When the Chairman of the All India Handicrafts Board, Mrs Kamaladevi Chattopadhyaya, visited the village three years ago and asked for specimens of the older styles, they were produced very reluctantly. Fortunately, in the last couple of years steps have been taken to see that the craft does not die out.

The Kinnal dolls vary from miniature to life-size. The raw materials are a light wood, husk, soapstone powder and cow-dung. A smooth paste made of the last three is smeared over the basic frame of wood. Bright local colours are then applied. The images of goddess predominate, and Durga is always represented in fiery red. The artists' skill is to be specially seen in the way the saris are painted.

Besides toys and dolls, the Kinnal craftsmen also make boxes, planks for swings and other utility articles.





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BOILERS FOR THERMAL PLANTS Pages 14-20

The Indian Agricultural Research Institute, New Delhi, popularly known as Pusa Institute, celebrated its diamond jubilee at the end of March. The Institute which has a proud record of fruitful sixty years has laid the foundation of agricultural research in India.

A symposium on 'Science in Agriculture', held on March 31 and April 1, was the highlight of the jubilee celebrations. A summary of the proceedings of the symposium is given here.

SCIENCE in Agriculture

Report for YOJANA by
M. S. SWAMINATHAN

INAUGURATING the symposium, Union Food Minister, Mr C. Subramaniam, referred to the wide gap existing between the acquisition of knowledge in the research institutes and its application on the farms. Citing the work done at the I.A.R.I., in the breeding of new varieties of crop plants, the building up of the highly productive Sahiwal milch herd and the development of intensive crop rotations like hybrid maize, wheat, Giant Napier grass and Giant Berseem, he said that attempts to take advantage of such excellent scientific work have been inadequate.

Mr Subramaniam also drew attention to another important weakness of Indian agriculture, namely, the lack of industrial initiative and support which are essential for its modernisation. For example, if the bio-gas plant designed at the I.A.R.I. in 1938 had been manufactured and popularised on a large scale, we would have been saving over 200 million tonnes of cattle dung for manuring our soils. He drew attention to the fact that in the United States only 7 per cent of the population is engaged in farming while nearly 60 per cent is engaged in industrial and business activity related to agriculture.

Mr Subramaniam announced that the Government proposed to initiate a National Agricultural Research and Development Year Programme, commencing from the *kharif* season of 1965. Under the Programme the tempo of research activity in the country would be intensified and it would be demonstrated to the farmers on their own fields what scientific agriculture can do to revolutionise crop production. The whole country would be studded with excellent demonstrations showing the yields that could be easily obtained for all our major crops provided the available scientific know-how was put to use. These demonstration plots would be laid out by all the agricultural research institutions and colleges in the country.

Research

THE first session of the symposium dealt with the role of research in agricultural production. Opening the discussion, Dr M.S. Swaminathan explained how modern genetics has helped to telescope into a short span the time taken for bringing about great changes in the physiology and productivity of our crop plants. The cultivated plants of today are the gifts of hundreds of generations of patient agriculturists who were oblivious of the biological and chemical nature of the material they handled. We have now the advantage of knowing that living nature is endlessly flexible and of being able to see deep into its working. Above all, we have the research tools by which we can remould the existing material in a manner most suited to our needs. The work done in India in recent years in wheat, sugarcane, maize, millets, jute, cotton and vegetables showed how yield levels, which could not have been imagined two decades ago, have now become possible. This year, a dwarf variety of wheat has yielded 6,300 kilograms per hectare in large plots at the I.A.R.I.

For achieving high yield levels, the first requisite is a plant type capable of profiting by large application of fertilisers and water and also by the plentiful supply of sunlight characteristic of tropical and subtropical regions. To undertake the task of reconstructing the morphological architecture in plants, the breeders need adequate variability. Thanks to international organisations like the Rockfeller Foundation, F.A.O., USAID, and the Government of the U.S.S.R., the limitation imposed in breeding work by the lack of adequate genetic variability has now been overcome in wheat, rice, maize and millets. Also, the ability to induce artificially hereditary changes or mutations is a tool of great value to the breeders. By ensuring that research in the field of breeding is carried out in a cooperative manner throughout the country and by creating facilities to raise two or more crops of the same plant in a year, it would be possible to accelerate the pace of progress in this field.

The application of genetical tools should be extended to fruit trees, plantation crops and perennial palms like coconut and arecanut. In the field of animal breeding also, genetics can bring about great progress. The yield of the Sahiwal herd has

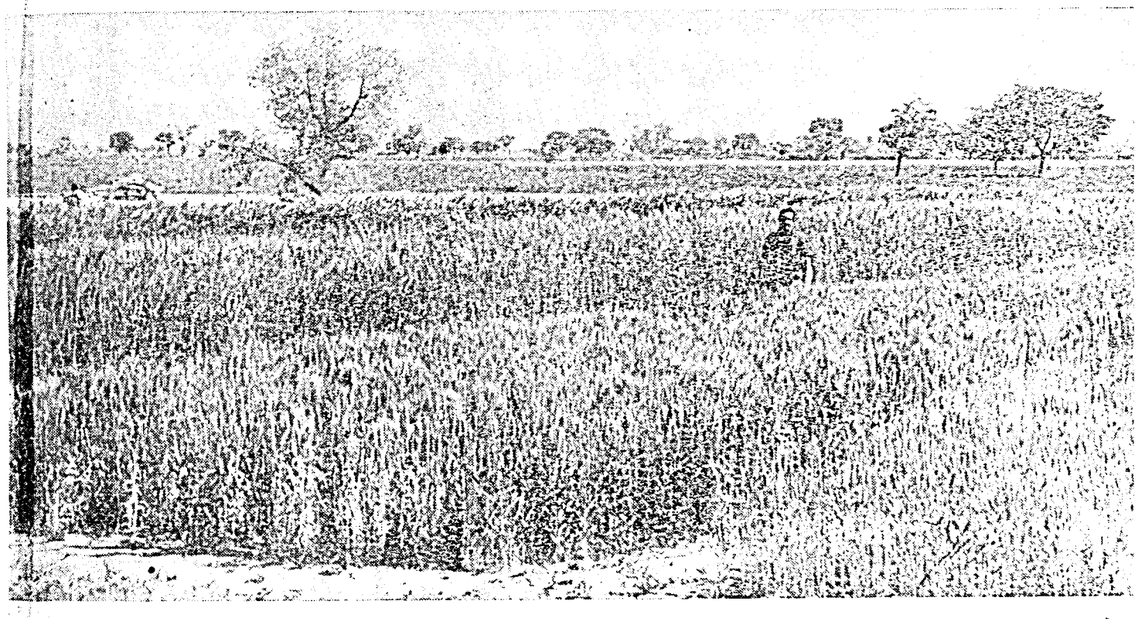
(*Continued on Page 4*)

JOUNTI'S FORTY MAUND CLUB

a place where they could demonstrate the value of scientific farming.

But it was not an easy job. When the Institute's botanists went to the village to persuade the farmers to try an improved strain of wheat and adopt scientific methods of farming they received very little response. All that the botanists had wanted to do was to demonstrate, on a small piece of land, the difference in yields between the local strain of wheat grown under conventional methods, and a new, short-strawed variety grown with fertiliser application.

Of the farmers only Bhup Singh



WHAT is it that clicks in agriculture? You ask Bhup Singh of Jounti (a village 30 kilometres west of Delhi), and sure as tomorrow's daybreak, he will tell you that better seeds will bring better yields. It is no doubt a highly over-simplified view of improved agriculture, but he has his reasons for saying so.

It all started like this. This small village of Jounti is on the Delhi-Najafgarh road. It has an area of about 1,200 acres, practically all under wheat. The Indian Agricultural Research Institute, Delhi, had observed that farmers in Jounti were getting no more than 20 maunds of wheat per acre. This was indeed a very poor output and the staff and students of the Botany Division of I.A.R.I. were convinced that here was



Bhup Singh in his field. Picture at top shows the demonstration plot at Jounti showing two varieties of a better strain grown according to the advice of the Pusa scientists alongside a conventional variety of wheat.

offered an acre of land for the experiment. On November 14, 1964, the I.A.R.I. workers sowed the new seed on this demonstration plot. Alongside another plot was sown with the local strain, just the way Bhup Singh was accustomed to do. The difference between the two was there for everyone to see.

The seeds produced at Jounti during this Rabi season will be enough to sow all the wheat lands of the village next year and in 1966 enough seeds will be available to meet all the requirements of the Delhi State.

The Botany Division of I.A.R.I. has encouraged the farmers to start a "Forty Maund Club" in Jounti and now Bhup Singh is not alone in his enterprise. Others have followed him.

(*Continued from page 2*)

been brought up at the I.A.R.I. from 10 lbs a day to 24 lbs a day during the last 50 years by systematic line breeding and scientific feeding. We can hope to increase milk production in the country only if we undertake a dynamic breeding programme among the important milch breeds of the country like Kankrej, Hariana, Red Sindhi, Sahiwal and Tharparkar.

The second requirement for high yield is a favourable environment. Such an environment can usually be created in areas with assured irrigation. The problems of irrigated farming were dealt with by Dr O.P. Gautam who pointed out that conditions conducive to intensive agriculture were available only in one-third of the cropped area in the country. In such areas it would be possible to treble the present yields through a combination of proper use of fertilisers and weed control measures. It is, however, necessary to realise that irrigation without simultaneous arrangements for drainage can cause great harm to the ong term productivity of our soil, as is already clear in many parts of the Punjab and U.P. where water logging and salinity are becoming serious problems.

A considerable increase in production can also be achieved through the widespread adoption of dry farming techniques and through the the development of drought resistant varieties. The problems in this field were discussed by Dr H.R. Arakeri who pleaded for contour bunding and suitable crop rotations for maintaining soil structure.

Conditions which are favourable for plant growth are also congenial to the growth of diseases and pests. therefore, Dr S. Pradhan, emphasised that greater attention should be paid to the control of plant pests and diseases. Research has shown that it is possible to forecast the outbreak of many important diseases and pests, thereby giving time to farmers to take adequate precautions. It has been found at the I.A.R.I. that spraying a decoction of *neem* seeds helps to prevent attack by locusts. For avoiding disease attacks, it is best to grow varieties possessing genes which can resist them.

The third requirement for high yield is that the soil is prepared well and the seeds are sown properly. One of the greatest limiting factors in crop yields in our country is the poor plant population per unit area. This low population is the result of poor germination and survival caused by the inhospitable seed bed. Dr S.E. Roy drew attention to the very primitive nature of the agricultural implements used by our farmers. These have by and large remained unchanged during the last 2,000 years. It is high time that the three basic implements of Indian agriculture namely, the *desi* plough, *khurpi* and the sickle are replaced by more efficient counterparts, before we aspire to use highly sophisticated implements.

The importance of preserving what is produced on the farm will be clear from the estimate that as much as 30 per cent of the total produce in the country is damaged during processing and storage. Dr H.A.B. Parpia referred to the many simple techniques evolved at the Central Food Technological Research Institute, Mysore, for minimising this loss.

Extension

THE second session of the symposium dealt with the methods of carrying the message and meaning of science to the farmers. Raja Surendra Singh of Nalagarh underlined the need for keeping in mind the economic condition of the farmers while propagating new research findings. The poverty of the farmer compels him to be conservative in his outlook. Convincing demonstrations can help to convert him. There is also need for proper co-ordination among the numerous agencies involved in extension work. The value of associating research institutions directly with extension work was brought out by Mr A.R. Khan who explained how in the Khanjahwala block of the Delhi Territory great improvement have taken place in crop yields during the past decade because the I.A.R.I. was intimately involved in extension work in the block.

In a large country like India, the requirements of extension personnel are vast. Dr E.W. Sprague of the Rockfeller Foundation pointed out that to be efficient and effective in extension work, the men engaged in such work should know how to produce high yields. They should have a wide general knowledge, and not merely a restricted, though deep, knowledge of a single field. They should have opportunities for refreshing their knowledge periodically by attending suitable courses in research institutions.

The need for effective demonstrations was emphasised by Dr M.P. Singh who outlined the efforts being made in this direction under the intensive agricultural development programme. There must be an effective demonstration for every 500-1000 acres and this could be possible only if the village level worker had greater competence than he has at present. Dr Amir Ali pointed out the need for training extension personnel in much larger numbers. The quality of extension workers was as important as their quantity.

The last but not least important aspect of extension work relates to the supply of credit and the necessary inputs like seeds and fertilisers. There is an urgent need to streamline the machinery and ensure that inputs are available at the right time. Dr D.D. Brown of the Ford Foundation pleaded for greater attention to this aspect.

International Co-operation

THE third session of the symposium dealt with the role of international co-operation in agricultural improvement in India. Dr R.W. Cummings of the Rockefeller Foundation pointed out how co-operation in the field of agriculture at the international level can cause not only great spurts in production but also set in motion a chain reaction in co-operative endeavour. The Rockefeller Foundation's co-operative projects in maize and millet improvement in India have now become the springboard for international co-operation in agricultural research in South-East Asia. Since the factors limiting crop yields vary from region to region, it is essential that adequate arrangements are made for the in-service training of research workers. Dr R.G. Johnson felt that there was much scope for foreign assistance in arranging specialised training within India.

Dr B.S. Kesavan advocated for the exchange of scientific literature and information as well as for providing an efficient documentation and translation service. The Indian National Documentation Centre at Delhi is striving to fulfil this role. Dr M. Kilbridge of USAID pleaded for the establishment of a consortium of small non-loan giving nations for providing managerial talent to serve as trainers and motivators in farm programmes. He felt that it would be better to concentrate agro-industries in small towns rather than in villages.

The agro-industrial corporation at Coimbatore was cited as a model by Dr M.S. Randhawa for similar corporations to be set up in the country.

Integration of Research, Education and Extension

THE last session held under the chairmanship of Dr B.P. Pal dealt with problems in the integration of agricultral research, extension and education. The way in which such an integration has been achieved at the level of an institution was dealt with by Dr A.B. Joshi, who felt that agricultural research institutions in the country could follow with profit the pattern evolved at the I.A.R.I. Since agriculture is a State subject in the country, agricultural research should be promoted in the States also.

Dr K.C. Naik outlined some measures for bringing about greater co-operation between the State and Central research institutions. Dr T.R. Mehta stressed the need for the evolution within the country of a well-informed and integrated extension service. In some States like the Punjab the entire research and education work has been entrusted to the newly established agricultural universities. Mr P.N. Thapar, Vice Chancellor of the Ludhiana university, showed how such a step has led to the closer integration of extension and research workers. Farmers and extension personnel are brought periodically to the Ludhiana campus for discussion with senior scientists.

Pusa Credits

THE Indian Agricultural Research Institute made a small beginning sixty years ago in a small village, named Pusa, in North Bihar. On account of the great earthquake in 1934, it was shifted to New Delhi.

The Institute has laid the foundation of agricultural research in the country. During the past sixty years a number of its achievements have proved revolutionary in the field of plant breeding. Important among them are:

Pusa Wheats—The first Pusa wheat was evolved in 1911. New Pusa 700 and New Pusa 800 yield 40 maunds of grain per acre and both are rust resistant. N.P. 809 is the first wheat variety in the world that resists all the three pests. The Pusa dwarf, a crossbreed of Mexican wheat, is the latest addition, which does not lodge even when heavily fertilised.

Similarly high yielding dwarf varieties of jowar and bajra have been evolved.

Eight maize hybrids yield 75 to 95 maunds of grain per acre as against 12 to 14 maunds of local variety.

Hybrids of jowar and bajra also yield more and can grow in any part of the country from Punjab to Kerala.

The **sugarcane** varieties evolved by the Institute's Sugarcane Breeding Station at Coimbatore (now an independent research institute) have revolutionised the sugar industry and have turned India from an importer into an exporter of sugar.

The work done at the Institute in 1924 on the cultivation of the **Virginia type of tobacco** has paved the way of the flourishing tobacco industry in India.

The **Sahiwal breed**, the highest milking cattle in the country, has been evolved at this Institute.

Pusa Giant Napier grass is the most productive variety of fodder grass. It yields two lakh pounds of green fodder every acre. **Pusa Giant Berseem** is another variety of fodder which yields 20-30 per cent more.

Several **improved varieties of fruits and vegetables** have been introduced. Among them are tomato, brinjal, potato, bottle gourd, table cowpea, sweet potato, garden peas and *bhindi*. The Pusa seedless variety of grapes is being widely cultivated around Delhi.

So far 65 improved varieties of 27 different vegetables have been released to the cultivator.

The Institute has introduced several **foreign crops** in the different parts of the country, such as wheats from Kenya and Mexico; linseed, wheat and oat from Australia; certain vegetables from the U.S.A., Japan and the Philippines; and watermelon from the U.S.A.

The Gamma ray treatment and the radioisotope tracer method have enabled the Institute to evolve new varieties of crops which are more nutritious, more productive and more resistant to pests and diseases. Among these new varieties are wheat N.P. 836, a cotton variety (with leaves so hairy that insects cannot attack them) and a tomato variety. The radioisotope method has also rationalised application of fertilisers.

New methods of **controlling plant pests** and diseases have been evolved, such as a simple and effective storage container and a simple extract from *neem* seeds to repel locusts.

Biogas plant is designed by the Institute to use cattle dung both as fuel and quality manure.

Since 1949, the Institute has undertaken extension work in villages around Delhi. A village is being developed as **seed village** for the multiplication of improved seeds.

The Institute was converted into a **university** in 1958 providing post-graduate training in research and extension. So far 500 candidates have taken M.Sc. and Ph. D. degrees.

The **National Pusa Insect Collection** of the Institute has 22,000 specimens of insects for correct identification of insect pests and their parasites. The **Mycological Herbarium** has 27,000 specimens of fungi representing 5,000 species and the **Indian Type Culture** has 1,200 specimens of micro-organisms; the two are useful for the study of plant diseases and for the evolution of control measures.

(*For earlier articles on I.A.R.I. and its work, see Yojana March 29, 1964 and December 6, 1964*)

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NATIONAL SAVINGS ORGANIZATION
MINISTRY OF FINANCE, GOVERNMENT OF INDIA

DA 64/739

The "Eagle-Men" of Assam

GAROS

B. C. NAG



Two old typical Garo chiefs with their traditional earrings

THERE is no legal provision for old age pension or other forms of social security; still there is no orphan without support, no old man or woman without food among the Garos. The whole community is there to look after them.

Until recently a little known hill tribe like so many others of the kind in different parts of India, the Garos suddenly leaped into prominence more than a year ago when their kinsmen in East Pakistan fled that country in the face of religious persecution.

The Garo Hills District, the original home of the Garos, consists of the last spurs of the Assam hills which here run down almost to the bank of the Brahmaputra where the river debouches into the plains of East Pakistan and takes its great sweep to the south.

The district has an area of 3,119 square miles with a population of about 308,000. Of them over 87,000 are Christians and about 52,000 Hindus. The rest of them are animists or belong to other religions. The percentage of literacy among the males is 26 and among the females 14.

In the course of centuries, about a hundred thousand Garos have settled in the plains. They are almost evenly distributed between the district of Mymensingh in East Pakistan and the Brahmaputra Valley in Assam.

In the Garo Hills district the land tends to be flat as you move southward. In between hills there are vales rich in vegetation. There is in the district a beautiful lake, 12 kilometres long and 1.6 kilometres broad, where game birds abound. The lake was formed of a part of the Krishnai river by the great earthquake of 1887. At Tura which is the principal town, Christian missions have their branches, some of them more than 150 years

Simple and Unsophisticated They Have Changed the Spear for the Plough

old. The American Baptist Mission runs a big modern hospital there.

The principal products of the Garo Hills are *Sal* wood, cotton, chilly, betel-leaf and silk. About half of the cotton grown in Assam is produced here. This cotton is remarkable for its short staple and wooly fibre and it is on that account mixed with wool for carpet making. The fauna of the district is rich and varied. Elephants are found here. They are caught by an indigenous trap called *Kheda*. Deep in the jungle, up the hills, the Nepalese keep and tend buffaloes. The Garo district has also abundant mineral wealth in the form of coal, limestone, gypsum and petroleum. Their proper exploitation may one day transform this backward area into one of the most prosperous districts of Assam.

The pivotal need of the district is communication. Already a beginning has been made by connecting Tura with the Goalpara district by an all-weather motorable road. Buses regularly ply between Tura and Lakhimpur in Goalpara. The influx of Garo refugees from East Pakistan has given a fresh spurt to road-building in the area. New roads are being built, connecting other places of the Garo Hills with the plains of Assam.

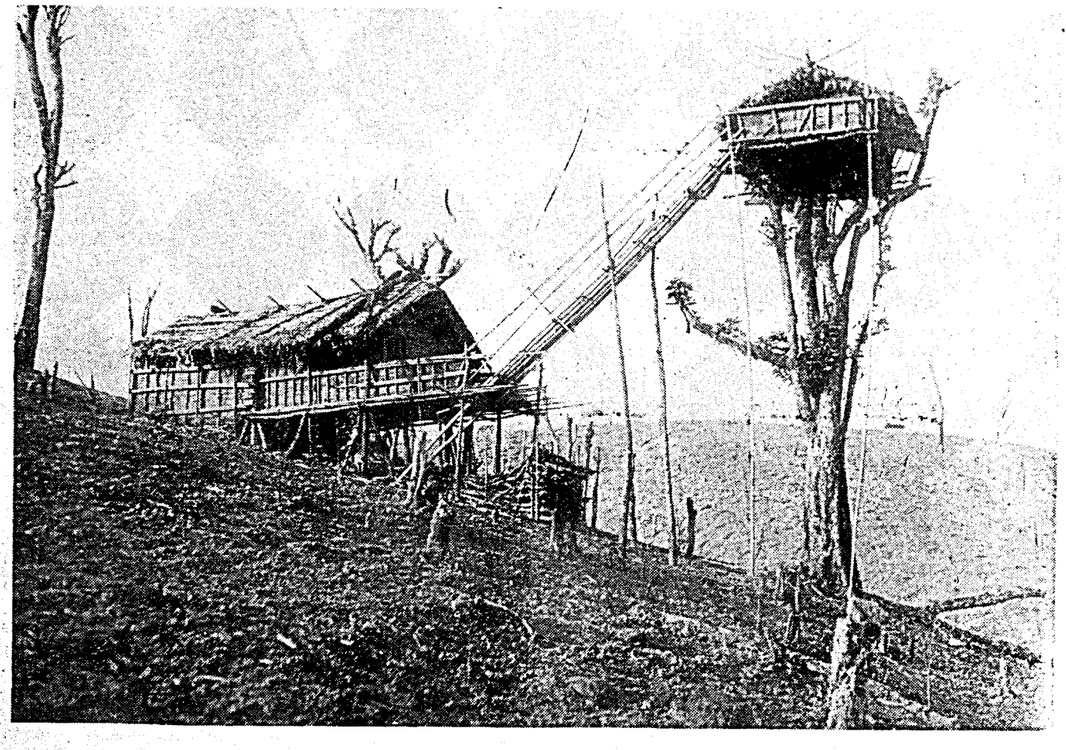
On weekly market days, the Garos descend to the plains and you can see them bargaining with Bengalis and the Assamese. They sell their products to buy clothing, jewellery and dried fish called *Nakam*.

A tribe of Tibeto-Burman origin, the Garos are probably a section of the great Bodo tribe which at one time occupied a large part of Assam. They are divided into a dozen subtribes who follow varying customs. They are said to have migrated from

the direction of Bhutan and in course of time they must have absorbed a pre-existing local tribe. The wavy and curly hair on their head lends support to this ethnic theory. They are related to Kacharis and Rabhas of Assam and Tipras of the Tripura State. They speak a Tibeto-Burman dialect.

The Garos were once head-hunters and a favourite place where they displayed the enemy skulls were latrines. Until about 200 years ago the Garos were greatly feared by the people of the plains. But closer contact with the advanced Assamese and Bengali society has gradually made them law abiding. They have now substituted the spear for the plough. They are good fishermen and expert marksmen. Their physical strength and power of endurance is amazing. They will walk for several kilometres up and down the hills with a load of more than 35 kilograms on their back. With a bamboo club in hand, they will challenge a small tiger or a baby elephant. Snakes and reptiles never scare them. The Hindu mythology has it that they were descended from Vishnu's bird mount *Garuda* from whom they derive their name "Garo". Their womenfolk are no less daring. With a chopper in hand, they are known to challenge a dozen men, if insulted. Honest, faithful and brave to the point of being reckless, they will make excellent soldiers. Most of them are now being employed in road-building work.

A Garo house built on stilts. The portion on the top of tree serves as a watch tower



Their Religion and Customs

The religion of the Garos is generally animistic. They believe in a benevolent creator and regard their ancestors with reverence. They believe in re-incarnation of the soul. Those who live in or near the plains have more or less been Hinduised like their parent stock, the Bodos.

The Garo society is matrilineal. Marriage is exogamous and polygamous. Generally, the proposal comes from the girl. If it is accepted, she lives on probation for a time in the bridegroom's house. The exogamous system is subject to compulsory cross-cousin marriage. A man's sister's son, called his *Nokrom*, stands in intimate relationship to him as the husband of one of his daughters. He is the vehicle through which his family interest in the property is secured for the next generation, for no male can inherit property.

It is always a pleasure to visit a Garo village in its sylvan setting. When you first look at the Garo hills from the Brahmaputra, you are somewhat bewildered by the contrast between this and what you have seen in the Assam valley; in the one there is the monotony of the valley—the sombre tone of all the colours from yellow to gray; and in the other, the fleecy hill range and the freshness of blue and green. In the land of the Garos you come in touch with nature's simple and unsophisticated children.

In spite of their growing contact with the outside world, they have not given up their simple way of life or their traditional manners and customs. Even the Garo Christians are not Westernised. Their names are like those of their Bengali and Assamese neighbours. Their manners and customs also are influenced to a considerable extent by the neighbouring Hindu society.

Garo villages are built on river banks or on the summit of a hill. They are hidden by a belt of banana trees. The houses are built at random but they all open out on the *Sara* or the principal meeting place. Here is the community's assembly hall where after the day's work they gossip and smoke their bamboo pipe, called *Hukka*. It is here that you will find the wood clog in the shape of "Y", the only relic of their ancient sacrifice.

Before every house you will find the braided bamboo altar where they offer chicken in sacrifice to propitiate their gods. Closeby are the totems of the menes which are supposed to protect the families. The Garos still practise the distention of the ear. They bury their dead, followed by various forms of secondary disposal, including urn burial, burial by water and sometimes by special treatment of the frontal bone.

A typical Garo house is about 23 metres long, built entirely of bamboo, but the terrain being inclined, the back of the house is on pillars, 3 to 4 metres above the ground. Every house is generally rebuilt every ten years. The whole village takes part in the reconstruction which is followed by a grand community feast.

Garos enjoy work; each does his part without waiting for others to do theirs. They combine personal initiative with collective work, and their community spirit is highly developed. Land is owned on a community basis. The Garos generally practise *jhum* (nomadic or shifting) cultivation in which patches of forest are burnt and cleared and crops grown there. These patches are cultivated for a few years and then they move on to fresh areas.

During the rainy season the district becomes waterlogged and impassable. Quickly thereafter the land is covered with luxuriant vegetation. Leeches and mosquitoes infest the land but the Garos do not seem to mind it. They never sit idle. Every day they go out in the field where the work is very hard. It is for them a continuous fight against nature. Farms are usually far from the village, sometimes three to four kilometres. They produce enough food for their maintenance.

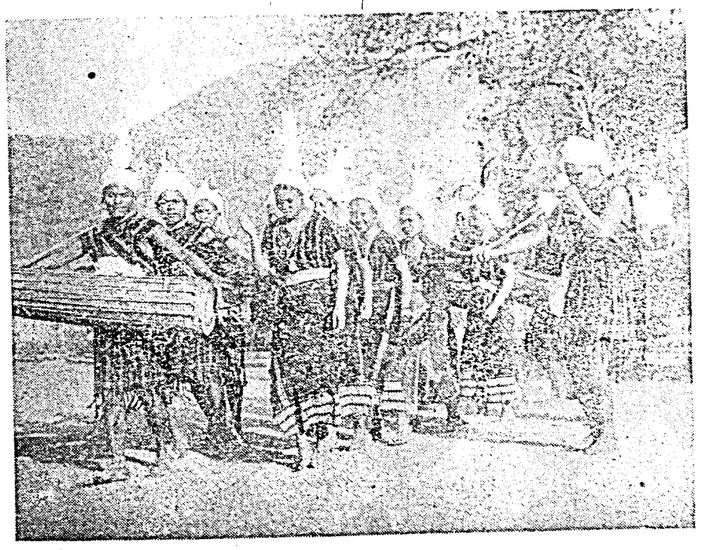
The Garos know how to laugh. The feast of the *Wangala* is their greatest festival. The *Wangala* is a post-harvest festival like the *Navanna* (eating the newly grown rice) among the Hindus. The festival occurs some time in mid-October and continues for three days.

On the occasion of this festival the whole village assembles for a grand feast. Pigs and cattle are killed for the feast. Women take a leading part in cooking. They mix the preparations with different kinds of sauce and powder. Most of the preparations are generally hot. The people of the whole village sit together and eat. After dinner comes the most important item of the feast.

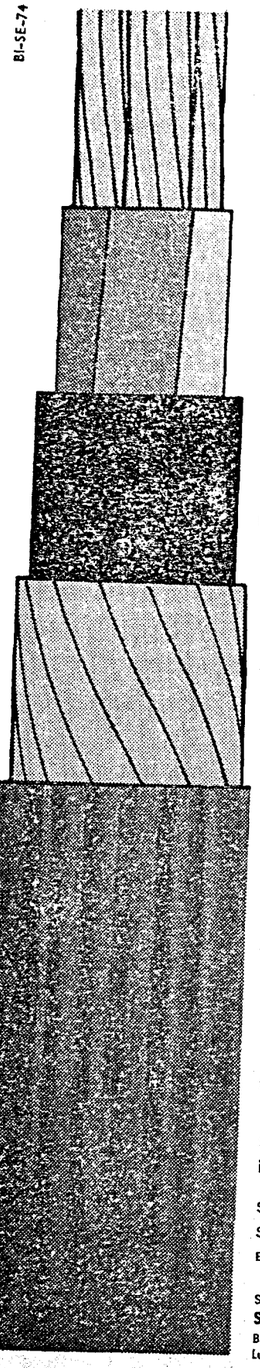
(*Continued on Page 27*)



From the hearty laugh it appears that these two Garo belles were unmindful of the camera. The biggest festival of the Garos is Wangala when they celebrate the newly grown rice. The picture below shows a group of Garo men and women celebrating the festival by dancing and singing. Photographs by B. N. Sinha



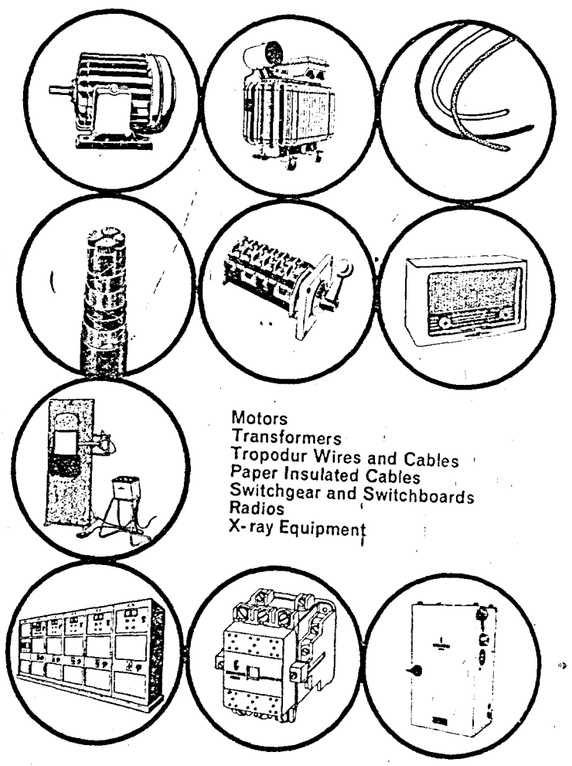
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WE SHALL SAVE FOOD
if we change our old notions

N. R. MALKANI

Consumers' Role in Solving Food Problem

THIS year's Budget provides for an import of 72.28 lakh tonnes of foodgrains, mainly wheat, at a cost of Rs 400 crore. Last year's imports cost India Rs 300 crore, though it was believed that both the *Rabi* and *Kharif* crops were good and might yield about 85 million tonnes. Agricultural production in India, as in Asia, is not growing as fast as the population. Hence the standard of nutrition records no progress and we are yet far away from 'the minimum standard' which is believed to be the objective of our next two five year plans.

According to Dr P.V. Sukhatme, Director of the F.A.O. Statistical Division, "every four persons out of 10 in the world are hungry, and one of them is an Indian." Thus roughly 10 per cent of our people are undernourished and therefore hungry. It is now widely understood that the next decade is critical and if we do not increase our agricultural production by 5 to 10 per cent annually, our food situation will deteriorate rapidly.

Juthan and Bansi

The food problem has to be attacked on all sides, and not only by increasing agricultural production and having an equitable system of distribution. We have almost neglected the aspect of consumption—what the consumer, including the common man, can do to ease the situation. In India many consumers carry the habits of the eighteenth or earlier centuries into the present. For instance, we consider food as *juthan* if it is touched by a wrong person, or by a right person in a wrong place. It becomes *juthan* as soon as it is served, even if untouched by the eater. There are various refinements of this habit, varying with caste and region and creed of the consumer and server. I am not aware of any such habit being observed by any people in any other part of the world and it has no equivalent in the English language. It would not be easy to explain, much less justify, such a habit to intelligent persons outside India.

Another habit is to consider food *bansi*, or stale, because it was cooked last night or the previous day. We prefer food served hot. Hot food is perhaps safer in an otherwise insanitary country, but outside India food is served only fresh or even cold. In fact food preserved for some time after cooking is often richer than hot food and we now live in an age of tinned food and, of course, the 'frig food'. It is therefore time that we, specially the well-to-do classes, revise our ideas about *bansi* food, not in terms of a ritual but in the light of science.

Both habits of rejecting food as *juthan* and *bansi* are a legacy of the ignorant or caste and creed-ridden past and certainly not suitable in these times of scarcity.

Disposal of Waste Food

One or two other manners also need to be altered. Our food is cooked in the kitchen and then served by servants or members of the family. *I do not see why the eaters cannot help themselves and thus save the labour wasted in serving it.* We could then all sit and eat together. This would be welcome to lady members of the family. We would also help ourselves only to as much or as little food as we want and no more. We would then have no justification for leaving remnants of food to be thrown away as *juthan*. We would not be coaxed into eating more than necessary, specially during feasts when both our eating and *juthan* become excessive.

Our disposal of refuse also needs a little more thought. Generally speaking, we do not have proper refuse bins at home and we sweep out everything on to the public roads, adding to insanitary conditions of the town. Worse still, we do not observe the important difference between mere rubbish and organic refuse. In the West, organic refuse is collected separately to be used for composting or, better still, to feed the cattle and pigs. In India *we starve the cow and throw away refuse and rubbish on the roads to breed flies and feed stray dogs, both of which are public nuisances.* Nothing but thoughtlessness prevents us from stopping both these types of food waste. Each individual act may appear small and insignificant, but taken in the aggregate on the background of food scarcity, the change in such habits would mean a significant saving and would give us an exhilarating feeling of participation in a national drive.

India suffers not only from undernourishment but also from malnutrition. According to Dr B.R. Sen, Director-General of F.A.O., nearly 1,500 million people, that is half the world's population, suffer from malnutrition and that large-scale famines would begin to recur in some parts of the world before 1980 if problems of undernutrition and malnutrition are not tackled effectively. India is a typical case for both.

Milling is Harmful

Our principal food stuff is rice. But so far Government has paid little attention to the processing of rice. We all know that hand pounded rice is more nutritious than mill husked rice, its content of prot-

eins being double and that of vitamins A and B four times that of milled rice. Government had appointed a Rice Milling Committee which submitted its report in 1955. Later the Village Industries Committee made its recommendations in 1958. Both of them were of the view that no new rice mills should be opened and the capacity of the existing ones should not be expanded. The Rice Milling Committee further suggested a phased programme of assisting the hand pounding industry by eliminating the existing mills in five years and imposing a cess on their production.

Government accepted these recommendations in a halting manner and did not take adequate measures for implementing them. Further it has allowed even huller mills, which mix bran with chaff and remove 10 per cent of bran, to co-exist and even predominate our sheller mills. It agreed not to license new rice mills but gave permission to politics-ridden States to do so if they thought it necessary 'for ensuring adequate supplies'. It restricted milling to the removal of five per cent of the bran, but took no measures to ensure its implementation. *It went so far as to consider "rice mills as an integral part of the rural economy", when in fact these were imposed on us during the war as an emergency measure and then increased to materially disturb the rural economy.* Positive measures for promoting the hand pounding industry were so small as to be overwhelmed by the octopus growth of milling industry. It is time that this insidious method causing widespread malnutrition and unemployment is now stopped.

Incidentally the wheat milling industry also is doing harm by separating *maida* and *suji* from flour and then having *atta* of No. 1 and No. 2, with the added curse of adulteration. We all know that whole meal flour is superior to mill *atta* and that whole meal brown bread is more nutritious and tasteful than the white bread. But the findings of science and even the existence of healthy habits are of no avail against the indifference of Government and the encroachment by vested interests.

I feel that somehow our approach to good food in the past has been more theological than practical. The seventeenth chapter of the *Bhagwat Gita* defines food in detail as *satvic*, *rajasic* and *tamasic*. For instance *satvic* food is said to give vitality and appetite, and is savoury, oily, substantial and agreeable. In a sense this could be the food of a gourmet. According to this pseudo-scientific classification, the food of the poor is *tamasic* and that of the well-to-do is *rajasic*. No one knows the exact effect of food on the mind and still less on the character or spiritual growth. It has led to a superstition that the food cooked by a Brahman or offered or eaten by him is *satvic*. A possible grain of truth has been submerged under a mountain of ignorance. The result is that we have failed to understand the contents of good food.

The seventeenth stanza in chapter VI of the *Gita* is a rare gem. It reads, "For him who is temperate (*yukta*) in eating and recreation, in his work and in sleep and in wakefulness, *yoga* becomes the destroyer of misery". By the word *yukta* I understand 'balance' or 'harmony'. Both the terms apply to our way of life and in this context the quality of our diet. Our food should be 'balanced' in the scientific and practical sense. Besides grains which are our staple food, our diet should contain meat as well as vegetables. Along with starches, it should have proteins, fats, minerals and vitamins. Our food is extremely poor in all these elements and, as we know, it mainly consists of foodgrains (starches), sugars, spices and some poor vegetables.

We have made a fetish of vegetarianism and refuse to enrich our diet by the addition of eggs, if not also by fish and meat. *Poultry farming should become a universal cottage industry.* Even among vegetables we neglect so many seasonal vegetables, more specially the leafy ones. Fruits have not yet become a part of our diet, in place of sweets, except where prescribed by doctors. The Muslim rulers have given us a variety of excellent fruits and cool *shurbats* made of fruit juices. We can also add *neera*, the coconut and sugarcane juices. The Europeans gave us fruits and fruit pudding as a course of regular food. But we yet prefer sweets to fruits; the lemon or *papaya* has yet to find a place in our diet.

About milk, which we consider the best of foods, the less said the better. We get too little of it and that too is as much milk as water. Pure milk or pure ghee has almost become a legend of the golden past, which can be had, if at all, with silver or gold. Tea is the order of the day, at all times, in all seasons, for all persons. Bad tea swallows away good milk in towns, and, according to Gresham's law, has driven out good milk from villages. And yet the Chinese and Japanese, who are connoisseurs of tea, take neither milk nor sugar in tea.

It is high time that we reject superstitious beliefs about our food and introduce science with a strong common sense to make it rich and healthy and tasteful.

SNIPPETS

Exports of marine products were valued at Rs 6.85 crore in 1964 as against Rs 3.75 crore in 1962. These included frozen prawns (Rs 3.15 crore), dried and frozen fish, dried and canned prawns, shark fins and fish maws, frozen froglegs and lobsters.

The State Trading Corporation is to import from Britain textile machinery worth Rs 10 crore for the modernisation and expansion of 18 mills in the country. Of these, 11 mills are being set up in the co-operative sector, five in the private sector and two in the public sector.

Rupees five crore are to be spent this year under the rural works programme, which seeks to provide additional employment opportunities to agricultural workers in a thousand community development blocks.

The Central Government bought stores and equipment worth Rs. 93 crore from the small-scale sector during the Third Plan period up to December 1964. The purchases during the Second and the First Plans were Rs 20.75 crore and Rs 7 crore respectively.

Fourteen more employment exchanges were set up during the period April-December 1964. Besides, 15 new industrial training institutes were opened making the total 298, with a total admission capacity of 90,494 seats.

HAMARA HINDUSTAN

Doing The Ideas

The Madhya Pradesh Legislative Assembly's Estimates Committee has recommended to the State Government to increase the work load of teachers.

—News item

PANDITJI used to say there are 440 million problems in India. Some four hundred and forty of them are in our school.

Yet I think Panditji was wrong. How or why did he imagine that one person was only one problem? Maybe the democrat in him was led away by the 'one man one vote' analogy.

If only Panditji had been a teacher he would have known.

As a teacher I know.

Take Ram Gopal, for instance. He is only twelve but he has already packed a century of mischief in his frame. And it is my misfortune to be his class teacher.

The trouble with Ram Gopal is not that he is dull or slow. The contrary. He does all the sums and shouts the answers before others can. Because his parents are unreasonably indulgent and don't prevent Ram Gopal from reading all the magazines they buy, this lad makes it difficult for us to stick to the text-book.

During the interval his extracurricular activities cause a headache to us. Why, the other day he persuaded all his class fellows to carry a branch each of the old *gul mohur* tree in the quadrangle and wave it at the elementary science teacher.

Enough of Ram Gopal. I would put him down as ten problems.

Even if the whole school consisted of Ram Gopals we teachers could have managed, but for the Inspector.

He's a good man, well-meaning, but he is in the clutches of the Block Development Officer, the District Health Officer, the District Public Relations Officer, the District Agricultural Officer and the whole army of governmental organisers.

Any time anyone gets an idea it is we school-teachers who have to *do* it. We are supposed to teach our boys to teach their parents to kill flies, mosquitoes, rats, etc. We are supposed to teach our boys to teach their parents to go in for anti-small-pox vaccination, anti-T.B. vaccination, anti-cholera inoculation and so on. We are supposed to teach our boys to impress on their parents the advantages of smokeless *chulas*, compost pits and modern sanitation; of the importance of growing trees and fish and raising more pigs and eggs. We are supposed to teach our boys to teach their fathers how to apply ammonium sulphate, superphosphate, PNK, green manure, and so on. We the teachers are to organise all those innumerable national days and weeks, and the international days and weeks. Co-operators, Khadi people, the Bharat Sevak Samaj people, all want us to conduct their campaigns. Why, the other day the district health officer had dropped in to ask the headmaster if he couldn't make use of our students to teach their parents the use of contraceptives.

SURESH JAIN

QUOTATION BOX

Among the many illustrious personages with whom this hill and temple (Parvati temple at Poona) was a favourite place, was the great Nana Phadnavis who prayed that a son be born to the widow of Narayanrao.

—Panorama of Maharashtra

It is easier to climb Mount Everest, than to meet the Prime Minister.

—Maharaja Karni Singh of Bikaner

Members of the Madras Legislative Assembly agreed the word "rowdy" was not parliamentary, but were not able to find an acceptable alternative word or suitable parliamentary equivalent in Tamil. Finally, the Speaker said he would leave it to the good sense of the members and asked them to use as far as possible "anti-social elements" instead of "rowdy".

—"The Hindu"

We cannot depend on borrowed food, borrowed money, borrowed schemes, borrowed dignity, borrowed hopes and aspirations.

—Mr V. K. Krishna Menon

To felicitate me when I have just made a beginning in research is like felicitating an architect when he has completed the plinth of his proposed building.

—Dr Jayant Narlikar at a civic reception in Poona

Civic amenities in New Delhi are the best in India.

—Mr Gajraj Singh, President of New Delhi Municipal Committee

One slanderous rumour, however, I retain astrologers as personal advisers.

—Mr Morarji Desai

Leaders have no business to be humble.

—Mr Frank Moraes

To a foreigner, no city will ever be a spouse. At the most it will condescend to be a mistress.

—Mr Darshan Singh Maini in The "Illustrated Weekly of India"

New fields and new nations grow most rapidly and old ones most slowly, and during the next generation we should stand at the finishing post as all the runners come home much at the same time.

—Prof. D. J. de Solla Price, Professor in History of Science at Yale University

Three South Viet Nam intellectuals, who sought a cease-fire, were dropped without parachutes into North Viet Nam. Such things happen in war time.

—Mr Nguyen Xuan Oanh, former South Viet Namese Prime Minister

No one in our time finds surprising if a man gives careful and patient daily attention to his body. But people would be outraged if he gave the same attention to his soul.

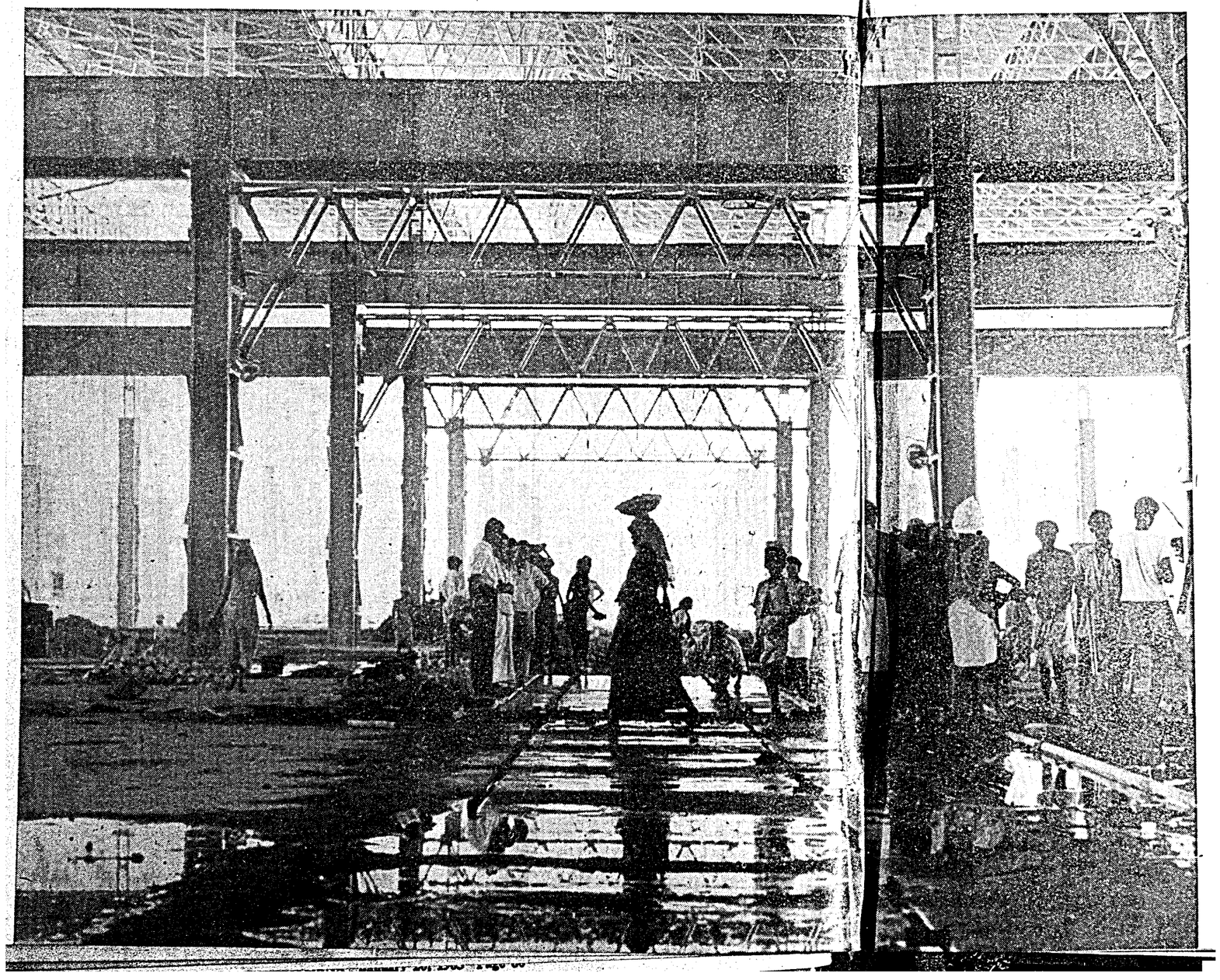
—Alexander Solzhenitsyn, Russian author

Film journalism is dedicated to the proposition that human beings are mammals.

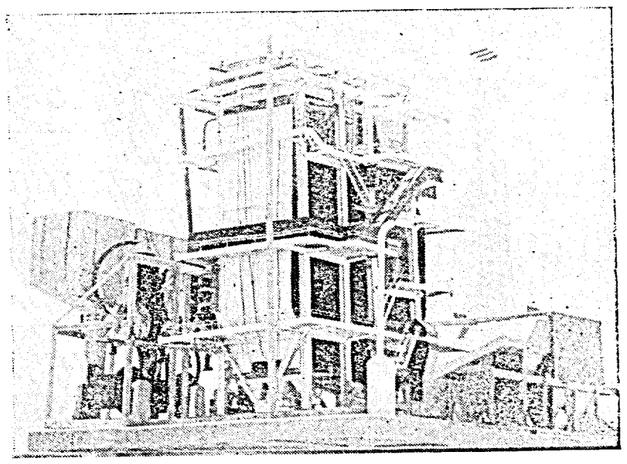
—From the Kannada Magazine "Koravanji"

Tiruchi's HEAVY BOILER PLANT

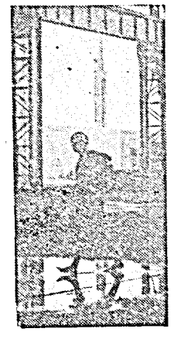
GIANT Comes to life at the "Town of Ants"



WHEN I went to see the High Pressure Boiler Factory at Tiruverumbur near Tiruchirapalli in Madras, I was, to be frank, greatly disappointed. What I saw was so utterly different from what I had imagined it to look like—an enormous steel vessel to boil something to produce something, all on a gigantic scale. What I found, instead, was erection work going on at the site as it must have been at Chittaranjan, Perambur or any other place where factories were once taking shape. There were water tanks towering above everything at the site, people busy laying bricks in mortar, some laying iron frame works in position and still others fixing lathes and machines. Working women walked back and forth balancing baskets on their heads. The din of hammer strokes, the clang of metals and the chatter of workers filled the air. Here was truly something gigantic coming up and the sight of it was exciting even if we could



Yojana Report by Kali Biswas

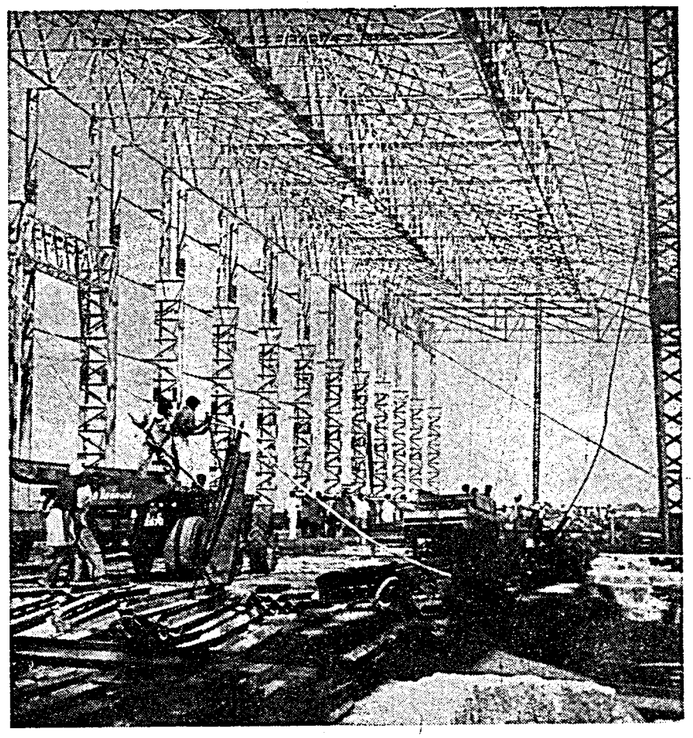


THE PICTURE ABOVE SHOWS HOW A BOILER WILL LOOK : Model of the first boiler which the factory will produce in 1967. Left: The biggest workshop of the project in its final stage of construction. Workers are laying the concrete flooring.

Pictures : T. S. Nagarajan

see nowhere the shape of anything remotely resembling a boiler.

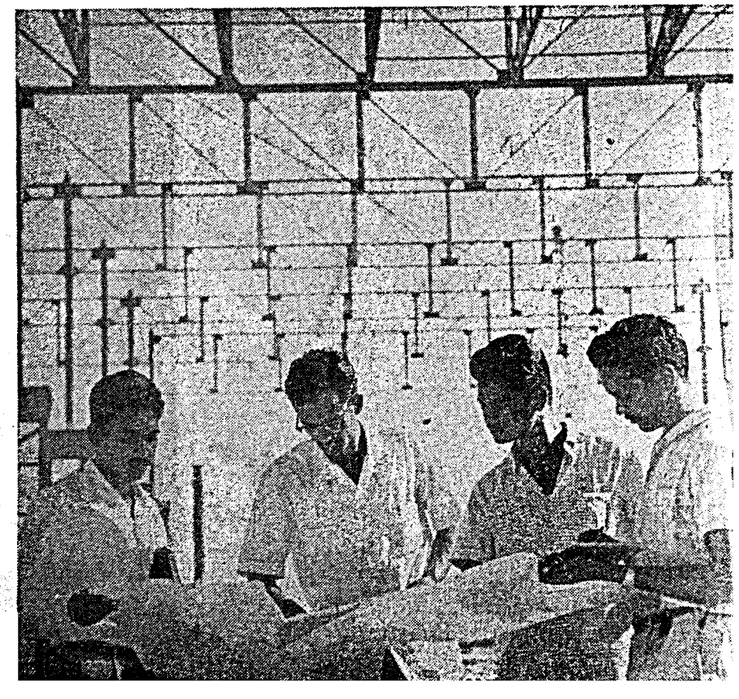
An answer had to be found to my curiosity as to what a 'Heavy Boiler' factory meant. Mr V.R. Deenadayalu, an assistant superintendent at the site explained it to me with a smile. "Of course, a boiler is a vessel in which steam is generated", he said. "But a boiler capable of producing high pressure steam to rotate a turbine is quite a complicated thing. It is made of a large number of components. What we will do here is to manufacture these components." "This", he said proudly, "is being done for the first time in our country."



And understandably so. It takes usually much longer time to set up hydro-electric projects. Rivers have to be harnessed, dams raised and vast reservoirs created. Besides, the water resources are also limited. On the other hand, it is

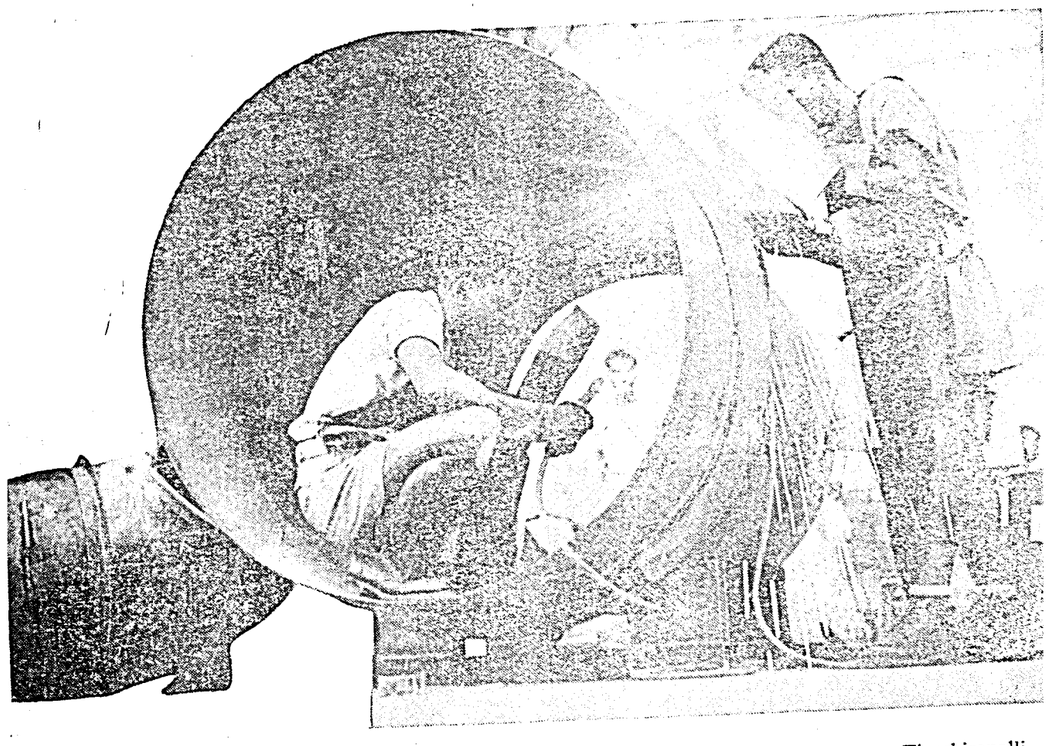
Trained, Dedicated Young Men Give Shape to the Factory

easier to set up thermal power-stations, They can work on higher load factor. They can be run by low grade coal and middlings from washeries available in plenty, besides lignite, gas and furnace oil which also we are getting now. In fact, of the estimated installed capacity of 10.3 million kW by the end of the Third Plan, 5.8 million kW would come from power generated by steam. Again, of the target of 22 million kW of installed capacity proposed for the Fourth Plan 11.83 lakh kW would be thermal power excluding 5.8 lakh kW to come from the atomic stations of Tarapore and



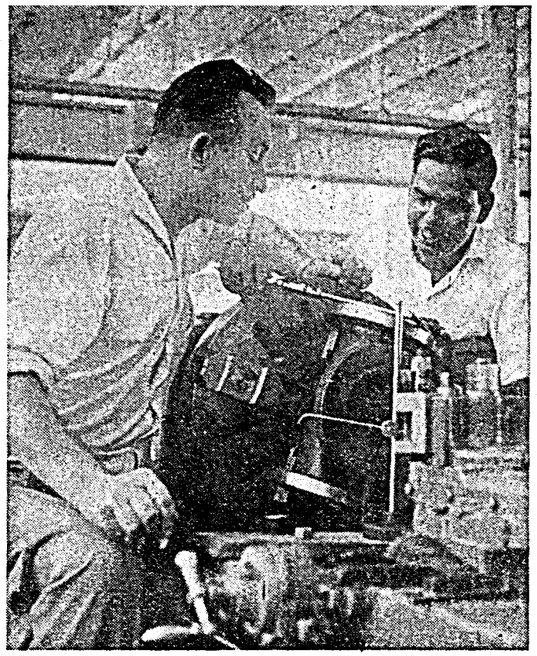
ına Pratapsagar. This means we ed more thermal power-stations, r which boilers are required to oduce high pressure steam. This ng-felt need for boilers will be et by the plant being installed at ıruverumbur. With the manucture of heavy electrical machinery ıd now the high pressure boilers for ıe first time in our country thermal ower is expected to play a more ital role in the expansion and disibution of power.

TIRUVERUMBUR is "the Town of Sacred Ants", a small village bout nine kilometres from Tiruchirapalli railway station. Till recently it has been known only for its ancient Shiva temple where, the people believe, ants once worshipped the Lord. It is no more that small, neglected village now, dedicated to legendary ants. A big township is coming up simultaneously with the boiler factory. Restaurants, shops and small industrial units have sprung up on either side of the road near the ancient temple. Bullock carts, cycles and trucks can be seen all over the place where but a couple of years ago a sleepy village stood with little hope of a future.



G. Venkatesan (22) from Madurai's Industrial Training Institute is among the sixth batch of arc-welders being trained at the workshop. Left: This massive workshop, over 84,000 square metres in area (top) has consumed nearly 9,000 tonnes of steel. The entire erection of this shop is being supervised by a dozen young Indian engineers led by Bhaskar Rao (second from left)

POWER and heavy electrical machinery are among the major requirements of big industries. Unless a country acquires the capacity to produce them there can be no great scope for industrialisation. The first plant was set up at Bhopal during the Second Plan period for manufacturing hydraulic and steam turbines, generators and transformers. In view of the growing demand for power in the Third and subsequent Plan periods it was decided to set up three more factories. One of them is the Heavy Electricals Equipment Plant (Rs 61 crore) at Ranipur near Hardwar being built with Soviet collaboration for producing steam turbines and generators of 50 to 200 MW. The second is the Heavy Power Equipment Plant at Ramachandrapuram, Hyderabad (Rs 28 crore) being set up with Czechoslovak collaboration for producing 800 MW of steam turbines a year and turbo-alternators up to 100 MW each. The third is the High Pressure Boiler Plant at Tiruverumbur near Tiruchirapalli manufacturing boilers up to tons of steam per hour correspo ing to 75 MW unit with a press of 100 atmosphere and temp ture of 530 degrees centigrade. view of the future possibilities demand, the range has been exp ed to suit 100/120 MW and la steam turbines. The three units placed under the managemen Bharat Heavy Electricals Ltd. (B set up in November 1964. The Bh



Jaromir Hladky, a Czechoslovak expert discusses a technical point with young Velayudhan, an engineer trained in Czechoslovakia

unit continues to be managed by the Heavy Electricals Limited set up in 1956. The well-equipped Design Organisation has already evolved new designs for transformers ranging from 10 MVA to 75 MVA for 132 KV rating. It is now designing units for 220 KV. The plant is equipped to manufacture as big as 200 MVA units, the highest likely to be required in the near future.

Bharat Heavy Electricals' Two New Plants

Besides, to meet the need for a foundry forge unit for heavy electrical industry it has been decided to set up a Central Foundry Forge Plant at Hardwar to meet its diverse needs. A unit for manufacture of air blast circuit breakers is also being set up at Hyderabad with the collaboration of the well-known firm ASEA of Sweden. Though the initial production will cover 132 KV and 220 KV circuit breakers later it will also cover 400 KV units. This plant is expected to go into production in April next year.

The Tiruverumbur boiler unit is one of the four major industrial projects covered by the Indo-Czechoslovak Economic Co-operation in the Third Plan period, the other three being the Heavy Machine building, the Foundry Forge and the Heavy Machine Tools plants at Ranchi. Czechoslovakia is one of the foremost countries known for heavy industries. Even though it has no boiler plant of the magnitude of the one being set up near Tiruchirapalli it has acquired enough knowledge and skill to manufacture the components and fittings of a heavy boiler. According to an agreement signed with M/s Technoexport, Prague, in June 1961, Czechoslovakia will supply major equipment and also provide technical assistance in the design and production of boilers and fittings. The civil works are to be executed by Indian engineers. A detailed project report was received in August 1962 and contract for supply of equipment was signed in May 1963. The project is estimated to cost Rs 18.03 crore (of which the total foreign exchange component will be Rs 9 crore, the Czechoslovak contribution being Rs 3 crore) excluding Rs 3.6 crore for the township. The factory will have a total capacity of 750 MW when it goes into full production in 1971. The value of annual production is estimated to be more than Rs 22 crore. The factory will be inaugurated on May I by Dr Zakir Husain, Vice-President of India.

Giant Near The Grand Anicut

When we visited the site last month we saw that work was being completed in some sections and erection work and installation of machinery were going on simultaneously in others. The industrial area is quite impressive, covering as it does both sides of the Tiruchirapalli-Thanjavur road—600 acres on the north for the township and 3,423 acres on the south for the factory and the technical training school. Though the contract was signed in May 1963 preliminary work for setting up the factory had been taken up much earlier. An eight-kilometre long broad gauge railway siding from the Golden Rock station to the factory site had been laid. Water—3 to 4 million gallons a day required for the factory and the township—was being taken through pumps from wells sunk on the bank of the Kaveri river near the famous Grand Anicut (10th century) six kilometres away. Availability of water was one of the grounds which led to the selection of the site by the Czechoslovak experts and the Government of India. There were also other factors which influenced the final selection of this site. Plenty of labour is available locally and a big factory of this kind would provide large employment opportunities. Construction work for the project started in June 1963. Land and electricity were provided by the State Government.

Training Facilities

The boiler unit comprises mainly three production sections—the first for auxiliary mechanical operations, the second for the boiler and the third for high pressure fittings. The mechanical section equipped with light and heavy machines, heat treatment plant and the tool room went into production in January this year. The boiler section where important components are to be manufactured is nearing completion and is expected to be ready by August. Boring and milling machines and specialised lathes covering 70 per cent of Rs 3-crore heavy Czechoslovak equipment had already been installed and started functioning. Work was also proceeding fast in the fittings section. In fact high pressure fittings such as safety valves and stop valves were already being manufactured and the section would go into full production by July. The earlier output will include valves up to 400 mm sizes and 40 atmosphere pressure. Later, valves up to 250 atmosphere pressure will be available for sale.

The major requirement of any new factory is a band of trained technicians. To run the heavy boiler factory experienced engineering graduates were recruited in 1962 and given an orientation course and training in Czech language at Bhopal. The first batch of 28 engineers was sent to Czechoslovakia for training in design and production methods in 1963, followed by another batch in February 1964. Of the 200 engineers and technicians to be trained in Czechoslovakia, 150 had been sent and some 100 had come back and begun working in various capacities. In the training school, which has been functioning since July 1963, are hundreds of intelligent young men recruited from Industrial Training Institutes and being given special training in different trades. The school works in two shifts, training 400 apprentices in each shift. The first batch of trainees who had completed 18 months' course had taken position in the machine room. The central laboratory which has also started functioning includes six X-ray units for checking defects in welding, chemical, spectrographic and mechanical sections and an ultrasonic flaw detector section where materials are subjected to rigid tests.

The most important raw material for the manufacture of a boiler is alloy steel. Tubes and plates together with special quality steel plates up to 117 mm thickness are required for a heavy boiler. For the present, steel in the form of plates, sheets and tubes is being imported and global tenders for supply have been received. Orders are to be placed soon. In the meantime, measures are being taken for indigenous production of alloy steel. In the course of next five or six years, part of the demand for alloy steel is expected to be met by steel plants in our country.

Of the many components that go to make a boiler, the most important are the drum, water walls or steel tubes, super heaters, economisers, air heaters, pulversing mills and ash separators. Pure water put in the drum passes through alloy steel tubes which are heated by burning pulverised coal. Part of the steam produced along with part of water re-enters the drum and the steam is separated from water and led into the super heaters. The flue gas that has already heated the water walls heats the super heaters and thus steam attains a higher temperature (540 centigrade or 1,050 degrees F). The super-heated steam is allowed to pass through a number of fixed nozzles and rotates the shaft of a steam turbine by means of "vanes", "buckets" or "blades".

The components which will be manufactured at the factory would have to be taken to wherever a thermal plant is to be installed. The plant is expected to produce about 42,000 tonnes of materials required for production of 12 complete boilers annually. You can well imagine the stupendousness of the project from the one fact that each composite unit will weigh approximately 2,500 to 3,500 tonnes requiring as many as 50 wagons to carry them to the site of erection. The first 60 MW boiler from the factory will be installed at the Ennore power-house near Madras towards the end of 1967. Eight 60 MW units and seven more of 100 MWs each have been planned for delivery by March 1970 to be commissioned during the Fourth Plan. The imported components for the first unit will be about 50 per cent which will gradually be reduced to 8 per cent in the fourth unit.

I asked Mr R.S. Krishnan, the Project Administrator, if he visua-

HEJTMAN'S QUEER HOBBY

Mr Jan Hejtman received us with a broad smile. We felt a little uncomfortable in responding to his welcome. The reason was obvious. On his right palm he held a small, live python, coiled like a spring.

"Come in please, it is harmless", he said, in flawless English.

Mr Hejtman is one of the Czechoslovaks living at Tiruverumbur township. He speaks English very well and acted as an interpreter during our talks with Mr Hromadko, the Czecholovak Project Engineer. It was from Mr R. S. Krishnan, Project Administrator, that we came to know of Mr Hejtman's queer hobby of collecting insects and snakes. We were curious to visit his place.

A look around the parlour of Mr Hejtman's small apartment convinced us of his varied interests in life. On the walls hung a number of insects and scorpions. On the other side of the room was a collection of miniature bronzes, including a Nataraja, a Lakshmi and a snake. Besides his fascination for snakes and insects he had a taste for Indian handicrafts.

How did he come to cultivate such an unusual hobby? "Keeping birds and insects is a common hobby in Czechoslovakia", he said. "I used to keep insects and birds in my home. In fact, I had as many as 50 African and Indian birds, mostly tigerfinches and parrots."

Mr Hejtman took us to the small balcony and opened what looked like a wooden frame. He brought out small pieces of bamboo and placed them on the table. We felt ill at ease when we were told that inside the hollows were kept small vipers and snakes which he had collected in his spare time.

Didn't he run the risk of being bitten by poisonous snakes? "Oh, yes," he said, "the risk is there but there are non-poisonous creatures like this also." He fondled the python which in the meantime was crawling on the table.

Mr Hejtman's complaint was that he did not have enough space to keep the snakes and insects. Yet from the interest he took in them it appeared that he would manage to keep them anyhow and carry these specimens to his home to add to his collection.

lised any practical difficulty in the smooth working of the heavy boiler plant. "As far as the manufacturing process is concerned I don't expect any major problem to arise," he said. "Our main difficulty is about the supply of alloy steel."

Mr Jan Hromadko, Chief Czechoslovak engineer who was also present, shared Mr Krishnan's views. "I don't think there will be any serious problem in the construction of the boiler. The work is proceeding smoothly."

Mr Hromadko was all praise for the Indian technicians who had received training in Czechoslovakia. As regards knowledge and skill they were at least as good as the Czechoslovaks, some were just brilliant. Would he like to have more Indian technicians trained in Czechoslovakia? "Of course it would be better," he replied. "The fact is", said Mr Krishnan, "right types of personnel required to be sent abroad have not yet been selected. As soon as they are recruited they will be sent for training." Mr Hromadko felt that it was necessary for him to stay in India till the first boiler was assembled at Ennore. "Some Indian technicians," he hastened to add, "are expert in tackling technical problems. They have learnt the job and will be in a position to assemble boilers without our help. I am confident that in the near future Indian scientists and technicians will be able to build industrial plants without foreign collaboration."

Work on the township was proceeding fast. Of the 3,000 houses taken up for construction in December 1962, 1,200 had been completed by May 1963 and allotted to the employees. The township was provided with all amenities—a higher secondary school, an elementary school, a shopping centre, a vegetable stall and an employees' co-operative store and a recreation club. Apart from residential quarters, a club with modern recreational facilities was also provided for the Czechoslovak consultants. A 75-bed hospital was also nearing completion. "To expedite work", said Mr C.T. Radhakrishnan, Project Engineer, "we have our brick kiln at the bank of the Kaveri which produces metric bricks (19×9×6 cm) and supplies our daily requirement of as many as 70,000 to 80,000 bricks a day."

Interview with K. B. MATHUR

Chairman, Bharat Heavy Electricals Ltd.

FIRST BOILER TO BE READY IN 1967

Work in hand for 17 more

Yojana: The Tiruchi Heavy Boiler Plant of your organisation is going to be inaugurated on May 1. Would you tell us, Mr Mathur, whether it is going to be a symbolic ceremony or will mark the actual start of work?

K.B. Mathur: Production, in fact, has already started in many units of the Tiruchi plant. The inauguration of the plant by Dr Zakir Husain, Vice-President of India, on May 1 will signal the going into operation of practically all the units, except the gas plant.

Question: When will the first boiler manufactured at Tiruchi be ready?

Answer: People who are familiar only with boilers of railway engines or water boilers may not know what a heavy boiler is, and may not be in a position to realise its size. When erected, a heavy boiler will be 36 metres high, 23 metres long and 10 metres wide. A heavy boiler is really a whole factory, a whole plant that can produce large quantities of electric power. A heavy boiler would require as many as 50 wagons for movement from the Tiruchi plant to the site of its erection. It requires many months of hard and skilful work. The first boiler of the Bharat Heavy Electricals' Tiruchi plant will be ready in 1967.

Question: Who will get it?

Answer: It will be installed at Ennore in Madras. But by then work on seventeen other boilers would also be in various stages of progress.

Question: Does that mean you have already secured orders for them?

Answer: Heavy boilers, you will realise, cannot be mass-produced. Each has to be designed and built to different specifications and to suit different conditions. We can be in business only if we have a full production programme. That is why you find us thinking so far ahead. Indeed here is a situation in which we have seventeen orders of a total value of Rs 36 crore even before our work has been inaugurated!

Question: Pardon my asking an uncomfortable question. I'll ask it because it is relevant in all our undertakings, major or minor: Are you behind schedule?

Answer: No, emphatically no. We have stuck to the time table whether in construction or in line-up of the various blocks. It is March* now, and the machine block is ready and in commission. As regards the boiler shop, it is almost ready for performing whatever work we expect of it. The oxygen plant is under erection. The technical school for training people has been running for two years nearly. We have been making high pressure valves and fittings already.

Question: If you are not letting out any secret, how did you manage to stick to the schedule?

Answer: First of all, our experience with the Bhopal Heavy Electricals helped. It enabled us to know what was the time required for the various

(Continued on Page 24)

*The editor interviewed Mr Mathur in March

Books

Powers of the President

The President of the Indian Republic by R.N. Misra. Vora & Co. 243+ i-xvi pages. Rs. 15.

Amar Nandi

EXPERT opinion is sharply divergent on the subject of the powers of the Indian President. Mr Misra's book has the merit of facing the issue squarely. Every argument that is put forward by those who hold the view that the Indian President is a mere nominal executive head, the real power being vested in the Council of Ministers, has been examined by Mr Misra, as well as the arguments that are put forward in rebuttal of this view. And if he concludes that "it would be incorrect to say that under the Constitution of India the President is a mere symbolic head to put his seal on everything that issues from the Ministry" he puts forward solid reasons for this view, which it is difficult to brush aside.

The framers of the Indian Constitution have made the President the defender of the Constitution and the guardian of the minority interests, and the Constitution itself provides that in certain cases, the President is to act on the advice of bodies other than the Council of Ministers. [For instance, Article 103(3)]. One has also to remember that the Constitution sets up a federal system of Government in the country which involves a delicate balancing of the powers and functions of the Union and the States, and the President has undoubtedly an important role to play in ensuring that the balance is not upset by partisan policies of the persons in power at the Centre at any given moment.

Mr Misra's book is certainly the most comprehensive work on the subject so far. It combines a lucid and detailed analysis of the various provisions of the Constitution relating to the President with a comparative study thereof.

Mr Misra has rightly drawn attention to the difficulties that might arise in future. "Constitutionally", says he, "it is possible that a person with a minority support in Parliament may be elected as the President of India." He points out further that if Parliament is weakened by the emergence of a multi-party system, "the power may pass to the President beyond the Council of Ministers and the Prime Minister."

Mr Misra's book contains much food for serious thought, at least for those who deeply desire that the great democratic experiment free India has embarked upon may, through a smooth and peaceful evolution, enable the nation to attain the goal placed before it by late Prime Minister Nehru.

GOA, DAMAN AND DIU

Goa, Daman and Diu 1964. The Publications Unit, Department of Information and Tourism, Government of Goa, Daman and Diu, Panjim. 169 pages. Rs. 2.50.

THIS is the second edition of the Reference Annual put out by the Information and Tourist Department of the Goa Government. It details the progress recorded in the various fields of the economic and social activity, since the liberation of the Territory.

One is impressed by the achievements of Government during a short period of three years. The number of the primary schools increased from 259 to 618 and that of the pupils from 25,749 to 79,536. Secondary education has been in the private hands even before the liberation. In 1961-62 there were 78 high schools. The number rose to 140 in 1963-64. Maintenance grants, which were absent earlier, were given on liberal basis. There are four colleges now leading to the degree level of the University of Bombay; earlier there was none. A supply of 2,500 KVA power is now flowing in the Territory from the neighbouring States. Two more towns have been electrified; rural electrification will follow shortly. The whole Territory has been covered by the community blocks. The significant aspect of the C.D. programme in Goa is that the actual programmes in each block are based on the specialised investigations carried out by the Central Water and Power Commission, Bureau of Mines, Survey of India and other technical agencies. Similar measures have been taken to raise the productivity of agriculture, livestock, fisheries, forestries, etc.

The book gives a compact description of the political and administrative system of the Territory. Government's determination to introduce the democratic processes in the Territory is reflected by the fact that within eight months of liberation, elections for gram panchayats were held on an adult franchise basis. Elections to Legislative Assembly and Parliament followed in two years. This by itself is a stupendous achievement for the government and the people as well, as Goa did not have any broadbased elections for 450 years. Yet, one is struck by the fact that municipalities are still governed by the Portuguese statute and are run by members nominated by the government.

The Annual is a useful compendium of facts and figures for those who want to know more about the Territory and also for those who would like to spend their vacation there. Important tourist information has been given including the Indian Acts which are in force in the Territory. To enhance its utility to this type of readership, maps showing the road system, location of temples, churches, recreation spots, hotels, etc., should be given. Some maps were given in the first edition; for unexplained reasons, they have been dropped from the present one.

One more suggestion. The names of towns and villages are spelt in the lusitanian way. Even though the script of the English and the Portuguese languages is the same, the phonetical rules are different. This adds to confusion. Spellings of many towns in rest of the country were deanglicised after Independence, to bring them nearer to the local pronunciation system. Similar action needs to be taken urgently in Goa.

R.K.P.



SARI'S HIDING PROPERTIES

THERE are many ways of praising a *sari*, but we recently came across a most unusual compliment.

It is by an Indian writer, who is in his sixties.

Remarking that his wife was complimented in Moscow on her still youthful figure, he gives the *sari* some of the credit and adds: The *sari* covers many sins, unlike the western dress.

There evidently are many ways of praising *saris*, or wives!

New Focal Point

WHAT is the focal point of a community ('community' in the sense of people living in a town or settlement)?

In mediaeval Europe it was the church or cathedral; in many Muslim cities the masjid, in south Indian towns, or in Buddhist lands, undoubtedly the temple.

More recently in some towns a town hall or a college has tended to be the civic focus, but not wholly.

Mr. Jhabvala, the architect, some time ago said that a survey had shown that in the last few years, the cinema-house was the only recognisable building around which the social and cultural life of our communities could be said to revolve.

Weather or Climate?

MR K.P.S. Menon asserts that Kerala has no weather; it only has climate. Bangaloreans could, until recently, claim that they had only weather and no climate.

But it has all changed. Bangalore now has a summer like any other city. When the thermometer shows 30 degree C. Bangaloreans groan and sigh and blame it all on government. They are convinced that the worsening heat in their city has something to do with inflation. And homes have even begun to instal fans in Bangalore!

Professor Seshadri, the scientist, was once saying that Mardas, in his student days, was definitely five or six degrees cooler. He might be right, for he gave a number of possible reasons: such as more buildings with more reflecting surfaces, more cement and iron and less brick and timber in buildings.

A person re-visiting Bangalore after a lapse of twenty years would be aghast at the vanished trees, and the upstart houses that disfigure old copsy compounds. The so-called garden city has too few parks. The shrinking and built-upon Lal Bagh and Cubbon Park can't serve as lungs for the numerous 'Nagars'. Another change for the worse in Bangalore is the mosquito menace.

To improve the city's climate Mr Nijalingappa proposes to have a five-mile tree belt.

Language and Violence

A DELHI resident of South Indian origin reported to us a parental finding which puzzles us.

When his son was three years old and knew little Hindi he used to beat up children in the neighbourhood. Now he is four and a half and has done more than a year in nursery school, knows Hindi, has given up beating children of his age group; instead he plays with them most merrily.

Now it is for psychologists to tell us whether this change is due to: (*a*) better adjustment (b) the softening powers of the Hindi language—especially on South Indians away from their provinces or (c) sapping of vigour due to what is called education.

Missing Virtues

SOME cities have some peculiar lacks. Bombay, for example, has too few public urinals. For a visitor it is a wonder how the people on the crowded streets manage it. Maybe they sweat it out or hold off until they reach V.T. or Churchgate.

In Delhi the conspicuous lack is of news-stands. For people coming from Calcutta or Madras or Bombay where you find a newspaper-kiosk every few yards any time of the day in any part of the city, the reading habits of the capital come as a puzzle. There isn't even a pavement shop selling newspapers for a mile around Parliament House and the Secretariat!

The lack in Bangalore, we found on a visit, is of post boxes. For a city of its size, there should be a liberal sprinkling of them. But on three successive taxi trips, each of more than four miles and along fairly busy streets, we didn't encounter any receptacle for the letters we were impatient to send away.



IGNORAMAN
Wants to Know

Why are some
Programmes called
Crash Programmes?
Because they Crash sooner?

Collector's Items

Overheard in a hospital (not in English but in mother-tongue) a snatch of talk which gives an indication of one of our demographic problems.

Woman Patient: This is my son, doctor.

Doctor: But you can't have such a grown-up son?

Patient: Why? He is only 20 and I am already 35!

* * *

A signboard before a Delhi hatchery reads:

"Whiteleg Horn Specialists"

Interview with K. B. Mathur

(*Continued from Page 20*)

aspects of construction. We therefore set for ourselves certain time targets: 100 days for foundation, four months for flooring and six months for erection. A second device that has helped us is our policy of not putting all our eggs in one basket. We distributed our construction contracts among three or four parties—with the result that no single contractor could lord it over us. Also, our costs were kept low.

Question: What about materials? In most projects delays are blamed on difficulty in getting them...

Answer: Let me, without too much of modesty, take credit for anticipation. We maintained, and maintain, very close co-ordination with the Steel Controller and have a weekly review of the position. We were also able to get bulk allotment of roof sheeting from the Works, Supply and Housing Ministry. We also put up our own brick kilns in advance. We have done this in Hardwar and Hyderabad projects also. But let me tell you about what is perhaps our best stroke by way of anticipation.

Question: Namely?

Answer: The project report of the Heavy Boiler plant was ready in August-September 1962. Government announced its sanction in July 1963. But even when the project report was being prepared, we sent our men to Czechoslovakia, the country which is aiding the project. Our civil engineers observed and foresaw what was required of them. Other technical staff picked up enough design skill that, after the project report was submitted, enabled us to reduce the project cost from Rs 22 crore to Rs 18.1 crore.

Question: How did Tiruchirapalli come to be chosen for locating the project?

Answer: Let me give you a quick survey of the history of the plant. It was six years ago, late in 1959, that the Czechoslovak Government announced its intention to give a credit of Rs 23.1 crore to India for the manufacture of heavy electrical machinery. The Government of India set up an Expert Committee to choose a site for a heavy boiler plant. The committee considered the usual technical and economic factors and decided in favour of locating the plant at Tiruverumbur near Tiruchirapalli. Good Government land was available—seven to eight square miles of level land. Plenty of water could be had from the Kaveri. The site had not only railway facilities but was also near a highway.

Question: Have you received co-operation from the State Government?

Answer: We have had the happiest relations with the Madras Government. They released the land in record time. Indeed the State Government has followed a policy of maximum co-operation and minimum interference, for which I have nothing but praise and appreciation.

Question: From your vast experience in public sector enterprises, as Chairman of the Railway Board, and as Chairman of Heavy Electricals, at what points, would you say, immediate improvement is called for?

Answer: I would like to stress three points. First, the Government should make it a rule to clear a project within three months of the receipt of the project report. It took nine months to clear the Tiruchi project, resulting in much avoidable delay. Secondly, Parliament and politicians must develop conventions about not insisting on public undertakings revealing all the terms of contracts, etc. Such insistence often deprives the managements of bargaining strength, gives away valuable information to competitors, and leads to financial loss to the country. This point becomes all the more important with the proposal for the public sector to enter consumer goods manufacture. And thirdly, this excessive faith in the opinion of foreigners must go. There must be more ready recognition that our technicians and managers can do the job entrusted to them. Responsible people, in particular, should have trust in the capability of indigenous acumen to deliver the goods.

Question: How good, in your own opinion, are your engineers and technicians?

Answer: Let me tell you, they are very, very good. Our policy is to avoid taking older people but to build up our own people, young men, for all the jobs. You will find that very important posts in the Tiruchi plant are being held by people between 30 and 35. This is going to be so in our other plants also. In our entire set-up you will barely find a couple of engineers above 50 years.

Question: Is there any particular achievement of your organisation that you would like to stress?

Answer: Yes, and a very creditable one too. We have developed a central design organisation at Hyderabad, and they have prepared a project report for a Central Foundry Forge at Hardwar. The project report prepared by BHEL is now under the consideration of the Government. A foreign collaborator will be selected soon for providing technical assistance in this specialised field. Initially the plant would turn out lower ranges of castings and forgings and gradually within three years or so it would produce forgings of optimum sizes. The plant is expected to go into production within 2-2½ years from the time sanction for construction was received. Full impact of this unit would, however, only be felt during the Fifth Five Year Plan. For this job any foreign consultant would have charged Rs 30 lakh. Our lads have done it at a cost of a mere 50,000 rupees.

Question: When does the Tiruchi project expect to break even?

Answer: The important thing now is to make the boilers and make boilers of the best quality. It would be wrong to demand the plant to make profits all at once. None who knows what's what expects a heavy electricals plant to reach optimum production in six to eight years. Once we take care of production schedules and get the maximum from each technician and each shop, profits will follow.

DUGDHASAGAR DAIRY

The Mehsana District Co-operative Milk Producers' Union has set up a dairy at Mehsana in Gujarat. Named Dugdhasagar, the dairy is equipped with latest machinery to process 75,000 litres of milk daily. It has cost Rs 69 lakh.

LEARNING

By Correspondence

KRISHNA DAS GUPTA

ARDENT faces were watching and listening to the invocation song sung by the ladies on the dais. They were students of the Correspondence Course of the Delhi University and the occasion was the Annual Day Function of the Directorate of Correspondence Courses. A sizeable number from among them were in their late twenties and early thirties but not a shred less enthusiastic than their fellow students who were younger in years. As a matter of fact these students who did not get opportunities for higher education so far, due to many reasons not under their control, have accepted this project of studying through correspondence as a boon.

N—from Moti Bagh, New Delhi told me at a get-together of the Directorate, "We never thought we could do it, (he meant, of course, university education) since we could not help working and now thanks to the correspondence course, we shall be able to do B.A., at least." In that same gathering quite a few people were eager to know whether the Directorate of Correspondence Courses had any scheme to start post-graduate courses. It looked to me there will be quite a warm response once it is decided to start the post-graduate course. Judging from the nature and variety of enquiries one could almost say that there was an effective demand for it.

Sceptical brows have been raised questioning the usefulness of the experiment which in fact what the correspondence education is at present in this country and wiseacres have regretted this rush for degrees for degrees' sake. But the students who have the tenacity and the will to acquire knowledge during the leisure available to them after a strenuous day's work, particularly when a good number of them are not as young as other undergraduates are the real pilgrims to the shrine of knowledge. For one thing, unless the student is sincere, he cannot get along with correspondence course, much less derive any advantage from it. This method does not provide the spark of liveliness or the close personal touch that a brilliant teacher brings to bear on his lecture. There is not even the warmth of bonhomie and camaraderie of the class fellows. A thousand and one things add salt to the academic career of the regular students. A correspondence course student, on the other hand, does not meet his teacher except once in a while at the classes organised by the Directorate. He has more or less to plough a lonely furrow. As Beniwal, one of the students, writes about the problem of piled up response sheets—he is a Sanitary Inspector and has got to be on tour to villages which leaves him with very little scope for concentrated study.

Hawildar Singh sends his response sheets from his station at a border post and you can imagine what devotion he should be having to his studies.

The teacher in the correspondence courses has to play a very delicate role. For one thing, it is natural for the students to sometimes become impatient for the delay caused in returning the corrected response sheets and occasionally with the corrections themselves. But both these things are seldom due to negligence. Conscientiousness is a very important quality of the correspondence course teacher.

The scheme of the correspondence course at the B.A. pass level was started in 1962 by the University of Delhi as a pilot project under the Third Five Year Plan. A fullfledged Directorate was set up for the implementation of the scheme. Lessons are prepared on various subjects, such as English, Hindi, Economics, Political Science, Commerce, History and Mathematics. After the lessons have been prepared and scrutinised from all aspects these are sent to the students along with blank response sheets. The students are expected to read their text books, study the lessons, seek clarification where necessary, fill in the response sheets, and then return them to the Directorate. The teachers in their turn go through the response sheets carefully, correct the mistakes, provide additional notes and comments wherever required and the corrected response sheets are then sent back to the students. Apart from these exercises, classes are held under the personal contact programme. Thus, given a certain standard of intelligence and diligence, the students of correspondence course are taught as methodically, if not better, than the regular students.

The correspondence system has become very popular in other countries. A worker doing mechanical operations in factories or workshops usually improves his professional competence as a result of the correspondence course and eventually it might become possible for him then to take to higher studies even as he continues to work on his job.

Studying through correspondence is inexpensive and the system permits teaching a far larger number of students with minimum academic staff and laboratory equipment. Thus it ideally serves the needs of a country still in the process of development such as ours.

Correspondence courses can be particularly beneficial to ambitious men working in engineering professions and this method has paid rich dividends in the U.S.S.R. Training of in-service teachers is another important field which could be exploited through this method. As a matter of fact, the Education Minister Mr. Chagla, a keen supporter of this scheme, hopes to introduce teachers' training and post-graduate courses through correspondence as soon as possible.

The first batch of the students of the Delhi University's Correspondence Course will appear at the B.A. final examination in September this year.

If anything, the results would reveal the extent to which methods currently in use in the Directorate would require improvement or streamlining. The whole Directorate—the students (some 4,000) and the academic staff are engaged in an exciting venture and there are reasons to hope that this experiment will prove a success.

PANEL DISCUSSION

New Thoughts on TRIBAL DEVELOPMENT

THE shape of the programmes for the development of backward classes under the Fourth Plan is likely to be very much different from the pattern that has evolved during the first three Plans. This became evident in the recent deliberations of the Planning Commission's Panel on Backward Classes. It was emphasised that development of Scheduled Castes, Scheduled Tribes and other backward classes would continue to be one of the critical testing areas for our development plans. It was urged that the special programmes for backward classes should be designed to attract into areas, largely inhabited by backward communities, resources from various allied sectors of the Plan. The precise manner in which such redesigning should be attempted was also indicated in respect of some of the major programmes.

The Tribal Development Blocks which represented the largest single programme for the socio-economic development of Scheduled Tribes was initiated under the Second Plan. This was an attempt to adapt the community development approach to the special needs of tribal communities. It was found that the block unit with a population of about 25,000 was not large enough for programmes like communications, forestry, irrigation, agro-industrial processing and the like. Besides, the formula for delimiting a tribal development block was based on a certain percentage of tribal concentration. The result was that areas having less than that percentage of tribals remained outside the purview of the scheme. It was therefore suggested that a manageable number of continguous T.D. Blocks should be grouped to form tribal development areas. These areas could also include pockets with less than the stipulated percentage of tribal population. Once such an area has been defined, it should be possible for officials and non-officials engaged in tribal development to study at close range the specific needs and problems of the area. In such a study panchayati raj institutions and experts from Tribal Research Institutes and University Departments of Anthropology could also be associated before programmes are drawn up. The funds available to the Blocks could be pooled, part of which could be used for programmes which have to be implemented at the area level, and the remaining at the Block level. In such a scheme, it would also be easier to engage the services of senior specialists in forestry, communications, etc., at the area level, an advantage not easily secured for each Block. The main idea was to combine the intensive approach of the block pattern and to add the area perspective for larger operations. It was recommended that a few districts in the major tribal States could be chosen for selecting and developing suitable areas on an experimental basis in the last year of the Third Plan. Based on the experience gained, the programme could have a bigger and better start in the Fourth Plan.

Forest Co-operatives

An important problem of tribal people is their exploitation by moneylenders, middle-men and contractors. The tribals living in forests are deprived of their legitimate share of the forest economy by the contractors. In a bid to solve this problem, the composite State of Bombay had introduced, even before the days of development planning, a programme to organise forest co-operatives. Since then such co-operatives have flourished under the impetus of the three Plans. Gujarat and Maharashtra continue to provide a lead to the rest of the country in this matter. The success of forest co-operatives in western India is generally ascribed to the sponsorship of voluntary organisations and workers who had, under the leadership of the late Thakkar Bapa, done commendable work in putting the forest co-operatives on a sound footing. In the absence of similar voluntary organisations, some of the other States like Andhra Pradesh and more recently Madhya Pradesh have taken to co-operative finance and development corporations.

The most important single factor which contributes towards the success of these co-operatives is the attitude of the Forest Departments and particularly the attitude of the forest officials at lower levels. When some of these problems were discussed between tribal welfare protagonists and officials responsible for promoting forest wealth, there was considerable identity of views. There was general agreement that certain forest operations were well suited to be entrusted to primary forest co-operative societies working on the basis of partnership with the state. Other forest operations which require larger resources and elaborate organisation could be worked in part through federations of co-operatives or through sponsoring corporations with full state support. It was also recognised that Forest Department officials should be educated in the working of tribal economy, and tribals in the techniques of conserving and developing forest resources. This could be done through an extension service to be organised by the Forest Departments.

The problem of housing Harijans, landless labour and other weaker sections of the village community was recognised as one of the big problems of the country. Isolation from the main village habitation, congestion and squalor in the Harijan *bastis* and the fear of ejection from the house site which belongs to the landlord on whom the landless worker is economically dependent, have been regarded as the main features of this problem. Efforts to solve this problem by subsidising individuals to acquire house sites have not yielded satisfactory results. The problem of housing for village Harijans and landless labour would have to be treated as part of the larger programme of rural housing. It was suggested that this could be done by pooling the resources, unifying the supervisory and administrative authorities, setting up of rural housing wings in the State Housing Boards and enabling the Panchayat Samitis to assume greater responsibility in the matter. The new or extended abadi would have a functional layout providing for homesteads and work places for various occupations such as flaying, tanning of leather, poultry keeping and other subsidiary occupations. In respect of this programme as well, it was decided to start work on an experimental basis in the last year of the Third Plan.

Denotified and Nomadic Tribes

Among other Backward Classes, the so-called "criminal tribes" and traditionally nomadic communities have been identified for special attention. A closer study of their specific problems and formulation of programmes suited to their genius have been recommended for their economic rehabilitation and social assimilation. It was urged that accent should be on training their youth who are potentially good skilled workers. For the nomadic tribes who have special aptitudes in animal husbandry or in the exploitation of minor forest produce like medicinal herbs could be given technical assistance for improving methods of work as also in the marketing of their produce. Such help could well become a continuous source of influence in other aspects of their life, *viz.*, education, training and medical help.

In order to enable both the official and non-official agencies to implement these various programmes effectively, it was urged that a cadre of well trained and devoted workers should be developed.

GAROS *from Page 9*

Jars of *tchu*, a kind of rice beer, are brought out and distributed. Community drinking go on to the tunes of tambours, gongs and flutes late into the night.

Young people, boys and girls dressed in their festive best adorn their heads with turban, flowing down their long hair. Both dance and play on *tamtam* all night in gay abandon. The finale to the festivity is reached when the headman with the traditional sacrificial sword in one hand and a black and red shield in another, starts singing:

He the Sangma *is strong and adroit,*
Who will dare to attack him?
Who will dare to defy him
In the home of his forbears?

and dances to the rhythmic sound of tambours and gongs.

The three days of festivities over, the Garos go back to their daily work, because they must work and earn their daily bread. They again go to the field, plough the unyielding soil and bend the bamboo for their use. A hard but a happy life with very few wants!

SHAMBU by Malinda Topa



Yojana Bhavan Diary

Mr. S. G. Barve has been appointed Member of the Planning Commission. Until recently he was Minister for Industry, Maharashtra.

Mr. G.R. Kamat has been appointed Secretary, Planning Commission, in place of Mr. T. P. Singh who has taken over as Secretary, Expenditure and Revenue, Ministry of Finance. Until recently Mr. Kamat was Secretary, Agriculture, Ministry of Food and Agriculture.

Professor M. S. Thacker, Member, Planning Commission, who left for Paris on March 26 to attend the meeting of the U.N. Committee on Science and Technology, has been elected chairman of that committee. He returned on April 12.

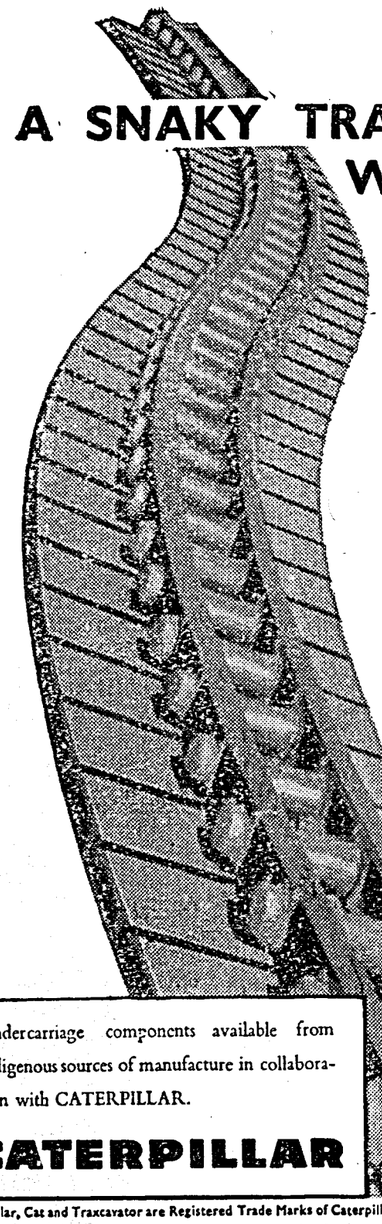
Sir Roy Harrod, eminent British economist, who came to India accompanied by his wife on March 15 at the invitation of the Planning Commission, left for U.K. on April 17.

The National Development Committee on social services met on April 17 and 18.

The inter-State conference on Rural Manpower Programmes was held on March 14, 15 and 16.

The recommendations of the Powerloom Enquiry Committee were discussed at a meeting held on April 9.

Mr. M. Butt, Joint Secretary, Planning Commission, left for U.S.A. on April 10 on a four-week deputation. He will visit the training centres of American Peace Corps volunteers and also discuss with the Peace Corps authorities their proposal for assignment of some Indians to take part in the experimental training programme in the U.S.A.



A SNAKY TRACK MEANS WORN-OUT JOINTS

Snaky tracks are easily forced out of line — jamming link rails against flanges of idlers, rollers and sprocket teeth. This affects bushings at link counterbores which lose their close fit. The result : dirt and abrasives creep into track joints — grinding away pins, bushings and counterbores. Wear accelerates as more dirt enters.

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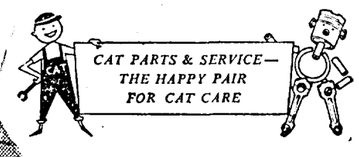
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Fourth Plan Projects to Begin This Year

As The PLAN Moves

Two machine tools plants are to be set up in the public sector in collaboration with Czechoslovakia.

One of them will be located in Gujarat to manufacture 5,000 tonnes of medium heavy machine tools every year. It will cost Rs 12 crore.

The other will be located in Rajasthan to manufacture 3,000 tonnes of grinding machines every year. It will cost Rs 6 crore.

Both plants are among the Fourth Plan projects but work on them will begin this year as advance action.

Work on some more heavy engineering projects included in the Fourth Plan is to begin this year. The projects are: a heavy structurals plant, a central foundry forge for heavy electricals, a foundry forge fabrication shop for fertiliser and chemical equipment, a cast iron rolls plant, a unit for heavy pumps and compressors, a heavy plates and vessels plant, and a new unit for the manufacture of heavy electrical equipment. Locations have already been fixed for three of these projects.

Fly-Over Bridge In Bombay

The first fly-over bridge in India has been opened to traffic in Bombay. The bridge is 338 metres long and has four lanes to help the smooth flow of traffic without interruption on account of cross-traffic or pedestrian movement. It has been designed artistically as a piece of sophisticated structural engineering. It was built in 7½ months at a cost of Rs. 14.5 lakh.

Another similar bridge will also be built in Bombay.

—The Soviet Union will supply India spare parts of tractors valued at Rs. 20 lakh.

OPERATION HARD ROCK

A CRASH programme of search for minerals will be launched after monsoons this year. The survey programme, called 'Operation Hard Rock', will be conducted for 30 months over 90,000 line miles in three or four mineral belts in the country at a cost of Rs 2.15 crore. The programme is aided by USAID for foreign exchange worth Rs 1.65 crore. The mineral belts to be covered are the Aravalli region in Rajasthan, the Cuddapah basin in Andhra Pradesh, and the mica belt and the Ranchi plateau in Bihar.

Vaccine Plant At Hyderabad

The Institute of Preventive Medicines, Hyderabad, is setting up a plant for the manufacture of freeze-dried small-pox vaccine with a capacity to produce 20 million doses every year. Aided by UNICEF, the plant will cost one lakh of rupees and is expected to go into production in two months.

PROFITS IN CONSTRUCTION

The National Projects Construction Corporation earned a profit of Rs 38.59 lakh in 1963-64. The profit works at 7.6 per cent of the value of work done which was Rs 5.10 crore. The Corporation has declared a dividend of 6 per cent to the shareholders. It has carried out works costing Rs 17 crore and earned a total profit of Rs 91.30 lakh during the past seven years.

Bright Spot

EXPORT TARGET REACHED

India has achieved the Third Plan target of exports of engineering goods a year ahead, when she exported engineering goods valued at Rs 19.5 crore in 1964-65. This marked an increase of Rs. 5 crore over the previous year's. The major items of export were rolled steel, diesel engines, bicycles, steel pipes and tubes, electrical wires and cables, machine tools and metal working machinery.

'BLEEDING MADRAS' DOUBLED

Exports of 'Bleeding Madras', a popular variety of handloom fabric, reached a new high in 1964-65 with 21.15 million metres valued at Rs 6 crore. This is double that in 1963.

Biggest Gas Run Power House

ASSAM made a major break-through in power generation with the commissioning of the Namrup thermal power house on April 16. Said to be the world's largest turbine station run on natural gas, the Namrup power house can generate 69 MW of power, and there is scope for expansion. It will get the supply of natural gas from the Nahorkatiya oil field, only 16 kilometres away.

Earlier, the Umiam hydro-electric power house was switched on in January last. Both these projects, financed by the United States, will open up an industrial era in Assam. They form part of the State's big power programme.

KUNDAH'S THIRD

The third power house of the Kundah hydro-electric project in the Madras State has been commissioned with a generator of 60 MW capacity. The project has been aided by Canada under the Colombo Plan.

3,500 U.P. VILLAGES ELECTRIFIED

U.P. had electrified 3,450 villages during the first four years of the Third Plan. The number is expected to reach 5,000 this year, against the Third Plan target of only 1,500 villages.

Regd. No. D-876

PRIDE OF PLACE

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Viran Dolls of Madras



As you enter a village in Madras or Mysore you will often find a huge figure made of bricks and mortar. He holds a sword in his hand and is called Viran or the hero. Regarded as *grama devata* or village deity, he is supposed to guard the interests of the villagers and keep the evil spirits away.

An ancient cult, worship of village deities is prevalent in other parts of the country also, particularly in Bengal.

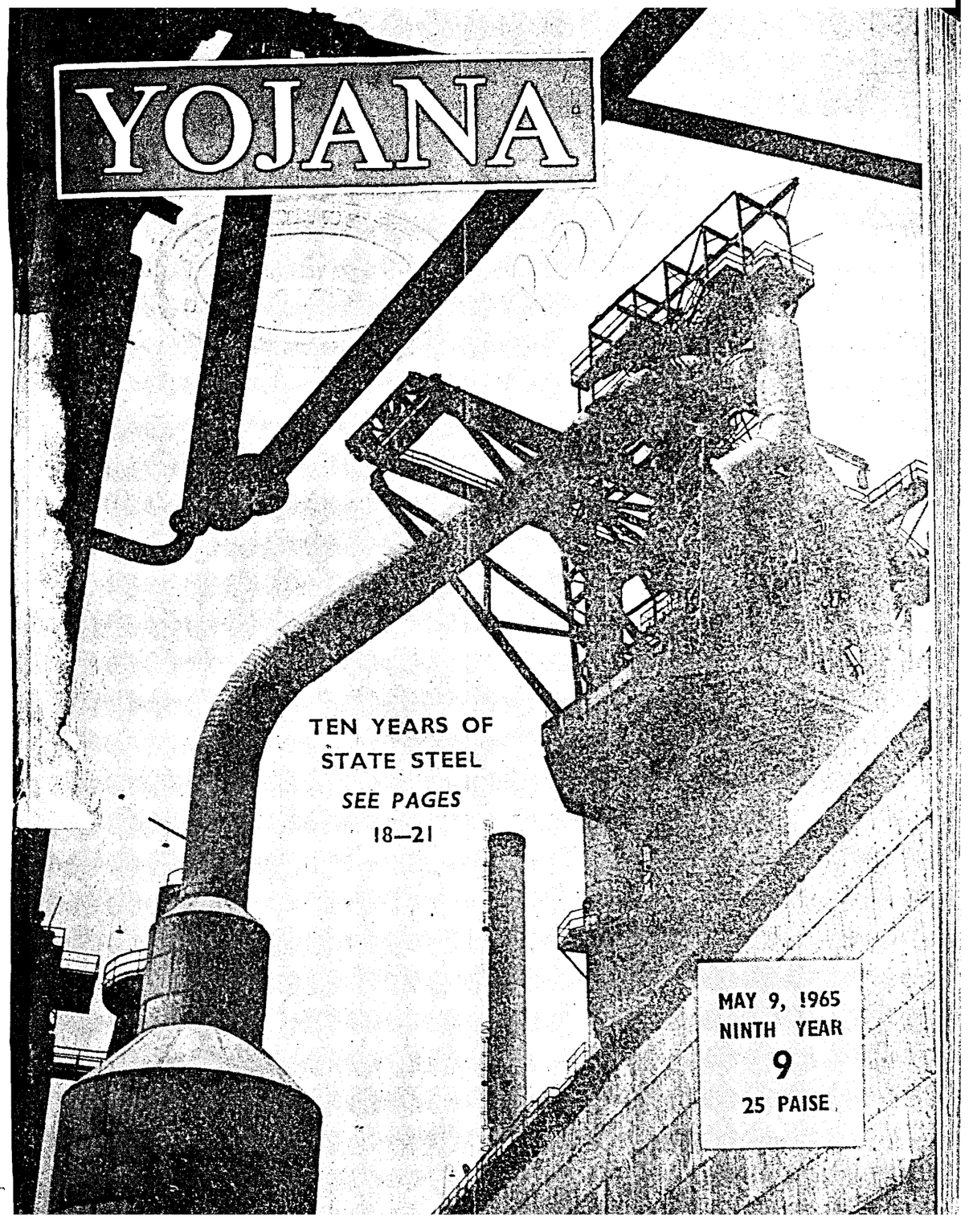
In the South the *grama devata* cult centres round Aiyanar, the son of Vishnu in female form (Mohini) and Shiva. "He also finds a place in the Hindu pantheon, especially in Malabar where he is generally known as Sasta or Hariharaputra. Other orthodox deities such as Mari Amman, the Goddess of Smallpox are also worshipped in connection with Grama Devata shrines."

The Viran of Madurai is famous in the series and is worshipped by the villagers. Mythological aspects apart, he also "seems to be semi-historical as a general under the Nayaks of Madurai."

The Virans who have dominated the village scene for long have now found their place in South Indian homes as dolls and objects of decoration. The village craftsman makes miniature Virans in clay and paper pulp and paints them with bright indigenous colours. The one reproduced here was collected at Madras.

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YOJANA



TEN YEARS OF STATE STEEL

SEE PAGES 18—21

MAY 9, 1965
NINTH YEAR
9
25 PAISE

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

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Cover : A section of the blast furnace of the Durgapur Steel plant

NEXT FORTNIGHT

SPECIAL ARTICLES ON NEHRU

•

ANDHRA'S AGRICULTURAL UNIVERSITY

•

PROGRESS REPORTING ON STATE PLANS

held over from this issue

Letters

A Farmer's Tips for Doubling Farm Output

In our country 75 per cent of population depends mainly on agriculture. Most farmers own small land holdings on which they are able to produce food grains enough only for eight months in a year for their own use and that, too, if nature helps; otherwise, at places there is acute scarcity, some being able to sustain only for three to six months. Instead of producing food grains surplus to their requirement they have to buy food from market. Another problem is that the fertility of the land has been constantly going down.

I am a farmer with small holdings. I have been able to solve these problems and to double production from my fields. Even though I am still making experiments with hybrid seeds I have succeeded to a great extent.

My experiment does not involve any special expenditure. If followed by those who are interested, it can help them in doubling the output with their resources and help from the Government. My suggestions are given below:

We can impress the farmers only by trial or demonstration on their own fields. They have no faith in the experiments conducted on Government farms or on farms of other big landlords. They will believe only when production is increased in their own fields. Our agricultural and planning officials have not taken the trouble to demonstrate on their fields the methods of increasing production.

Let us presume that the Government consolidates the land holdings and supplies good quality seeds, fertilisers, and improved tools to the agriculturist and also provides irrigation facilities for *turn by turn* supply of water to the fields. Can a farmer do intensive cultivation with all these facilities? No, he cannot. Because, where chemical fertilisers are used water also is required immediately and not by *turns*.

Even if all implements and facilities are provided to the farmer, he will not be able to increase production. Why? Because neither he nor the other Government agriculturalists or planning officials and social workers around him are trained in the new methods of farming. They do not work on the fields.

The first important thing is that the officials should also be subjected to practical tests periodically, and a suitable method for assessment of increase or decrease in production of crops in farms under their supervision should be evolved. For this purpose, officials should send a biannual return, showing the names of the farmer and the official, food grain cultivated (improved or local), annual progress per acre, name and details of the neighbouring farmer who has benefited by copying the processes together with production figure per acre and particulars about fertilisers, water, etc. All this will indirectly help officials in being trained adequately along with the farmers.

One of the modern, easiest and inexpensive ways of increasing production is the adoption of the methods of cultivation prescribed by the U.S. AID Mission, Rockefeller Foundation and Pusa Institute (I.A.R.I.) and the use of hybrid seeds. The only trouble lies in its implementation.

Those who are interested in increasing production by these methods may visit my farm and see for themselves how I have doubled the production of maize and wheat.

Farmers are not as much interested in seeking monetary assistance as they are in getting more from their fields. Once possibilities of increased production are assured they would themselves try to get machinery, seeds, fertilisers, tubewells, etc.

Chobla, Meerut BIKRAM SINGH

(For Mr Bikram Singh's achievements see *Yojana* March 31, 1963—Ed.)

YOJANA

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A MATTER OF ATTITUDE

If there is one task for the Fourth Plan on which everybody is agreed, it is that of getting Indian agriculture out of its old ruts. This consensus derives from the link that agriculture has with nearly all of the objectives that we seek to obtain through planned development. As events in the past few years have shown, the rate of national income growth is vitally affected by the rate at which agricultural production increases from year to year. Similarly, the picture that obtains every year on the prices front is determined more by the supply of agricultural commodities than by any other one factor. Ten or fifteen years from now, agriculture will still be the sector employing a very large part of the labour force. It is progress in agriculture and related activities that will help raise the standards of living in the rural areas. And even the objective of ensuring viability in our balance of payments depends materially on larger production of agricultural commodities, some of which will substitute for imports while others will enlarge the availabilities for export.

None of these relationships is a recent discovery; and over the years, there has been no dearth of pronouncements, official or otherwise, on the supreme importance of bringing about a revolutionary change in Indian agriculture. Nor has there been any hesitation on the part of policy-makers to seek to remove a variety of obstacles impeding agrarian reformation. On the purely physical side, the basic facilities needed by agriculture, such as irrigation, manures and fertilisers, better seeds and implements, have been greatly enlarged. Credit and extension services have been provided on an increasing scale; land reform policies have been pursued and a multitude of incentives offered. All of these have indeed had the effect of enabling Indian agriculture to grow in the last fifteen years at a rate much faster than in the decades before independence. And yet, there has for long been the feeling that the break-through in this sector is yet to come. Most serious students of Indian agriculture have pointed out the potential that exists for increasing the productivity of land and man through improvements in agricultural techniques and practices. There are areas in which the growth in agricultural production during the last ten years or more has been much above the national average. Why then should the experience of such progress be confined only to some areas?

Many experts will doubtless spend years answering this question. But the studies that have already been made indicate sufficiently clearly that more water, more fertilisers and so on have to be utilised for better agriculture. Equally, it is also clear that modern technology and more enterprise have to be injected into agricultural operations, if all these new inputs are to give the results they are capable of giving. It is here that intangibles come into their own—for what this means is a complete change in attitudes towards agriculture, not merely of those who are tied to land by tradition or poverty but of others as well.

The picture which most of us have of the typical Indian farmer is that of a poor superstitious toiler, groaning under a heavy load of debt and unable to free himself from the vagaries of the monsoon or the rapacity of rentiers. Over a large part of the country, this may still be the picture that is relevant. But, unknown to the city dwellers and unadvertised by the press, a new class of cultivators is rapidly coming into existence, a class different from the farmers of old.

These new-comers are different in the sense that they bring to bear on agriculture the attitudes of a businessman. They recognise the risks of producing for a market and weigh the risks against possible gains. They draw on science and technology in improving the yield from their land and their labour. They are untrammelled by the inhibitions associated with custom or caste in doing other things besides pure and simple cultivation on land. And, if tractors are more economical than bullocks, they go for tractors. Above all, they have got over the feeling that Indian agriculture has no place for the educated or the profit-seekers. And because of this psychological release, they find not only satisfaction but excitement in applying their labour and their knowledge to the production of grain or flowers or pigs or chickens —as long as they can find a way of marketing them gainfully.

It is this outlook that moves young men like Srinivasan of Padappai, whose achievements we report elsewhere in this issue. There are thousands of such young men in Madras, Maharashtra, Punjab, Gujarat and elsewhere. In the villages in which they work and prosper, they become the transmitters of a new spirit to agriculture and allied occupations; and to those with whom they come into contact in the urban areas, they carry the hope for a brighter future. They bring out more vividly than any statistics can, the effect which general education and technical skills can have on agricultural development.

What Indian agriculture needs is not one but millions of Srinivasans. And the way to get them is to stop looking at Indian agriculture as a poor relative or at expenditures on providing education to the rural classes as a welfare activity. The mental adjustment needed to recognise these things may not be much; but much of importance to the future of the country depends on our willingness to make that adjustment.

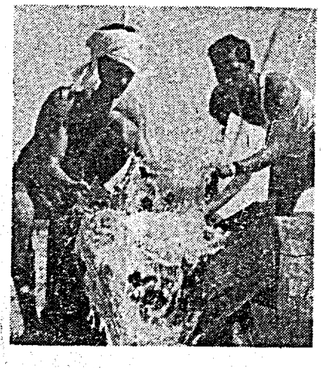
This Brahmin Rears Sheep

Padappai's Srinivasan Shows What A Young Farmer Can Do



Yojana Report by
KALI BISWAS

Photographs by
T. S. NAGARAJAN



Srinivasan (left) and Raju get their bullocks ready for work. Left: At the water pump. Right: Some fruits of farming. Their orchard has mango, sapota and guava trees also.

SRINIVASAN is a paddy-grower, vegetable-cultivator, fruit-and-flower farmer, sheep rearer and a poultry keeper. His farm at Padappai, 35 kilometres from Madras is a place to visit and when there I encountered many things unexpected and unbelievable.

First of all, Srinivasan isn't a born farmer. He has made himself into one. Also, although his sheep and birds have earned a name he hasn't departed from the orthodox Brahmin tradition of vegetarianism.

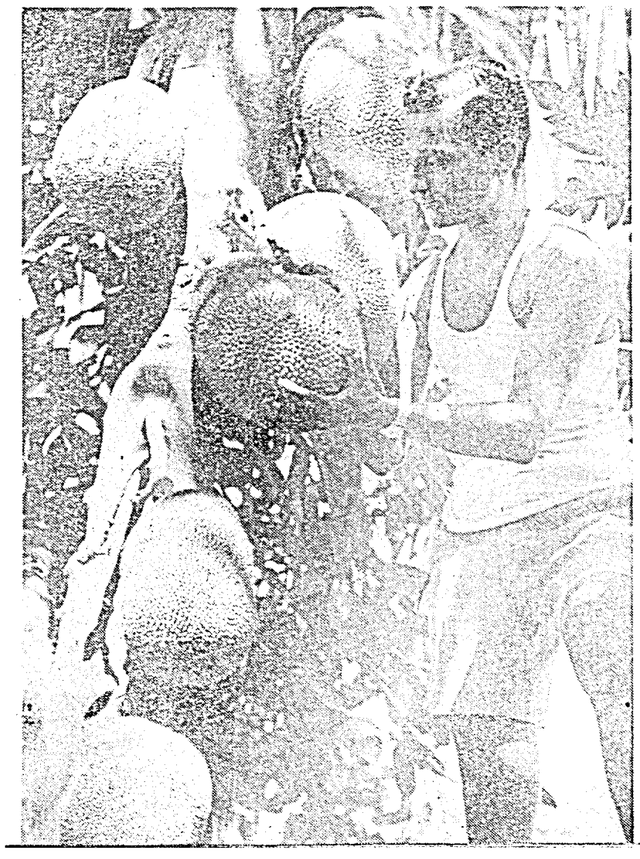
I spent a day on his 30-acre farm on the Valandur-Kanchipuram road and saw him do a variety of jobs: plough the field, feed the young chicks, supervise work on a paddy field and check the flow of irrigation channels. The way he did all this showed that "Papa" knew his job well. That is the name by which the 28-year-old Srinivasan is called at home, and in Tamil "Papa" means child.

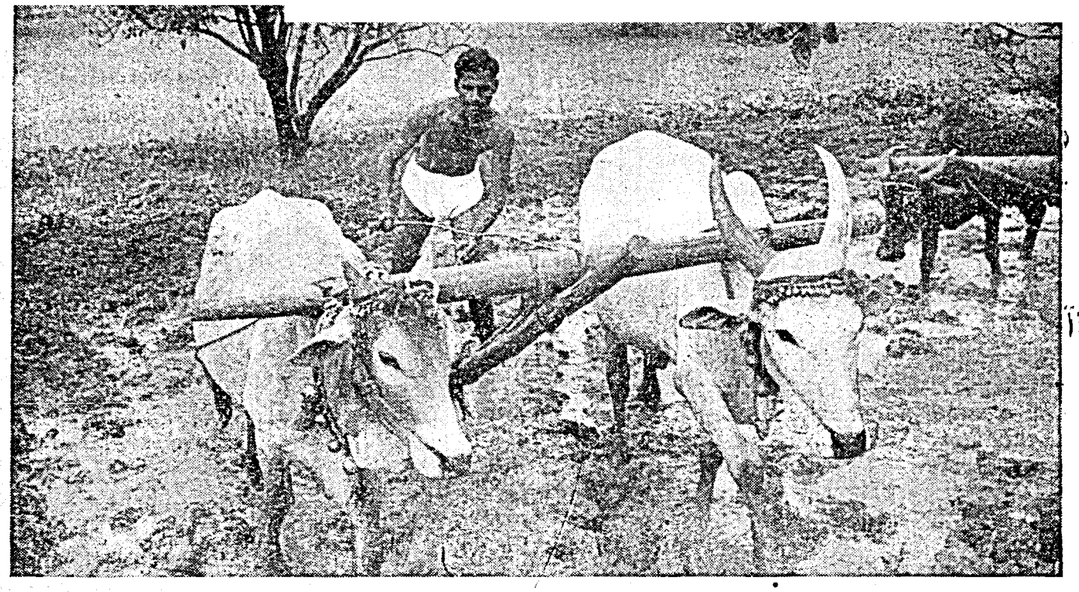
"Papa" is the youngest of five brothers, two of whom are journalists and two others are bank-workers. Their father, Mr S. Narayanan works in *The Hindu* newspaper. Why Srinivasan did not choose the conventional white-collar callings is a mystery.

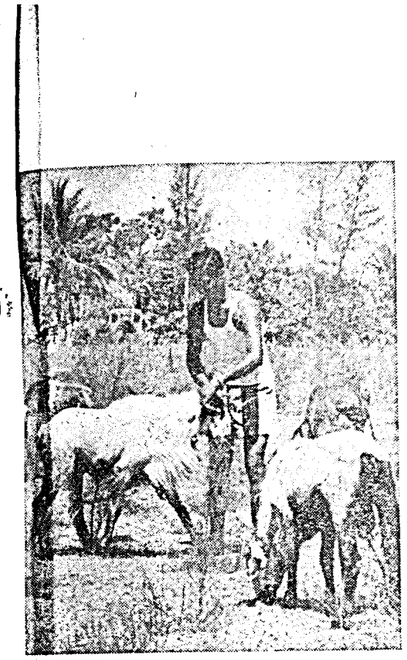
I asked him, and he narrated the circumstances. "In 1949 my father bought a 10-acre plot at Padappai", he said. "The land was barren. With the help of local labour he planted some citrus plants and mango trees. I felt drawn to farming. After passing the High School examination in 1957 I went to the village to try my hand".

It was a difficult job. The land was dry and water was the main problem. Srinivasan thought of irrigation by power. He applied to the State Government for a loan to sink a well. He got the well dug and installed a 5-horse-power pump. The problem of irrigation solved, he started growing *ragi* and chillies.

By 1959 father bought another four acres of land. This stretch







too was faced with the same problem of irrigation. A tree that does not demand much water in the first few months, but which is in great demand is casuarina, favoured for its fuel. So Srinivasan put these four acres under casuarina. At the same time he was not satisfied with the citrus and mango that covered a vast area. He wanted to go in for food grains. In 1960 he built another well and fixed a 3-horse-power pump. Cleaning some land of citrus plants, he sowed paddy for the first time.



Top: The way he ploughs his field, Srinivasan looks an expert farmer. Left: Time to play with the pets and right, above, with his sturdy rams. Alongside: Srinivasan supervises paddy weeding by women.

ALL these years Srinivasan managed everything single-handed. He worked a full day on the land, supervised labour, and cooked his own food. When work increased, and required more time and attention, he engaged a cook. "But soon I discovered", went on Srinivasan, "that Raju was more than a mere cook. He also had an interest in farming and was used to hard work. He has been helping me ever since and it is because of his enthusiasm that I have been able to expand my farm". In 1961, five more acres of land were acquired, and by 1964 some 11 acres more had been added. This last addition was in two separate plots in two neighbouring villages. Half of these new sixteen acres were put under casuarina and the rest was left for grazing. Srinivasan also pulled out all the citrus plants and brought four acres of land near the wells under paddy. He now thought of a new plan. Why not start a flower garden, especially when there was such great demand for flowers in Madras? The garden now has 3,000 rose plants and 100 of jasmine. A little distance away grow vegetables like radish and lady's fingers.

For Brahmins to turn farmers isn't so strange but I wondered how the son of so orthodox a family had been able to start a poultry farm. "That is an interesting story", said Srinivasan. Since coming to the village he had begun keeping some country birds. When his father, because of his ultra-conservative background, had expressed disapproval, they had come to a compromise. So Srinivasan did not sell the birds to "consumers" but to the local B.D.O. who distributed them among other breeders. "But they end up on the table anyhow?" I said. "That's true", said Srinivasan, "but perhaps the consolation is that we are not directly responsible—at least that's how my father feels."

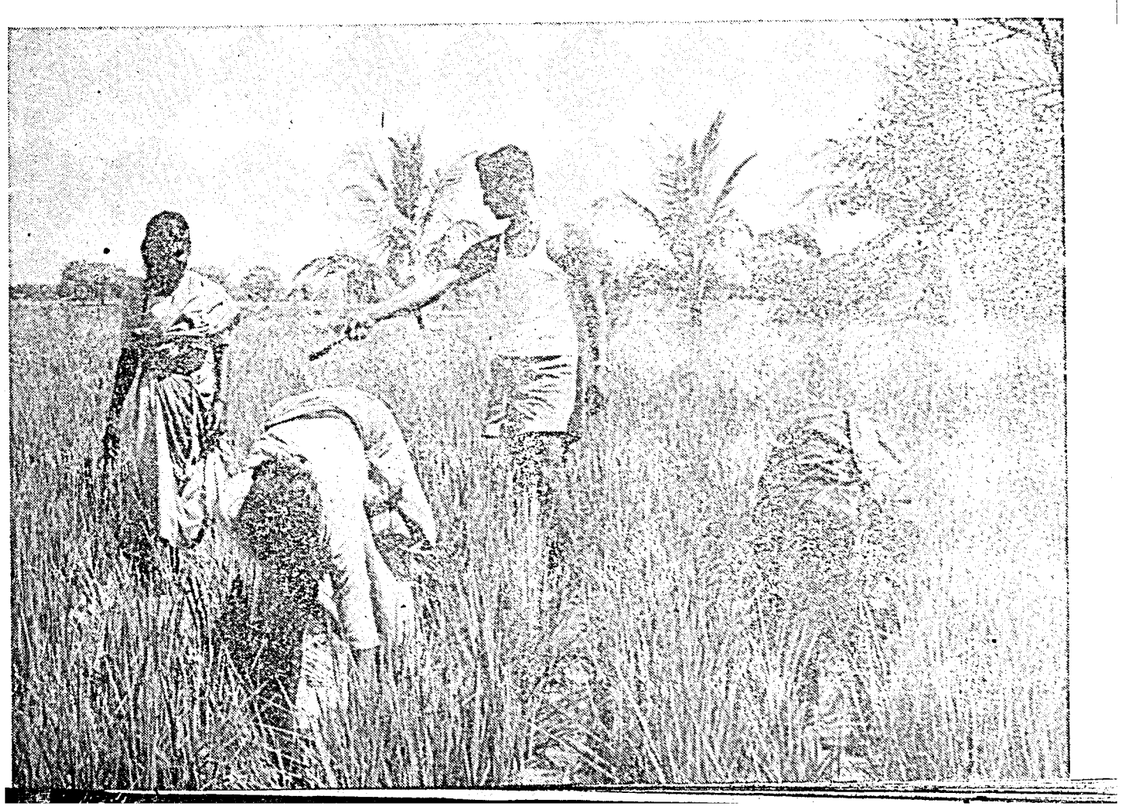
But even this grudging permission would not have been given but for the visit of a person from Bombay to the farm. He had strongly urged the starting of a poultry farm. On his insistence Mr Narayanan had allowed Srinivasan to go to Bombay and have 20 days' training on a poultry farm. On return from Bombay Srinivasan got a subsidy of Rs 2,000 from the State Government and bought 172 chicks for Rs 600 and had the pens erected. At present he has more than 250 birds including 100 layers. He also has a kerosene-driven incubator that can hatch 100 eggs. He himself runs it and adjusts the temperature.

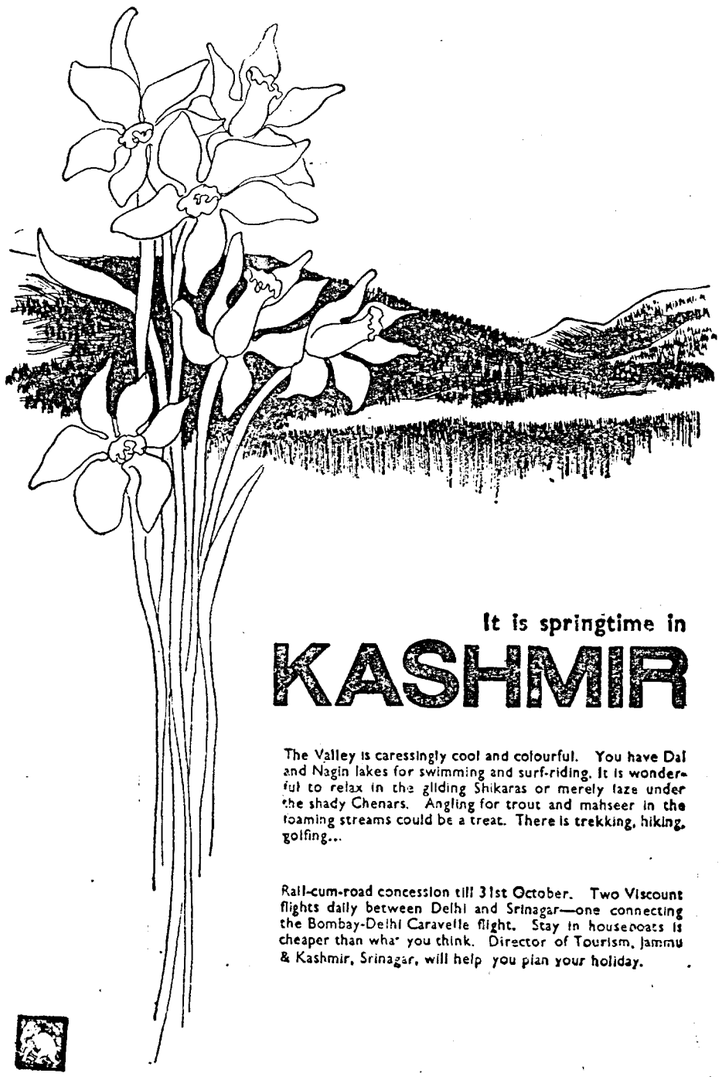
The idea of rearing sheep had come to him even earlier. With the help of the B.D.O. he got three high-breed rams. In all he has now 75 sheep. Srinivasan is fond of his flock of sheep as he is of his birds. He spends a lot of his time over them.

HAD the investment become paying? "We now make Rs 450 to Rs 500 after meeting all expenses," replied Srinivasan. Until 1961 there had been no regular income. But in the past four years Srinivasan had been able to pay the wages and charges without dipping into the father's purse.

"The major part of the income came from casuarina", Srinivasan explained. An acre of full-grown casuarina brings in Rs 1,500 to Rs 1,700, besides the twigs which can be sold earlier for Rs 25 to Rs 30. He also gets eight bags of paddy per acre which he keeps for the family. Besides, from the orchard which has been given on lease he gets more

(*Continued on Page 26*)





It is springtime in

KASHMIR

The Valley is caressingly cool and colourful. You have Dal and Nagin lakes for swimming and surf-riding. It is wonderful to relax in the gliding Shikaras or merely laze under the shady Chenars. Angling for trout and mahseer in the foaming streams could be a treat. There is trekking, hiking, golfing...

Rail-cum-road concession till 31st October. Two Viscount flights daily between Delhi and Srinagar—one connecting the Bombay-Delhi Caravelle flight. Stay in houseboats is cheaper than what you think. Director of Tourism, Jammu & Kashmir, Srinagar, will help you plan your holiday.

DEPARTMENT OF TOURISM, GOVERNMENT OF INDIA

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INDIA ALSO PRODUCES

TITANIUM DIOXIDE

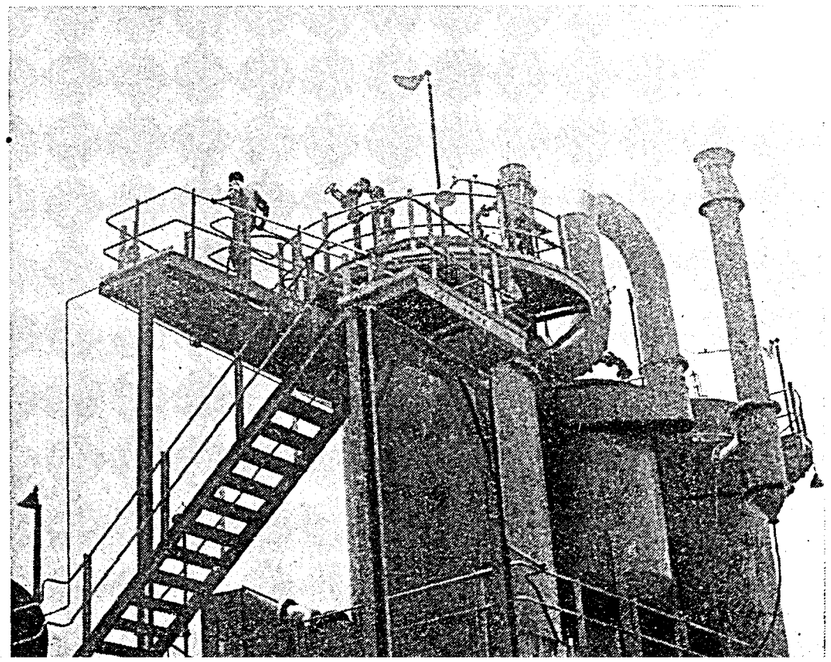
WHITEST THING UNDER THE SUN

WHAT is the whitest thing you have seen? A white-washed or a marble structure like the beautiful Taj Mahal is about the whitest thing that many people know. The supreme white that our grandfathers had known is white lead used in linseed oil and the finest white was that made from zinc oxide. In nature no such thing as the purest white exists. Today we produce an entirely new pigment—a superlative among superlatives in whiteness. Its name is titanium dioxide, and you will find it difficult to believe that it is produced from a mineral that is blacker than anything you have seen. This white pigment is far more stable than anything of its kind known and is entirely unaffected by acids or alkalis that destroy or dissolve other whites. It can remain stable at a temperature of almost 1,800 centigrade! Almost every white thing that is produced to day contains titanium dioxide. There is only one factory in India which produces this versatile and valuable pigment —the Travancore Titanium Products Limited.

Way back in 1945 the Planning and Development Department of the Government of India had recommended the establishment of a titanium dioxide factory in view of the country's inexhaustible resources in ilmenite and the paucity of zinc minerals. The Travancore Government showed keen interest in the project in view of the availability of ilmenite in the State and the possibility of producing sulphuric acid, another important raw material at an economic cost. The Travancore Titanium Products thus came into existence in 1946 for processing the locally available ilmenite and a plant was set up in 1951 with a capacity of 5 tonnes of titanium dioxide per day.

The beach sands at Chavara and Manavalakurichi in Kerala (formerly the princely State of Travancore) are famous for the rare minerals they contain. Of these, ilmenite is an important one. In the years preceding Independence there were four mineral concerns, mostly under foreign control, engaged in the physical separation and export of the various constitutents of this beach sand and many of the world producers of titanium dioxide were dependent on India for their supply of ilmenite.

Absorption and drying towers of the sulphuric acid plant of the titanium factory at Trivandrum



The Travancore Titanium Products Ltd. was formed in 1946 with the Travancore Government as major shareholders and the British Titan Products Co., Ltd., as technical collaborators. Kochu Veli, a suburb of Trivandrum was chosen as the site for the factory in view of its proximity to the source of ilmenite as well as plentiful water.

Teething Troubles

Although the factory went into production in 1951, it had many teething troubles and for a time its progress was discouragingly low. For nearly 18 months all work in the factory had to be suspended because the cost of production was extremely high and its products could not be sold. Production was restarted in 1954 with a loan from the Industrial Finance Corporation and the health of the factory bucked up when the Government of India accorded tariff protection to the industry. Thereafter the Company has been making steady progress. From 1957 onwards the Company has been paying dividends up to five per cent on its capital.

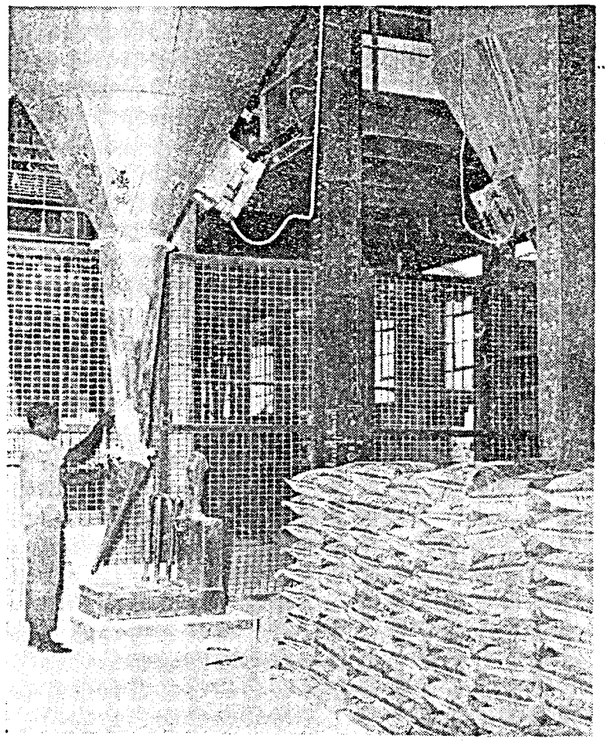
As the demand for indigenous titanium dioxide increased, the capacity of the plant for better performance also improved. In 1960 the Company put up its own sulphuric acid plant with capacity to produce 50 tons of acid per day. The production of titanium dioxide went up to 10 tonnes in 1961 and in 1962 the Company started making the 'rutile' grade of titanium dioxide also. It is significant that a major portion of the additional investment needed for the purpose was found from the Company's own resources.

Now the factory produces 18 tonnes of titanium dioxide per day, bringing the annual production to over 6,000 tonnes. The quality of the indigenous pigment, now certified by the Indian Standards Institute compares favourably with some of the best products produced elsewhere.

What Is This White Stuff ?

It was in 1789 that Rev. William Gregor stumbled on a new element when he was investigating a black sand found in Cornwall, England. Some years later a German scientist, M.A. Kalaproth by name, recognised the same element while studying the mineral rutile, and he called it titanium.

The primary raw material that goes into the manufacture of titanium dioxide, the whitest of all pigments, is ilmenite which in its natural state is, interestingly enough, blacker than coal. The other principal raw materials required for the manufacture of this versatile pigment are sulphuric acid and scrap iron.



There are, too, other auxiliary chemicals used in small quantities such as titanium tetra-chloride, antimony oxide and zinc dust all of which have to be imported.

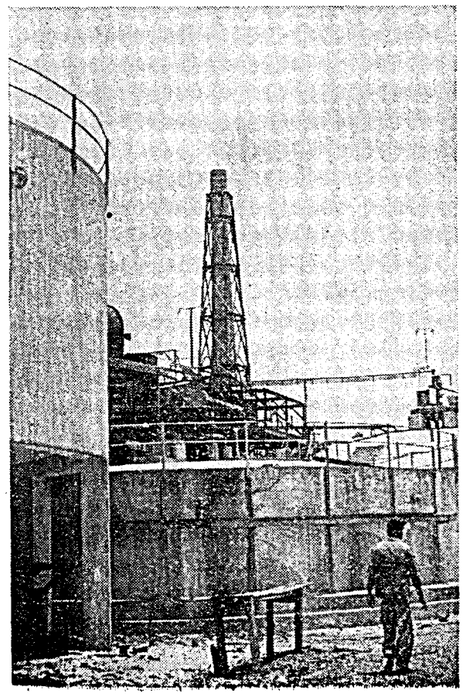
The beach sands of Kerala are considered to be among the world's richest and best deposits of ilmenite. First of all, the dry ilmenite received from the mineral factories is ground to a fine powder in a ball mill having a closed air circulatory system, an air classifier and dust collector. Then this finely ground powder is "digested" with concentrated sulphuric acid in specially designed brick-lined reinforced concrete tanks under high but controlled temperature. The resultant product, a brownish green mass, further undergoes a series of processing stages and at each stage its impurities are eliminated until a concentrated solution of titanium, acid and iron emerges. This concentrated solution is then transferred to closed tanks where it is precipitated at boiling point under carefully controlled conditions. The precipitated pulp is then diluted and continuously pumped into a "pulp thickner" and thereafter begins the final process in which ferrous sulphate and traces of iron are all removed. Certain chemicals which develop the pigmentary properties are then added to the purified pulp, dewatered, and then passed into the calciner to be dried and calcined at a temperature of about 1,100°C and all traces of moisture and sulphuric acid are removed.

The material is finally converted to a crystalline structure possessing properties like high refractive index, whiteness, etc. The pigment aggregates are then ground into fine particles, weighed and packed for the market.

The actual manufacture of titanium dioxide is a highly skilled operation and persons specially trained for the purpose take care to see that its pigmentary properties are of the purest standards. A few parts per million of an impurity or variations at the precipitation or calcination stage will render the pigment unsaleable. The milled pigment undergoes thorough examination in the control laboratories to make sure that it conforms to the ISI specifications.

Among the white pigments titanium dioxide occupies a supreme position because of its brilliant whiteness, high capacity, chemical stability and non-topicity. Manufacturers prefer the rutile varieties of titanium dioxide because of its higher covering power. The uses to which this wonderful industrial product is put are amazing. So varied are they. The bulk of it is consumed by the paint and other surface coating industries. Every good paint in the market, white or tinted, contains this white pigment. Its inertness makes it ideal for surface coating in factories where protection against ravages of climate and atmosphere pollution by industrial gases is imperative.

The rubber industry is an important consumer of this pigment. Titanium dioxide has been found to be highly compatible with both natural and synthetic rubber and it promotes greater strength in the mixes. One of the most common uses is for the whitewall tyres. The other uses are in tinting balloons, paper weights, tumbler rests, electric table lamp stands, rubber tiles, floor mattings, waterproof shoes, slippers, heels and soles, cushions and mattresses. In the rayon industry titanium dioxide is used for internal delustering, and the pigment is an important ingredient of vitreous enamels used for cooking vessels, table tops, and stoves. In the manufacture of plastics, printing inks, soaps and certain cosmetics the pigment is commonly used. Its high hiding power has made this pigment very useful in textile printing and paper manufacture. Lower grades of paper pulp are up-graded by using titanium dioxide. In some medicinal preparations like anti-dermititis creams and barrier creams, too, titanium dioxide is used in small quantities.



A section of the Trivandrum factory. Left: The pigment packed in jute bags lined with polythene is ready to leave the factory

Quality Control

The Trivandrum factory was one of the earliest in establishing quality control in the manufacturing process. Quality is of fundamental importance because it is closely linked with the ultimate use of the product. Quality control entails specification of standards and strict adherence to them both in the selection of raw materials and the manufacture of the end product before it is sent for sale. In the manufacture of titanium dioxide quality control starts with the raw materials, and is carried through every step of the process until the finished product is packed ready for despatch.

Significant improvements have been effected in the titanium dioxide industry all over the world, and new processes are being tried in the laboratories all the time. The sulphuric acid process is being slowly replaced by the chloride process and it is claimed that the pigments so produced have superior qualities. India's resources in sulphur are very limited and any modifications of the process which avoid the use of sulphur are extremely welcome. In the Kerala State where hydroelectric power is relatively cheap, the chloride process would be ideally suited. This may eventually also lead the way for production of titanium metal.

The potentialities of the titanium dioxide industry are really great and the demand for this product has been growing fairly fast. The Travancore Titanium Products Ltd., enjoy some rare advantages like proximity to and abundant supply of ilmenite resources. Highly skilled and intelligent young men with substantial experience have come up ever since the factory was started 14 years ago and we may be said to have attained considerable self-sufficiency in technical know-how. The Company's existing capacity of 18 tonnes per day can be expanded to its maximum licensed capacity of 50 tonnes by stages. This is an industry in which we can not only be self-sufficient before long but export sizeable quantities.

Not a captive but always a captain

Human Skill Can Enlarge Natural Resources

A. K. DEY

WHAT do we mean when we refer to a country's natural resources? First of all, and most obviously, its resources in land and water.

Land resources are of various kinds: land that can be cultivated and used to grow a variety of crops; land that supports forests of many kinds; land that contains a wide range of minerals.

If the products of agriculture form an important group of natural resources, forests constitute another group. They provide timber and resin and medicinal plants. The wild animals inhabiting forests are also a natural resource. So are the domesticated animals reared by man.

All these, together with water resources, are classified as *reproducible* resources. As against these are *non-reproducible* resources, such as minerals. Once minerals are dug out they are gone. You will not find them again in the same place. But reproducible resources can be upon again and again. If a tree is cut in a forest, another can be grown in its place. Remove a great quantity of water from a river; you can still get water—if not the same year, at least the next year. Until recently the approach to resources has been conventional. It has been thought to consist of land and water *plus* mineral, vegetable and animal wealth. Of late economists have begun stressing that no less important are *human resources.*

The economists have only begun emphasising what people have long recognised. From the pre-historical times, children have been regarded as wealth. The more, the better for the family or the tribe or the kingdom. (In fact one of our problems is to re-educate our people into realising that it is not the number but the quality of our children that really matters. Fewer and better is now the watchword).

Human resources act on the physical resources to enlarge them. That is where education and technology come in. The mineral wealth and agricultural potential of the American land mass were the same before the Iberian navigators discovered the New World—but it needed the skilled and enterprising immigrants from Europe to know, to exploit, to develop and to utilise this potential and thus make the United States a powerful and prosperous country. In our own country, petroleum has been in Gujarat for millions of years but we had to wait until Independence and the development of Indian scientific skills to find it. The traditional farmer can lift a few hundred litres of water every day, but it needs a high degree of engineering skill to build dams and canals.

Human resources thus are often worth more than all other resources combined. Existence of even a small number of enterprising individuals who work for better food supply, more abundant raw materials, etc., counts for a great deal.

Water Resources

OF the physical resources, we have already mentioned water, soil and minerals. Water is perhaps the most important of these physical resources because it is essential to all forms of life, an essential raw material in many industries, an important source of power and a relatively cheap means of transportation. All the waters we have in the world are the result of the condensation of atmospheric moisture derived from and eventually returned to the oceans. Water resources are of two kinds: (1) *surface water* or run-off, which is the surplus water derived from precipitation and returned to the sea through rivers and their distributaries, and (2) ground water which is a portion of atmospheric water which sinks into the soils getting stored beneath the surface from where it can be tapped for use through dug wells, tube wells, etc.

The surface water reserves of India have been estimated at about 1,356 million acre feet. Only a third of this, or about 450 million acre feet, is estimated to be available for utilisation, the remaining two-thirds being unavailable owing to geological, climatic and other conditions. Only 27 per cent of the usable flow or 8.9 per cent of the total flow was being utilised in 1961, roughly 72 million acres having been brought under irrigation. Against this, the ultimate irrigation potential of the country through major, medium and minor irrigation schemes has been assessed at about 175 million acres. Even after development of this potential there will still remain a surplus.

The availability of groundwater is determined not only by local rainfall or snowfall but also by geological factors, which show wide variation from place to place. Adequate ground water can generally be tapped on a large scale from the alluvial Gangetic plain and certain sedimentary basins through tubewells. A systematic study of ground water is one of the pressing needs of India, as in most other tropical countries. Existing wells have to be studied, and many new ones drilled, before we can hope to know enough to locate others with the assurance that supplies will be adequate in both quantity and quality, or to rule out in a given area the possibility of getting such supplies of ground water. The Geological Survey of India since its inception, has been carrying out ground water investigations as part of its many activities. Perhaps its most significant achievement in recent years is the location of a large ground water resource in the semi-desert Jaisalmer area of Rajasthan. Today many agencies including the Exploratory Tubewells Organisation are engaged in the study of our ground water resources, each having particular objectives or spheres of study.

The number of open wells was estimated at about 5 million at the beginning of 1951-52. It is expected that this number will ultimately increase to over 7 million. The number of tubewells operating for irrigation purposes was over 3,000 at the beginning of the First Five Year Plan. The average discharge from these wells is 20,000 gallons (imperial) per hour. The number of tubewells at the end of the Second Plan (1960-61) was over 10,000 and it is expected that ultimately this may rise to about 40,000. The area under irrigation from ground water sources was about 15 million acres in 1951, and is expected to be about 35 million acres ultimately.

Rain is an aspect of climate. Two other aspects are heat or sunshine and air. It is only because of our conventional outlook that we have not yet learnt to regard sunshine and air also as our natural resources. Technological progress may soon help us to derive energy for use from sunshine and wind. And let us not forget that the air around us is also a great storehouse of chemicals. Man has already begun emulating the trees in getting sustenance from sunshine and air.

Importance of Air

A country which has suitable natural features and rainfall for the generation of cheap hydro-electric power, or sufficient coal resources for large thermal stations, can also regard the air above it as a valuable raw material for the manufacture of nitrogenous fertilisers and explosives by taking nitrogen from the atmosphere by a process known as fixation of nitrogen. Norway, deficient in cultivable land of her own, can yet help others to grow an exportable surplus of foodstuffs by this means.

India has yet to attain self-sufficiency in nitrogenous fertilisers, but should aim (like Norway) at an ultimate export surplus, to be exchanged with her neighbours for the materials she lacks.

Another natural source of energy is tides. While significant use of solar energy seems to be assured in the distant future, clouds may soon become a more important natural raw material when the cloud-seeding techniques advance to produce artificial rains economically.

Different Varieties of Soils

The soils which cover much of the solid surface of the earth, support its natural vegetation and supply the food for the crops planted by man, owe their origin to the interaction of rainfall, temperature, and organisms with the weathered surface rock materials.

In the great Gangetic plain, India has one of the most fertile plains in the world. The flatness of the plain causes the rivers to flow slowly, providing easy waterways and irrigation channels, while the productivity of the greater part of its soil is periodically renewed by floods which deposits fertile silt on the surrounding countryside. The building of dams to control flooding, and to provide water for irrigation and for power will, however, prevent replenishment of fertility by flooding.

IN Peninsular India, excluding the north-western part and in the valleys and deltas, the soils are relatively poor. They overlie hard crystalline rocks, sandstones and shales and being soaked by rains over long time and also because of intensive cultivation, they have, in many cases, lost most of their original plant nutrients and become acidic, requiring treatment with lime, etc. In parts of Maharashtra and adjoining areas of Gujarat and Madhya Pradesh is found another fertile soil called the black cotton soil. This soil rests on basaltic lavas called the Deccan Traps. It retains moisture for a long time and is eminently suitable for the cultivation of staple cotton. Various millets and pulses are also grown, and the latter help to capture nitrogen from the atmosphere and deposit in the soil, thus maintaining its fertility.

Because of the variety of natural features and climatic conditions, there is a great variety in the soils of India. Because of this triple variety our country grows a large variety of crops and trees.

With a growing population we need to raise more grains and other agricultural commodities, but both for the protection of our soil and climate and for expansion of industry we need to take care of our forests also.

One hundred and fifty years ago immense tracts of the country were covered with forests and the hill slopes were clad with timber. Most of the forest plains and hill slopes have since been cleared for cultivation and the trees cut down for fuel. Owing to the deforestation of large areas, rainfall quickly runs off the surface into streams and is lost. Widespread soil erosion has often resulted in severe gullying and loss of ground water reserves. This is a serious problem which can only be solved by the widest planning in which engineers must co-operate with geologists.

Thought has of late been given to this problem. Land management, water management, forestry, mineral exploitation, and even cattle wealth management are all being approached on a systematic manner. But one other resource, namely the sea around us, continues to be badly neglected. We have a coastline of 5,600 kilometres. This should give an indication of the volume of fi hing we can take up in order to enlarge our food resources. Exploitation of the unexploited food from the sea will relieve pressure on our land.

The foregoing observations, by no means exhausitive, ought to give an idea of our physical resources in relation to our human resources. The sum total of our natural resources ought not to be regarded as something given and unalterable. As our technological skills and organisational ability improves we not only can utilise known conventional resources to our greater benefit and without wasting them but can also find more and newer resources and capture wealth from hitherto unsuspected sources.

Dr Dey, formerly of the Geological Survey of India and the Utkal University, is now senior scientific specialist in the Planning Commission.

Examining Specific Problems Of Fourth Plan

National Planning Council Sets up 12 Study Groups

THE National Planning Council held its first meeting at Yojana Bhavan on April 21-22. Mr Asoka Mehta, Deputy Chairman, Planning Commission, was in the chair. The Council set up 12 study groups for detailed consideration of selected problems relating to the main sectors of development in the Fourth Five Year Plan.

The Deputy Chairman indicated the scope and directions in which the work of the Council was to be conducted and said that it would be different from that of the previous advisory committees or panels of the Planning Commission. He suggested that the Council should concentrate on specific issues and go into them thoroughly, so that the formulation of the Plan would be much more "tested" than before. He said that such detailed studies of selected problems could be undertaken by the groups with which outside consultants could also be associated.

Professor M.S. Thacker, Member, Planning Commission, pointed out that while formulating a detailed plan for a short period it was also necessary to draw up a perspective plan for a longer period, and members of the Council could consider preparation of the projections for this purpose.

Professor V. K. R. V. Rao, Member, Planning Commission observed that there was no sector of economic development where more light and newer ideas were needed than in agriculture. There was need for special studies for soil conservation and improvement in economic conditions of non-viable or small landholders. Professor Rao also said that in the field of education one of the main problems related to wastage. This required detailed studies.

Mr S. G. Barve, Member, Planning Commission, referred to the issues which were to be mapped out and identified by the groups of the Council. He observed that matters like dispersal of industries required detailed studies.

It was suggested at the meeting that some universities in the country should undertake studies on conservation of natural resources. As for manpower planning, it was pointted out that the question of emoluments for different categories of personnel particularly technical personnel in the fields like agriculture and veterinary science, in the country, had not so far received proper attention.

It was also felt that in a socialist society we could not have an outmoded structure of salaries, and this should therefore be considered at the highest level. Referring to family planning, it was felt that the organisational aspect should be strengthened.

The Council considered the programme of work of the study groups, and it was agreed that the groups should meet on last Friday and Saturday of each month. Joint meetings of groups would also be convened whenever necessary.

STUDY GROUPS

The study groups constituted by the Council are given below:

(1) *Irrigation and Power:* Professor M.S. Thacker, Mr H.R. Bhatia, Mr M. Y. Ghorpade, Mr N. D. Gulhati and Professor N. V. Sovani.

(2) *Management:* Mr Tarlok Singh, Mr K. T. Chandy, Mr T.S. Krishna, Dr M. D. Parekh and Dr V. A. Sarabhai.

(3) *Agriculture and Land Reforms:* Professor V.K.R.V. Rao, Mr M.Y. Ghorpade and Dr. J. S. Patel.

(4) *Education:* Professor V.K.R.V. Rao, Dr D.S. Kothari, Dr A.C. Joshi, Dr V. A. Sarabhai and Dr S. R. Sen Gupta.

(5) *Scientific Research*: Professor P.C. Mahalanobis, Dr D. S. Kothari, Dr A.C. Joshi and Dr V. A. Sarabhai.

(6) *Industry and Minerals:* Mr S. G. Barve, Mr K. T. Chandy, Professor P. N. Dhar, Mr S. Moolgaokar, Dr M. D. Parekh and Dr V. A. Sarabhai.

(7) *Labour, Employment and Social Welfare*: Mr Tarlok Singh, Dr M. S. Gore and Mr S. R. Vasavada.

(8) *Transport*: Mr Tarlok Singh, Mr K. T. Chandy, Mr T. S. Krishna, Mr S. Moolgaokar and Mr G. Pande.

(9) *Family Planning:* Professor M. S. Thacker, Mr K. T. Chandy and Dr V. A. Sarabhai.

(10) *Manpower Planning:* Professor V.K.R.V. Rao, Dr D. S. Kothari, Dr A. C. Joshi, Dr V. A. Sarabhai, Mr K. T. Chandy and Mr S. Moolgaokar.

(11) *International Trade:* Professor V.K.R.V. Rao, Mr T. S. Krishna, Dr V. A. Sarabhai and Mr M. Y. Ghorpade.

(12) *Natural Resources:* Professor M. S. Thacker, Mr N. D. Gulhati; Mr K. T. Chandy, Professor N. V. Sovani, Dr A. C. Joshi, Dr V.A. Sarabhai and Dr D. S. Kothari.

The meeting was attended, among others, by all members of the Council except Mr Tarlok Singh, Member, Planning Commission, who was indisposed, and Dr J.S. Patel, Vice-Chancellor, Nehru Agricultural University, Jabalpur who was out of India. Mr G. R. Kamat, Secretary, Mr K. A. P. Stevenson, Joint Secretary, who is also Secretary of the Council, and senior officers of the Planning Commission, were also present.

The National Planning Council was constituted in accordance with the decision taken by the National Development Council meetings held on October 27 and 28, 1964.

FROG IN THE MOUTH

THE season of calendars isn't over. A most interesting—rather than decorative—calendar we came across is that of a drug company. It has six pictures illustrating six old remedies for sore throats.

These are the six:

Toad's bones, rabbit's gall, cattle urine...and some swallows' nests boiled in milk, poured in a stocking and tied round sufferer's throat—*an old German remedy.*

Draw a snake nine times across the patient's neck—*an old English remedy.*

A hen's egg swallowed whole—*an ancient Egyptian remedy.*

The skin of a black cat wrapped round the throat—*an old American remedy.*

Place a frog seven times in the mouth—*old English remedy for sore mouth.*

Salt herrings applied to the feet—*an old Irish remedy.*

Dry Jog

"A hundred worries are we given —and to forget them we are also given the Jog Fall". So runs a folk song of Malnad.

For the materialists and modernists waterfalls mean power. For others they mean beauty. Jog is not the tallest or the broadest or the thickest waterfall in the world; it is certainly one of the most graceful.

In April Jog was reported dry. It might have been dry before, for the Sharavathy is a monsoon river. The catchment area has in places as high rainfall as 500 centimetres; but in summer it is dry (even as Cherrapunji, until recently the world's rainiest spot, is said to run for water in the hot dry months). But this time the drought is of technical origin. The power engineers who divert the Sharavathy waters feed the fall through a channel, and the channel is said to have collapsed.

Let's hope beauty will soon hold its own against mere utility.

Ferment Hope

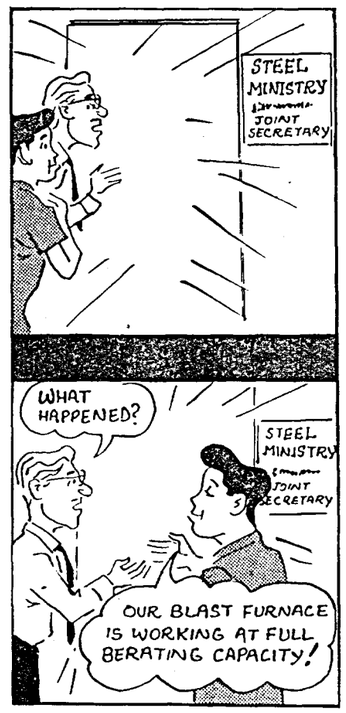
A JUDGE of the Andhra High Court has held that toddy is food. He has upheld the prosecution, on grounds of food adulteration, of a toddy vendor who had mixed a chemical in the brew he sold.

In coming to the conclusion, the judge quoted a booklet of the Haffkine Institute of Bombay.

But this is nothing new. Anti-prohibitionists have always put forward the plea that palm toddy is nutritious, and some have even contended that far from being banned, toddy should be made compulsory in poor people's diets because it is so rich in vitamin B.

Therefore the difference between 'neera' and toddy boils down to one of morality, like the difference between a straight widow and a slipped widow.

SHAMBU by Malinda Topa





IGNORAMAN
Wants to Know

if it isn't
colour prejudice
to call
black money
by that name.

So earnest an authority on intoxicants as Mr Justice Tek Chand has to some extent recognised this conflict between nutrition and virtue in recommending softer laws in regard to the milder drinks.

Who knows a time may come when beer will be acclaimed as being superior to milk on the ground that the first is vegetarian whereas the second is not.

Magnetic Scales

ADULTERATION is not the only weapon used by unscrupulous traders to cheat the innocent consumers. There are many more the consumers have to guard against. During a raid organised some time back by the Controller of Weights and Measures in an area in Delhi several ingenious methods of cheating by shopkeepers came to light.

Shopkeepers selling lemons and ginger had magnets placed beneath the pans of scale to pull them down to their advantage.

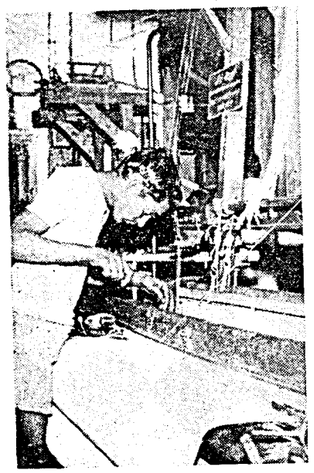
In some cases the hollow beams of the scales had mercury in them so that the heavy liquid tilted the beam when required.

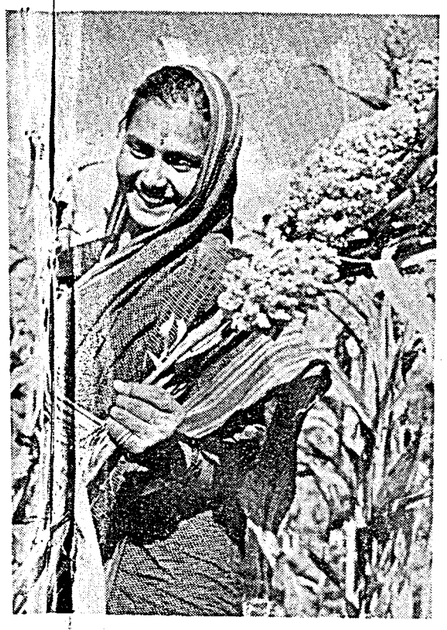
For milk and oil uncertified measures were used. Even where the measures were certified, they were dented at the bottom to deliver less in volume.

4th PLAN OUTLINES OF STATES 4

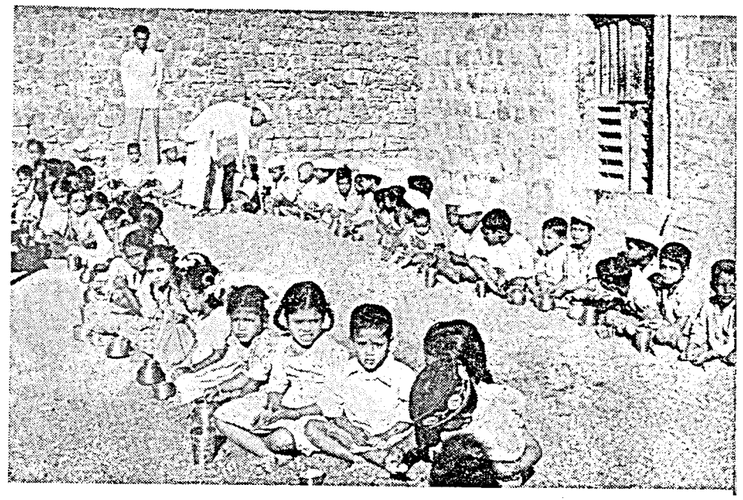
MAHARASHTRA AIMS AT REDUCING REGIONAL DISPARITY

Vidarbha, Marathwada, Maval to Get More in Fourth Plan





Pictures: Courtesy Maharashtra Information Centre, New Delhi

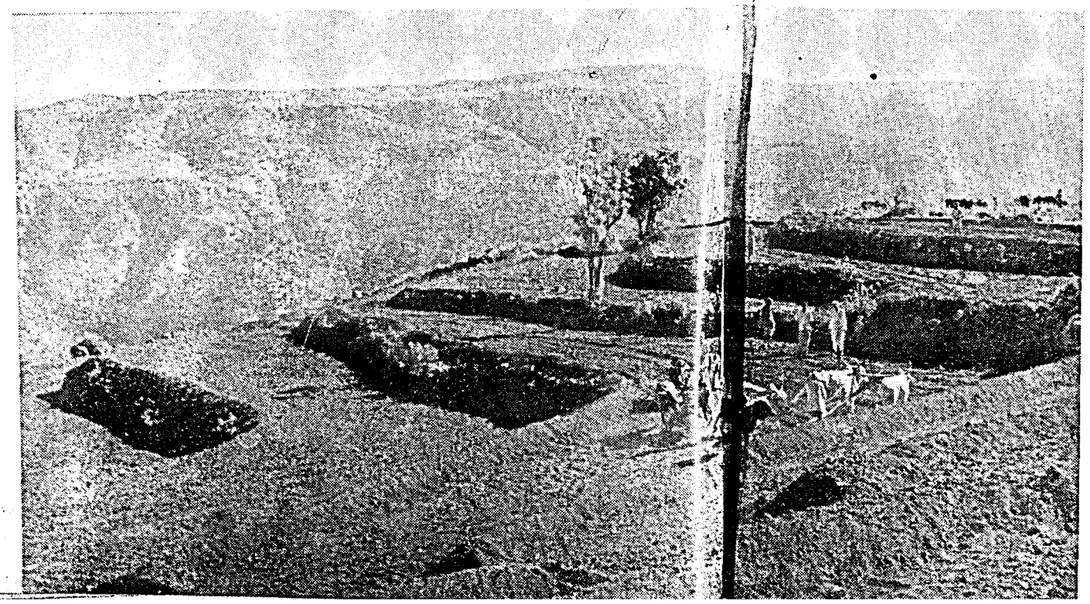


MAHARASHTRA is the third largest State in the Indian Union, with 9.4 per cent of the country's area and 9.05 per cent of the country's population. The urban population is 28.2 per cent of its total population compared to 18 per cent for the country. The high degree of urbanisation has placed on this State greater responsibilities for providing amenities such as water supply, housing, communications and slum clearance, for these areas, and conditions have to be maintained at considerable cost in which industry and commerce can maintain the projected growth.

The State income which was Rs 1,532 crore in 1960-61 is expected to increase to Rs 1,814 crore (estimated) in 1965-66. The State's Fourth Five Year Plan aims at increasing it further to Rs 2,500 crore in 1970-71. This involves an average growth rate of about 7.5 per cent per annum.

On the basis of studies undertaken in respect of investment in different sectors of development during the Second Plan and the first two years of the Third Plan and the consequential increase in the State income, it is considered that an outlay of Rs 2,200 to Rs 2,300 crore, including public and private sectors, is the minimum necessary in the Fourth Plan if the targeted increase in State income is to be achieved. The various study groups appointed for the Fourth Plan recommended an aggregate outlay in the public sector amounting to Rs 1,600 crore for the various sectoral programmes. Considering the size of the national plan and the assessed capacity of the State to mobilise necessary financial resources, the programmes had to be pruned further and an outlay of Rs 1,185.81 crore was finally approved for the public sector. Taking into consideration the estimates regarding investment in private sector and the experience of the Third Plan, it is estimated that investment in the private sector and the complementary sectors such as co-operative and central public sector would be approximately Rs 1,000 to Rs 1,100 crore.

The national objectives and the goals set out in the Memorandum on the Fourth Plan as well as the special features of Maharashtra's economy have been kept in view while formulating the size and patterns of investment for the Fourth Five Year Plan of the State. "Agro-Industrial development", which is an important objective of the State plan, is designed to meet the special requirements of the economy of the State, while at the same time it will contribute to the achievement of national objectives also.



AGRICULTURE comes first in Maharashtra's Fourth Plan. Contour bunding (left) is one of the measures to increase output. Left above: Harvest smile.

CO-OPERATION is another field in which the State has done an outstanding work. The extreme left picture shows a worker in the Handloom Weavers' Co-operative Society's factory at Ichalkaranji. Above: Midday meals for school children.

A striking feature of Maharashtra's economy is the agricultural backwardness of its hinterland. Agriculture and other allied activities contribute about 38 per cent of the State's income, as against 45 per cent for the country as a whole. The productivity per acre is lower on account of certain handicaps such as the relatively inferior quality of the soil, large areas of uncertain rainfall and lower level of irrigation development. With a large urban and industrial population, food deficit imposes a severe strain on the administration.

Agriculture would, therefore, continue to receive the highest priority in the Fourth Plan and the necessary resources—financial, material and technical—would be earmarked for this sector to achieve the goal of projected growth. It is proposed to spend Rs 246 crore on agricultural projects as compared to Rs 70 crore sanctioned for the Third Plan. State income from agriculture is expected to increase by about 30 per cent during the Fourth Plan.

In view of the low income per acre, ancillary programmes such as dairy, fisheries and animal husbandry have been substantially stepped up to provide a level of income to the cultivator commensurate with the all-India level. Higher incomes to farmers will stimulate further invest-

ment in improved techniques of agriculture, as well as provide a large market for consumption goods and thereby help the growth of industry in the State.

The level of food grains production reached at the end of the Second Plan was 63.8 lakh tons. By the end of the Third Plan this level is expected to go up to 77 lakh tons. The target for the Fourth Plan to be reached by 1970-71 is proposed to be fixed at 99 lakh tons.

IRRIGATION

Only about 6 per cent of the cropped area in the State has irrigation facilities as compared to 20 per cent for the country. The programme of improvement of agricultural productivity in the State will have to depend largely on extension of irrigation facilities in the State. The State Irrigation Commission has recommended that irrigation programme of Rs 1,400 crore should be undertaken within the next 15 years so as to bring about 30 per cent of the cropped area under irrigation ultimately. In formulating the irrigation programmes for the Fourth Plan, the experience of the Third Plan, the stage of development expected to be reached at the end of the Third Plan and the recommendation of the Irrigation Commission have been kept in view.

Out of a total allocation of about Rs 200 crore for major and medium irrigation works during the Fourth Plan, Rs 148 crore have been earmarked for spillover schemes and Rs 49 crore for new projects. As a result of these measures, it is expected that an additional irrigation potential of 11 lakh acres would be created during the Plan. The corresponding target of utilisation of irrigation facilities is proposed to be fixed at 9 lakh acres.

INDUSTRY AND MINING

Although Maharashtra contributes 24 per cent to India's factory output, the industrialisation of the State is concentrated in the Bombay-Thana area and the Poona-Pimpri complex and the spread effects of these industrial complexes have not been transmitted to any appreciable extent to other areas of the State in spite of the measures taken during the Third Plan. Bolder measures are proposed to be undertaken in the subsequent plans to carry out effectively the policy for dispersal of industries in other parts of the State.

Growth in this sector depends to a large extent on the policies and programmes of the Central Government. At the State level, however, the programmes of industrialisation have been formulated in the context of the basic objective of agro-industrial development and a provision of Rs 49 crore has been made for them as against Rs 16 crore in the Third Plan. Emphasis in the Fourth Plan has been laid on development of the processing industry through co-operative agency so that increasing prices of agricultural commodities and profits of processing them are ploughed back to agriculture. Bolder programmes for dispersal of industry to rural areas through direct equity participation and cash incentives by Government have been planned. Government proposes to start in the public sector certain essential industries which are of vital importance to the growth of the economy of the State. In locating the public sector and joint sector enterprises weightage would be given, amongst other factors, to the need for balanced development of different regions in the State.



Agro-industries are the mainstay of the Maharashtra's industrial programme, and processing industries are being developed mainly in the co-operative sector. *Above :* Women workers grading cashewnuts in a processing unit at Vengurla. *Right:* A section of a groundnut oil mill near Sangli.

TRANSPORT

Absence of adequate transportation facilities has been a serious impediment in the growth of the economy in rural areas. The State ranks as low as eleventh among the States in road length per unit of population. Even the Nagpur Plan targets, which have been exceeded in many other States, have not been reached in this State at the end of the Third Plan. A high priority for communications programme is indicated in the future plans and a provision of Rs 100 crore is proposed to be made for them in the Fourth Plan as against Rs 37 crore in the Third Plan. Systematic studies are in progress to assess transport needs of the economy on a long term basis and to prepare a long term transport plan. As a result of these studies it is proposed to plan for a composite network of transport services. The programme for road development has been stepped up substantially and a high priority has been accorded for road links between markets and villages.

Another feature of the State economy which deserves attention is the disparities in the level of development in different regions and areas of the State. As a result of lower plan allocations to regions like Vidarbha and Marathwada in the earlier plans, these areas have lagged behind the rest of the State in some of the important sectors of development. The Konkan area and the tract broadly known as the 'Maval' area, meaning thereby the area along the top of the Sahyadri range stretching from the Gadhinglaj Taluka of Kolhapur District in the south to Satana in Nasik District in the north, are also areas to which the benefits of planned development have not accrued in any significant measure. Large areas of the State suffer from chronic scracity conditions owing to inadequate rainfall. The protection of these areas and the provision of additional investment to reduce disparity in level of development of these areas constitutes one of the most important tasks of the Fourth Plan of the State.

While the planned programmes implemented during the previous plans have set in motion expansionary forces for stimulating the economy, the rate of growth has to be faster to make an appreciable impact on the standard of living of the people and to carry the benefits of planning to weaker sections of the society.



Apart from disparities in the development of different regions, the rural areas of the State suffer in comparison to the urban areas in respect of such amenities as communications, water supply, medical and health facilities, etc. These disparities also are sought to be removed in the Fourth Plan and the subsequent plans by providing for larger investments in rural areas. The national directive of free and compulsory education will be fulfilled throughout the State by the end of the Fourth Plan.

Programmes for health and planned growth of population are important features of a human resource development programme. Many of the gains of the Third Plan were eroded by rapid expansion of population, which in turn was a result of improvements in health facilities throughout the State. In the Fourth Plan, family planning programme will be taken up on a larger scale and will be integrated with schemes in the health sector.

Three Plans have settled firmly the course of economic development of the country. But in the past few years, the urgency of concretising the benefits of a planned economy for the poor in terms of real consumption has been increasingly felt. Planning Commission's Fourth Plan memorandum bears ample witness to the awareness of this urgency. The State's Plan is therefore being formulated within the framework of the national Plan and has also to follow broadly the basic objectives set for the nation.

This article is based on the Memorandum on the Fourth Five Year Plan, Maharashtra State.

QUOTATION BOX

The first aid for those on hand when some one is bitten by a snake: First, convince the victim he is not going to die.

—From an article in "The Statesman"

I am not a puppet, but I do enjoy puppet shows.

—Mr V.K. Krishna Menon

In medical research there has always been a forbidden territory. Once it was the brain, then it was the heart. Today, the forbidden territory is sex.

—Dr William H. Masters, Washington University

If a man wants to present a Fiat car at the time of his daughter's marriage, he will have to register as soon as she is born.

—Mr Hukam Singh

He (Gulzarilal Nanda) is known for his saintliness—but he has a lean and hungry look like me.

—Acharya Kripalani

Hindi is a rope with a knife edge all along its length. It will cut India into two, while people imagine they are tying up India with a rope, not knowing that the tighter the rope is pulled, the sharper it cuts into what is being sought to be bound.

—Mr C. Rajagopalachari

We wholeheartedly welcome the idea of Brahmacharya and we would like people to follow that method to the maximum extent possible.

—Union Health Minister Kumari Sushila Nayyar

Industry is a delicate plant and requires careful nurture. It flourishes only where the soil and climate are conducive to growth.

—Mr P.L. Tandon, Chairman of Hindustan Lever

It is said that to bring the most soulful look to the eyes of beautiful women, and the tenderest expression to their faces, American glamour photographers ask their subjects to think of the things they most like to eat.

—Mr M. Krishnan

There ain't no such word as "escalate"...what purists hold against it is that the word is unnecessary. What's wrong with a sound, old-fashioned word like "develop"?

—James Cowley in "The Statesman"

All India Radio, said Mrs Gandhi in Parliament last week, had been instructed to treat Ministers' speeches strictly on their news value; the speech that contained this announcement was reported in great length in AIR news bulletins the same evening and the following morning.

—"Now" magazine

The Frenchman feels mentally if not physically more comfortable if he sleeps on his wealth.

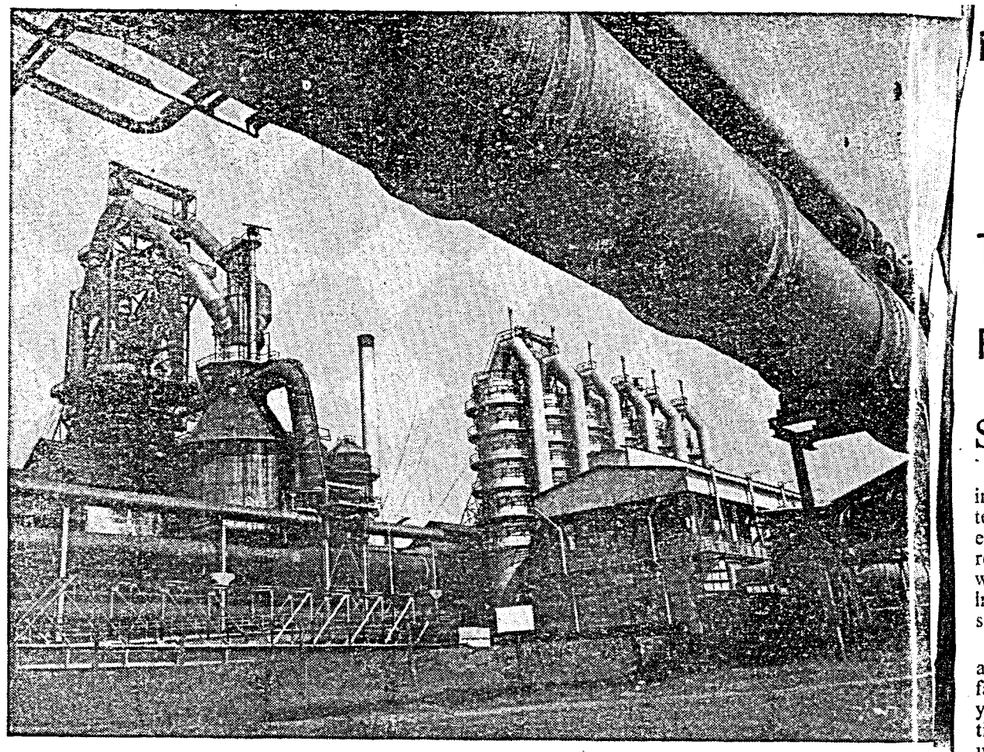
—E. B. Brook in "The Statesman"

Ministerial slipperiness is greater in the Indian Parliament than ever before. Cabinet members are found like well-oiled wrestlers.

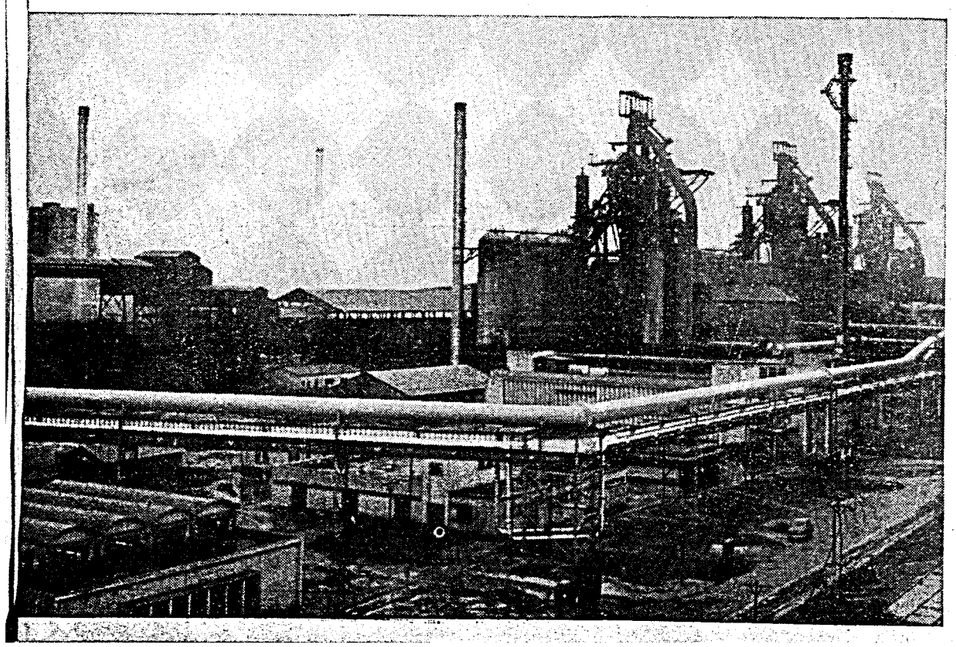
—P. J. in "Swarajya"

Everyone in India and abroad has been anxious and busy to educate the modest and mild-mannered successor of Jawaharlal Nehru.

—K. A. Abbas in "Blitz"



Above : Blast furnace and gas cleaning plant of the Rourkela steelworks



A view of Durgapur steel plant. Right : Finished steel at Bhilai

New Skills and Confidence Gained in

TEN YEARS OF STATE STEEL

Three Giant Plants Working to Capacity;

Fourth in Sight

STATE steel has just completed ten years.

The performance of the steel industry in the public sector in its tenth year (1964-65) has been heartening. The Steel Ministry's annual report has shown that production was 3.15 million tonnes of steel ingots. from the three public sector plants.

India has had a tradition of iron and steel making. But modern manufacture of steel is only about sixty years old, and dates back to the time when Jameshedji N. Tata set up his first steel mill in Bihar. The first steel mill in the public sector was the small one in Bhadravati which was pioneered by Dr. M. Visvesvaraya in the twenties.

The country turned its thoughts to steel in a big way only after the achievement of independence. When under the Five Year Plan the country aimed at having three major steel plants, Mr Nehru said: "People say we have been over-ambitious in attempting three such undertakings simultaneously. But I tell the critics that we propose to be over-ambitious every time in such matters."

For decades India has been an importer of steel. With growing industrialisation the appetite for steel has increased. The consumption of steel rose from one million tonnes annually in 1951 to 3.7 million tonnes in 1957 and 7 million tonnes in 1962 when all the three public sector plants were in full production. Our requirement of steel is estimated to touch 18 million tonnes by 1971.

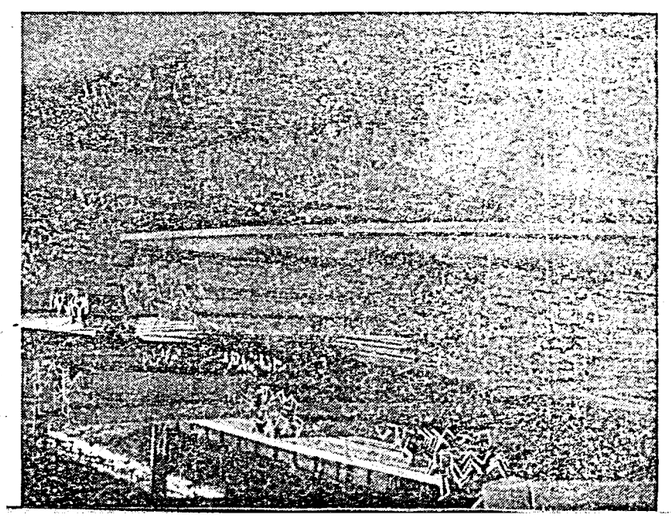
A developing country eats steel. Steel builds a nation's bones as milk builds a child's. For real development this steel must be made within the country. Bought steel is less strong than the steel we make. Dependence for such a strategic material on foreign countries is not only expensive in terms of foreign exchange; it might also cause a collapse of our economy in times of emergency.

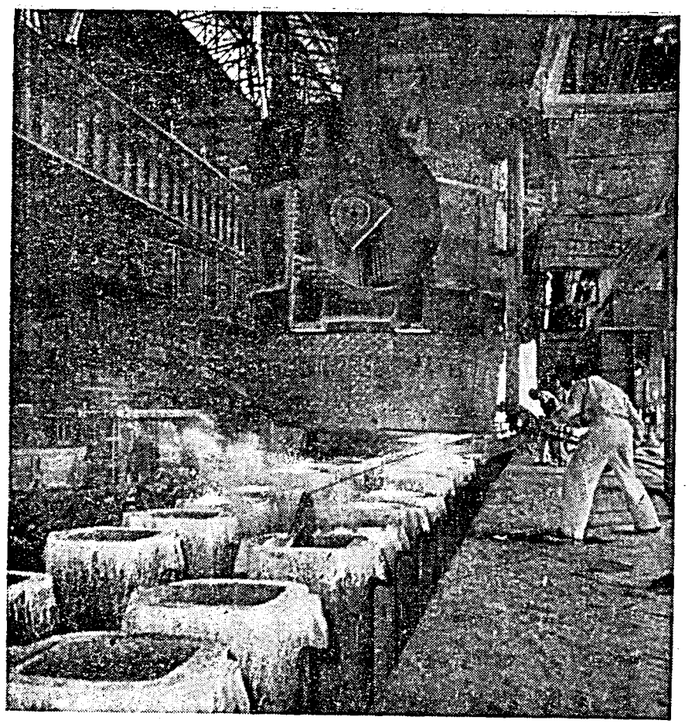
The First Five Year Plan drew attention to the importance of iron and steel as a basic industry to build our economy although the emphasis in the Plan was on the development of agriculture and of irrigation. It said: "*In an underdeveloped economy with low yields in agriculture, there is of course no real conflict between agricultural and industrial development. One cannot go far without the other; the two are complementary*".

With this view, the First Plan provided Rs 30 crore for a new iron and steel project in the public sector estimated to cost Rs 80 crore over a period of six years. "The estimated capacity of this project will be about 800,000 tons of pig iron, while the steel capacity will be a minimum of 350,000 tons, with further additions if necessary in the light of the availability of pig iron supplies from the expanded capacity in the private sector in the next few years. By 1955-56, this project, it is expected, will be producing about 350,000 tons of pig iron. The completion of this project by 1958 as well as the projects for expansion in the private sector will raise the availability of pig iron and steel from domestic sources by about 100 per cent." (Page 428).

This is enough to indicate that although the importance of steel production was pointed out by the First Plan, the target set for the steel industry at the beginning of the First Plan was very modest.

However, in the course of the First Plan, the need for strong steel industry as the base for the industrial development of the country became pressing.





At the Bhilai steel plant. Bhilai exceeded its rated capacity by 20 per cent during the last year

The last year of the First Plan 1955, marked the beginning of the steel era, as the work on three gigantic public sector steel works was started in that year. Bhilai was the first on which work was begun, although Rourkela was conceived first in 1953.

The three steel projects in the public sector formed the main theme of the Second Plan, which also provided for massive expansion of the existing units in the private sector. The Second Plan laid down "rapid industrialisation with particular emphasis on the development of basic and heavy industries" as one of its objectives. It said: "The expansion of the iron and steel industry has obviously the highest priority since, more than any other industrial product, the levels of production of these materials determine the tempo of progress of the economy as a whole." (Page 394).

Thus the Second Plan took us well into the steel era. Surmounting many difficulties, the plants at Bhilai (Madhya Pradesh), Rourkela (Orissa) and Durgapur (West Bengal) were completed, and they went into production one by one in 1959.

The Three Plants

The Bhilai plant has been built with the assistance of the Soviet Union. An agreement for technical and economic collaboration was signed with the Soviet Union on February 2, 1955. This was also the beginning of Indo-Soviet co-operation in India's development. *During the past decade, the Soviet Union has been co-operating in 40 industrial and other projects which provide employment to two lakh workers and engineers.*

Bhilai has established a number of records since the first sod was turned. The foundation stone of its first blast furnace was laid in May 1957 and the works went into production on February 4, 1959. The plant has been breaking its own production records in the different sectors and for the past one year it has been producing 20 per cent more than its rated capacity of one million tonnes of steel ingots.

Simultaneously it has undertaken a programme of expanding its capacity to 2.5 million tonnes since February 1962 and a blast furnace, a coke oven battery and an open hearth furnace under the expansion programme have already been commissioned. The expansion programme will be completed this year.

Bhilai is to be expanded further to a capacity of 3.5 to 4 million tonnes during the Fourth Plan period. The plant has adopted the latest technical methods to improve efficiency and reduce production costs. The use of isotopes to control smelting process is an example.

Bhilai has been exporting some of its products and it earned a net profit of Rs 1.5 crore in 1963-64 when the other two projects were still running at loss.

The Rourkela steel works has been built in collaboration with West Germany. Work began only in 1956 and the plant went into production at the end of 1959.

Rourkela has reached its rated capacity of one million tonnes after some teething troubles. A programme to expand it is already in hand and its capacity will be raised to 1.8 million tonnes by 1966, and further to 2.5 million tonnes in the Fourth Plan.

The Durgapur steel works was built with the assistance of the United Kingdom. Work was completed in 1962. However, production had begun even in 1959. The plant has been working at its rated capacity of one million tonnes since February 1963.

The Durgapur plant is also being expanded to a capacity of 1.6 million tonnes. Further expansion of the works to a capacity of 3 to 3.5 million tonnes is expected to be done during the Fourth Plan period.

The three public sector plants together have now a rated capacity of three million tonnes which will rise to 5.9 million tonnes after the completion of the first expansion programmes now in hand and further to about 10 million tonnes after the second expansion during the Fourth Plan period.

Besides these three plants in the public sector, large expansion has been carried out at the Tata Iron and Steel Works, Jamshedpur, the Indian Iron and Steel Works, Burnpur, and the Mysore Iron and Steel Works, Bhadravati. A target of 10 million tonnes production was originally fixed for the Third Plan. It is now expected that the production rate will touch 7.5-8 million tonnes when the Third Plan draws to a close next year. The capacity was only 1.5 million tonnes in 1955. The rise in capacity during the ten years will thus be more than five times.

Fourth Plan Programme

For the Fourth Plan, the target of annual steel production has been tentatively fixed at 16.5 million tonnes of steel ingots and 4 million tonnes of pig iron. It will be achieved by the expansion of the existing units and the setting up of new units in the public as well as private sector.

The major project in the Fourth Plan is the Bokaro plant, the fourth and the largest in the public sector, on which preliminary work has already begun. It will have an initial capacity of 1.5-2 million tonnes, to be expanded later to 4 million tonnes. The Soviet Union has recently agreed to help India in setting up this plant. Preparatory work has begun on a fifth plant to be located in the south. Two plants with a capacity of 1.5 million tonnes each and a third with 0.5 million tonnes will be located in the south. Besides a number of medium steel works with capacities in the lakh tonnes range are being contemplated.

To build and run a steel plant, one must also build and run numerous other industrial enterprises, such as the mining of coal, iron ore, dolomite and other minerals. Great is the appetite of steel. The expansion of mineral production has to go hand in hand with the development of steel works. The by-products of the industry also promote several subsidiary industries. *Thus the Rourkela works has a large fertiliser factory and a pipe plant; and the Bhilai works has a slag granulation plant.*

A big cement factory with an annual capacity to produce 0.6 million tonnes of cement is proposed to be built at Bhilai, to be further doubled to 1.2 million tonnes. The cement factory will utilise granulated slag, a waste product of the Bhilai works.

A steel plant with a capacity of one million tonnes consumes about 350 million units of electric power every year; thus promoting generation of power on a big scale. Coal washing is another adjunct of a steel works and four coal washeries have thus far been set up at Durgapur, Dugda, Bhojdih and Patherdih, the last three being in Bihar.

The main advantage, however, of the steel works set up during the past decade has been that India has been able to undertake a programme of building several basic industries including heavy machinery, heavy machine tools, heavy electricals, heavy foundry forges, and locomotives for which a large quantity of steel is the primary requirement.

Alloy and Special Steels

With the experience of several decades in steel-making, India has taken a step further to meet its needs of alloy and special steels. An alloy and special steels project is taking shape at Durgapur. Canadian and Japanese firms are assisting in setting up the plant which will have a capacity of one lakh tonnes of ingots, to be further expanded to 3 lakh tonnes in the Fourth Plan. The project will be completed in 1967, but its melting shop has already gone into production.

The Mysore Iron and Steel Works, Bhadravati, is also being converted to produce 70,000 tonnes of alloy and special steels annually.

The steel plants in the public sector are managed by Hindustan Steel Limited. In addition Hindustan Steel has the overall control of the subsidiary units, including the fertiliser plant and the pipe plant at Rourkela and the four coal washeries.

A separate company, the Bokaro Steel Limited, was formed in January 1964 for the management of the Bokaro plant. The construction of the Bokaro plant and other steel works will be done by the Hindustan Steelworks Construction Limited which was formed in June 1964.

India is now poised for further achievements in steel-making. Several new industries, subsidiary, ancillary and those which use iron and steel as basic material, are cropping up.

What, however, is the most valuable advantage of fifty years of steel-making and ten years of state activity in the field is the experience and skill gained, which have made our Indian engineers confident and self-reliant in the matter of designing, constructing and running our own steel plants.

Ten years ago, it was impossible to think of constructing a steel plant by our own. Today, a project report for Bokaro could be prepared by an Indian firm of engineers. The alloy and special steels plant at Durgapur has been designed by the engineers of the Hindustan Steel Limited. The Union Minister of Steel has already announced that in the Fifth Plan at least two steel projects will be entirely designed and constructed by Indian engineers without outside help.

In 1959, Hindustan Steel Limited set up a Central Engineering and Design Bureau at Rourkela which has now grown into a big organisation. This Bureau prepared detailed project reports for the expansion of Durgapur and Rourkela plants. A similar Design Cell has been functioning at Bhilai since 1961, and it designed the expansion works of the Bhilai plant.

Our steel engineers acquired their skill from the best steel-makers in the world, Germans, Britons, Russians and Americans. They have worked in the leading steel factories of the advanced countries. The steel plants have also set up their technical training schools to train hundreds of skilled workers required for running our steel plants.

We need many more steel plants to meet the growing needs of our industries. The target of 30 million tonnes, which we hope to reach by the end of the Fifth Plan, is not so astonishing when we remember the vast size of India; 30 million tonnes is the capacity of Japan today. For our future plants we have to raise an army of skilled personnel. The confidence and skill that we have gained specially during the past ten years of state steel has enabled us to undertake a gigantic project like Bokaro and it will prove the testing ground for our future plants.

Books

The Missing Spirit

G. N. Acharya

"A SOCIALIST Society", said the Second Five-Year Plan, "is built up not solely on monetary incentives, but on ideas of service to society and the willingness on the part of the latter to recognise such service. It is necessary in this context that the worker should be made to feel that, in his own way, he is helping to build a progressive State. The creation of industrial democracy, therefore, is a prerequisite to the establishment of a socialist society".

That is, in effect, the source and origin of the title of a book—*Experiments in Industrial Democracy* by Dr Nabagopal Das*, which examines what has been done in pursuance of the idea set out in the Second Plan. Dr Das knows all there is to know about the subject, and has provided a competent summary. It is not his fault that the story is short; nor is it particularly bright.

It began in the usual way, in April 1957, with the setting up of a Study Group, followed by the usual and elaborate processes of discussion at seminars, consultations at the Labour Conference, committees for recommendation, implementation, review and revision. By mid-1963, Joint Councils of Management had been introduced in 16 public sector and 40 private sector undertakings. Conditions, anaemic; prognosis, not good.

There is so little that is worth the telling that in this book of 175 pages, the Indian story (including comments and suniming up), from the earliest beginnings, takes up just 38 pages spread over three chapters. The first 21 pages are devoted to a discussion of principles. Much more than half the volume (99 pages) is devoted to what has happened in the United Kingdom, the United States, France, Germany, Sweden and Yugoslavia—the last having the best record to show.

The information, culled by wide reading, is useful for academic study. But as the socio-economic backgrounds of the different countries are so varied, no immediate and practical lessons can be drawn. The truth is not difficult to find. As long ago as 1931, the Royal Commission on Labour in India described joint machinery and consultation as "a matter where the spirit is all important and the form entirely secondary." The spirit has always been lacking, and is still in short supply. All the "experiments" set out by Dr Das are in the forms, the machinery.

Of these there has been no shortage. First, the Trade Unions, with their uneven history. Then there are the Works Committees under the Factories Act, defunct or moribund. And now the non-statutory Joint Councils. The structure of ownership is not relevant to employer-employee relations. Employers in the private sector are allergic to deal with the workers or their representatives on a footing of frankness and equality. Notable exceptions like the Jamshedpur Steel Works and Ahmedabad Textile Mills only go to prove the general rule.

The Managers in the public sector are worse, though in theory the position is different. The private employers are pragmatic and when it comes to a conflict between prestige and profits, they are more likely to choose profits. The bureaucrats at the top of public sector establishments are so used to sitting behind their files, cold and aloof, and the hierarchic system of respect so ingrained in official routine, that they find it hard to get over the habits of a life time.

For the workers, their primary interest is in wages, then working and living conditions. These are still so much in the realm of unfulfilled wishes that it is hard to enthuse the workers about participation in management. They do not have the surplus worrying energy to spare for management problems. The division of interest —Trade Unions to deal with wages and fringe benefits, the Works Committees with working and living conditions, and the Joint Management Councils with a lot of other unfamiliar problems—is also not calculated to make things easier for them.

Dr Das is aware of all these problems, and has discussed them in the staid manner which is the accepted norm for books meant to be taken seriously. But the cover blurb claims that apart from his books on industry and labour, he is also the author of five novels, four collections of short stories and a book of memoirs in Bengali. From one so endowed, it is permissible to wish for a livelier presentation. The conformity to academic fashion and the heavy price must unfortunately limit the book's readership.

* *Asia Publishing House. 175 pages. Rs 16.*

SURVEY OF RETAIL TRADE

Retailing in Metropolitan India by Ranjit Gupta. Indian Co-operative Union, New Delhi. 90 pages. Rs.10.

R. K. Parashar

THIS is a welcome book which has probed into an almost virgin field of retailing. It gives an idea of nature and composition and the range and volume of consumer goods sold in the different markets studied, factors affecting retailing practices, pattern of investment in fixed and working capital, size of annual sales, selling costs and retail margins in different trades, factors determining rate of margin and gross and net profits and sale practices followed.

About the consumers it gives the pattern of their family income and consumption, their shopping practices and the frequency of purchases by them. The period of reference is 1961-62. There are some revealing observations. For example:

> "Whereas the sweetmeat dealers rotated their working capital in a year more than twelve times the jewellers could not do it even once"....
>
> "Contrary to the generally held notion that in Delhi women do most of the shopping, the results of the survey show that the bulk of the purchases, irrespective of the nature of goods bought, was made by men in the family. Except for vegetables, all other articles of consumption were mostly purchased by them."

As the random selection of some observations quoted above show, the book is full of engrossing details and interesting analysis. Instead of sticking to his own narrative and lucid analysis the author has, however, chosen in the chapter 'Retail practices and factors affecting retailing' to cite others to explain certain phenomenon and factors of retailing. He could as well keep views of others in the foot-notes.

The author has himself pointed out the extent of reliability and limitation of estimates presented by him. In the opinion of this reviewer, however, these limitations go much further. First, the details of retailing given are of relevance only in normal times. The character of retailing undergoes a metamorphosis once the normality is disturbed for whatever reasons. Secondly, the survey design followed by the author for the selection of his respondent raises many doubts. For example, are the three markets studied representative of the retailing carried on in the metropolitan areas? If not, the entire analysis, despite its revealing findings, would be misleading.

The author's contention that the selected markets are representative of retail distribution centres in the capital and his logic in its support are questionable. The author does not show how "the location of the area in which a predominant number of customers resided was ascertained". Thus, it is not clear how it was done in the case of Lajpat Rai market which is "frequented by more mobile types of customers, belonging to all walks of life but not necessarily having personal contact with the dealers." Similarly, in the case of Shankar market whose "composition is somewhat mixed, incorporating partly the features of the Sarojini market and partly that of the Lajpat Rai Market". Again, even if the area in which a predominant number of customers resided was ascertained and earmarked, how did it happen that all the approximate 30 per cent households selected at random actually made purchases from a particular market? Finally, the author is silent on the extent of reliance to be put on his findings because of limitations regarding "the bias of the retailer to underestimate certain figures, say, annual sales, margins, etc., and over-estimate some others, such as working expenditure, cost of distribution, capital needed and the like."

The limitations pointed out above, however, do not in any way undervalue the merits and usefulness of the study and its breaking new grounds in the sphere of retailing.

The book is a refreshing reading and meets a long felt need in the field of structural economics. The casual reader as well as one interested in the subject can read it with benefit"*.

*Views expressed herein are the reviewer's own and not necessarily of the Directorate of Economics and Statistics, Ministry of Food &Agriculture, Government of India, to which he is attached.

THOUGHTS AND TALKS OF A GANDHIAN

Thoughts and Talks of G. Ramachandran. Edited by K.C.R. Raja. Gandhigram. 352 pages. Rs. 4.50.

SANTINIKETAN and Sabarmati combined to give G. Ramachandran intellectual refinement and devotion to creative work which have found expression in Gandhigram, which comprises many types of educational and constructive work. Ramachandran's has been a life of varied interests but in whatever he has undertaken the motive force has been service of the people and the country.

He left college in 1921 in response to the call of Mahtama Gandhi and later joined Santiniketan. On graduation from there he went to Sabarmati Ashram and flung himself whole-heartedly into the hard Gandhian discipline which shaped the course of his life. In fact, Sabarmati Ashram had beckoned to him much earlier. When he was only 20 years of age, he met Gandhiji and sought to resolve some of his doubts through questions put to the Mahatma. The replies he received convinced him as to where his duty lay.

On leaving Sabarmati he took in his stride village uplift work, Harijan Sevak Sangh activities, development of Khadi industry, educational work, and the struggle for freedom. He has also occupied places of high responsibility as a Minister in the first Thanu Pillai Cabinet in Travancore, as Educational Adviser to the Rajaji Government in Madras and as Chairman of Basic Education Assessment Committee of the Government of India. He was for nearly four years the Secretary of the Gandhi Smarak Nidhi and he is now the Secretary of the Gandhi Peace Foundation and the Editor of the "Gandhi Marg". In 1955 he was in Europe and in America lecturing at several universities on Gandhiji and his work and teachings. In 1962 he went to Russia along with Mr. U.N. Dhebar to press on Mr. Khrushchev, the then Russian Prime Minister, the urgent need to stop all tests of nuclear devices.

The book under review contains a collection of Ramachandran's writings and lectures and covers a wide range of subjects, from tributes to Gandhi and Tagore to discourses on the future of mankind. Although the collection is somewhat haphazard, it gives an insight into the mind of a man whose life has been rich in experience both on the spiritual and material planes.

The Editor has stated that what has been collected in this book is only a fraction of the material available and it may be possible to bring out one or two volumes more of Ramachandran's writings and lectures. One hopes that in these volumes an attempt will be made to put the material in some sort of order, arranged subjectwise, if possible, for it is certainly material that should prove inspiring to the youth of the country.

H.C.S.

SMALL CAR, EH?

I AM against cars—all cars, even small cars.

You may say: I know why. The grapes that one does not get are always sour.

It is true I can't afford a Ford or a Fiat or even Dr Lohia's 2500-rupee car.

But my objection is really on principle; it is an ends test, not a means test.

I am not one who will concede that Urvashi is beautiful only if she will spend an hour with me.

If a flower is pretty why must I pluck it? If a book is good, why must I read it? If another man's wife is attractive, why must I have her? If a bell rings, why must I run?

Don't think I am an antedeluvian either. I am not against science and civilisation. I am not a revivalist, not a go-back-to-the-forest-ite. I am no noble savage.

I am for electric bulbs (—though not tube-lights). I am for radio (—though against TV). I am for high-speed rotary newspapers (—though not horror comics). I am for anti-biotics, jet travel and space probes. I am positively for the plastic coil.

Then what have you against automobiles, you might ask. But did I say I was against them? I only said I am against cars. As a matter of fact I am for buses, lorries, taxis, auto-rickshaws and even jeeps (as long as they are not jeeps in lieu of cars).

So you can see that my objection is not on the grounds of noise or

HAMARA HINDUSTAN

casualties on the streets but something else.

And let me disclose that something: *I am against the car-owning mind.*

The moment a man is behind a steering wheel of his own he thinks he is a creature apart. He thinks there is a halo behind his head and little wings under his armpits. He thinks he is a god and he develops a condescension for mere pedestrians.

It is my pedestrian pride that protests against this attitude. Just because thou ownst four wheels dost thou think thou art an angel?

N.B. My objection is limited to car-owners in India, because cars here make a caste. In Los Angeles, the most car-owning place in the world, I found the pedestrian was lord of the roads. Everything stopped for me as though I were the light.

SHOURI

Barbers in Conference

CRAFTSMEN in conference do not seem to get the publicity desired or deserved and the convention of barbers in Madras held in the first week of March 1965 excited little attention, even locally. The tonsorial styles described to show that the hairdresser today ranks as an artist in improving personal appearance may not be novel, but the Barbers' Association is convinced that long hair and beards are burdens and the adoption of foreign styles in hair-cutting is to be approved and commended. The hairdressing saloon as a place of public resort is accepted though the barber who visits the regular client by arrangement at home is not less in evidence. The barbers' prayer that the art of cropping and shaving should flourish is not empty one.

The fact that barbers' shops refer to Columbia, Rangoon and Singapore on their signboards may be due to the infiltration of foreign tools or styles. The indigenous style in whiskers, sideburns, etc., is not prominent in the current exposition of the art and the barbers who show how a good head of hair should be parted refer to the Police Cut as appropriate for Government servants who sport official headgear.

It is curious that hair styles for women who now raise special basket-like coiffures topping the head are outside the ken of Tamil barbers who have been praised for attention to detail in the pursuit of an art that does not encourage talk with customers in the chair.

The secretary has referred to uplift of the community that is deemed backward, though its leaders prefer the suffix Pandit to mark the progressive outlook. The desire for self-help is now reflected in the formation of an association to promote the interests of barbers who depend for credit on chit funds and now hope to organise a credit co-operative society to aid them in buying equipment like revolving chairs. The installation of fans and lights is unavoidable, as comfort is demanded by the conditions of competition in Madras city.

A sideline is available in the preparation of lotions to check baldness or dandruff suggesting that the practice of medicine and surgery in the past has left its impact. Modern influence is easily traced in the emergence of an M.G.M. saloon in the city though a lion is not the trademark adopted to claim the lion's share of casual custom.

M. K. RAMAMURTY

FARM IMPLEMENTS

The agricultural implements workshop in Jaipur, an undertaking of the Rajasthan Government, will be expanded to produce agricultural implements worth Rs 15 lakhs annually during the Fourth Plan period. Two new similar workshops will be set up at Kotah and Ganganagar and 60 small units at the block level.

The second generating unit of the Sharavati hydro-electric project was commissioned on April 29. The project will have 10 units of 89 MW each.

LIFT IRRIGATION

By Bullocks or by Pumpsets?

Farmers in India have been traditionally using bullocks to lift water from wells for irrigation. Bullocks have now a rival in pumpsets. Since a larger initial outlay is required for installing pumpsets, it has given rise to a misconception in certain quarters that pumpsets are less economical. The author claims that this impression is erroneous and, in fact, lift irrigation with the help of bullocks costs seven times more than irrigation by pumpsets.

G. R. DAMODARAN

A GOOD paddy is usually in the field from four to five months. Water requirement is low during the first three or four weeks and again during the last three or four weeks. A long-duration paddy crop requires about 75 acre inches or about 1.7 million gallons of water per acre in a period of about 3 to 3½ months during the mid-period of the life cycle of the crop.

Bullock power for irrigation is generally used where the depth of the well is not more than 35 feet. If the depth is greater, the interval between two consecutive drafts of water from mhote-buckets gets longer. As a result, the total quantity of water drawn in a working day gets reduced to uneconomic levels.

Now, in an eight-hour day, a pair of bullocks can draw about 12,000 to 15,000 gallons of water from a 35-foot deep well. Since the water flows in spurts, there is loss due to seepage of water. For these reasons, a pair of bullocks can be used to irrigate not more than one-third of an acre of paddy. In many cases it would be even less.

An ordinary pair of bullocks costs about Rs 800 in Madras State. Interest on this outlay at 12 per cent per annum works out to Rs 96 per year. An appreciable part of this will have to be charged to the cost of raising the paddy crop. When put to strenuous work such as lifting of water, the bullocks can be usefully employed only for about five years. In other words, the depreciation per year amounts to Rs 160. Here again, a substantial part of the depreciation is chargeable to paddy cultivation. Besides this, it costs about Rs 4 per day to feed and maintain a pair of bullocks. The expenditure on this account for five months works out to Rs 600 though this may be lesser if fodder raised on the farm itself is used. Besides, the farmer might have to employ some one to work the bullocks in case no member of his family is available to do the work. Thus, the total expenditure on irrigating one-third of an acre of paddy may roughly amount to Rs 750 or Rs 2,250 per acre.

Electricity-operated Pumps

Let us now see how much does it cost if an electricity-operated pump is fitted to the well. It is quite possible that the water in the well may not be adequate for eight-hour pumping per day. Assuming that there is water enough for one-hour pumping in the morning and another hour in the evening, a five-horse-power electric motor coupled with 3"×2½" pump can lift from a 50-foot deep well 160 gallons of water per minute. This is enough to irrigate about one acre of paddy.

The installation of this motor and pumpset will involve an initial outlay of about Rs 1,500 on which the interest charges at 12 per cent per annum will be Rs 180 per year. The lifetime of this unit is about twelve years so that depreciation for five months will work out to Rs 52. A small expenditure on maintenance and repairs may be involved but this is not included here. If the motor works for two hours every day, it will consume 1,125 units of electricity during five months. This involves an expenditure of Rs 93 at 8.25 paise per unit, which is the present tariff for agricultural pumpsets in Madras State. The total expenditure would, therefore, amount to Rs 325 per acre of paddy.

If a five-horse-power diesel engine and pumpset unit is taken into account, the initial outlay will be Rs 3,000 entailing an interest of Rs 360 per year. Since its lifetime is about ten years, the proportionate depreciation for five months will work out to Rs 125. If the unit works for two hours on an average per day for five months it will consume about 400 litres of fuel oil. At 72 paise per litre, this would cost Rs 288. The total expenditure in this case will work out to Rs 773 per acre.

It may be added that the animals have to be fed during the off-season also, work or no work. But no expenditure will be involved in maintaining the machinery during the the off-season except the payment of minimum charges for supply of electricity. I have not taken into account the cost of shed for housing the bullocks or the engine or the motor.

It is often said that the initial outlay on purchase of the electric motor pumpset or diesel engine pumpset is beyond the means of our farmers. It is for this reason that the State Governments are advancing loans to them which are repayable in easy annual instalments. The farmer has to choose if he likes to suffer a recurring loss of Rs 1,500 to Rs 2,000 per year by using bullock power or avail himself of the Government loans and avert this large recurring loss.

It is sometimes argued that if the use of bullocks is abandoned for

lifting water, the supply of farmyard manure to the fields will suffer. An average pair of bullocks supplies hardly 5 tons of farmyard manure per year valued at Rs 10 per ton. The nutrients in this quantity of farmyard manure can easily be made up by use of green leaves and fertilisers.

Any step taken to encourage use of pumpsets in agriculture is a step in the right direction from every point of view. The use of bullocks for lifting water has to be abandoned in the interest of the agricultural economy of the country. Use of power for lifting water brings in greater prosperity to the farms as is evident in a district like Coimbatore in Madras State, which is quite advanced in agriculture. One out of every three or four wells in the district is fitted with a pump. The remaining wells have not been fitted with pumps only because the underground springs are too poor in the wells and not because the farmers concerned are unaware or live unconvinced of the utility of pumpsets.

National Income Up by 4.5 per cent

INDIA'S national income rose by 4.5 per cent in 1963-64 over 1962-63. The rise was 1.9 per cent in the previous year.

The total national income (at constant prices) in 1963-64 was Rs 13,910 crore, as against Rs 13,310 crore in 1962-63, an increase of Rs 600 crore in a year.

The per capita income for 1963-64 works out at Rs 299.8, as against Rs 293.4 for 1962-63.

During the first three years of the Third Plan, there was a rise of 9.3 per cent in the national income and of 2.3 per cent in per capita income at constant (1948-49) prices.

A CORRECTION

In our report on High Pressure Boiler factory at Tiruverumbur published in our last issue "the Heavy Machine building" (third line, column two, page 18) should read "the Hyderabad Heavy Power Equipment plant". The error is regretted.

Madras Farmer's Achievements

(Continued from Page 5)

than Rs 1,000 a year. He gets 30 to 40 eggs a day which he puts in the incubator, thus adding to the stock of his birds. As for sheep, he can sell each for Rs 30. Then there are flowers and vegetables. "Now that I have an incubator", Srinivasan remarked, "I expect my poultry farm to expand further adding considerably to my income."

Between 1957 to 1965, in a mere eight years, Srinivasan has shown how a man without previous experience can make a success of his job by hard work and imagination. One thing has helped Srinivasan—that he is not too citified in his tastes. He and Raju, who is about the same age, live like true farmers. Though the wage-earners start working on the fields at ten in the morning, Srinivasan's day begins before sunrise. In the evening he indulges in his recreation—listening to the radio. He also goes through the newspapers and is an avid reader of literature (sent by his father) on agriculture and poultry farming. And, of course, there are a pack of pet dogs, Sheela, Blackie, Mani and the like who follow Srinivasan wherever he goes and keep a faithful watch on the farm in the night.

MUCH of Srinivasan's success should of course be traced to the financial support, advice and guidance of his father. I met Mr Narayanan later in Madras. "We have invested a lot of money on the farm. But I have no regrets. It has started paying dividends. Papa is doing well and will do better still."

I could not help bringing up the question of poultry. "Why, you have already been told about it?" Mr Narayanan laughed aloud. "You see, we are old and conservative. It is difficult for us at this stage to change our old beliefs and customs. Papa represents the young and belongs to the modern age. The old order, as you know, must change yielding place to the new."

Yojana Bhavan Diary

The first meeting of the National Planning Council was held on April 21 and 22 (see Page 12).

Mr Asoka Mehta, Deputy Chairman, Planning Commission, left for Moscow on May 4 as leader of a delegation consisting of Dr. A. Nagaraja Rao, Adviser, Industry and Minerals, Mr Pitambar Pant, Chief, Perspective Planning. Professor P.C. Mahalanobis, Member, Planning Commission, who was in U.S.A., joined the team at Moscow. The delegation discussed India's development plans with the Soviet authorities.

Mr S. G. Barve assumed office of Member, Planning Commission, on April 21. He will deal with industry, village and small industries and oil and minerals.

Mr G. R. Kamat took over as Secretary, Planning Commission, on April 22.

Mr Asok Mitra took over as Additional Secretary, Planning Commission, on April 22. Until recently he was Registrar-General of India and Census Commissioner.

The National Development Council Committee on Social Services met on April 17 and 18. The Committee on Industry, Power and Transport met on April 23 and 24.

Members of Development Aid Committee of West German Parliament met Mr Asoka Mehta, Deputy Chairman, and members of the Planning Commission on April 24.

FORUM EVENTS

Reporting the Activities of College Planning Forums

Survey of Slum Area Near Madras

THE Planning Forum of Loyola College, Madras, conducted recently a socio-economic survey of Susaipuram-Pushpanagar, a slum area on the outskirts of the city. The object was to gain practical experience in survey methods.

A sample of 120 families was selected. The area was divided into six regions, and 20 houses from each were selected on random sampling. A questionnaire was prepared to collect data on the various aspects of living conditions, family composition, occupation, housing, health, education, social and recreational activities, and income and expenditure.

An average family in the area consisted of five members. Of the 600 people covered, 250 were men and 350 women. Out of the 250 men, 80 were fathers, of whom 50 had jobs. Ten were retired and 20 unemployed. Eighteen households were found to be managed by the eldest sons of deceased fathers; 12 households belonged to couples who had no children. Of the remaining 170 males, 30 per cent were below five years of age, 55 per cent between five to 15, and 15 per cent between 15 to 20 years. Of the 350 women covered by the survey, 215 were mothers, of whom only 5 per cent had jobs to supplement the family income. Of the remaining 135 women, 53 per cent were less than five years old, 63 per cent were between five and 14, and 4 per cent between 15 and 18 years. Generally girls were married on attaining the age of puberty. This meant that a majority of women had a long child bearing period, resulting in overpopulation of the slum area.

The survey showed that people were usually engaged in manual labour, working as attendants, watchmen, messengers, gardeners, painters, bricklayers, scavengers, street sweepers, rickshaw-pullers and labourers. Of the 600 people, the wage earners numbered 100, the average wage being Rs 48 per month. The per capita income of the people of the area came to Rs 8 per month or Rs 0.27 per day.

A majority of the local labour was immobile as they could not afford to spend on conveyance to distant places of work. A few labourers had to get up early to reach the work site on foot. Some were found working with their employers for the last 20 to 40 years, though their wages had remained unchanged in the face of soaring cost of living coupled with increasing family responsibilities.

The condition of the labourers was miserable, there being no other source to supplement their income from. Of the 120 families interviewed, not one had an inch of ground for cultivation or gardening. Only 10 per cent of the workers expressed satisfaction with their jobs. Only six out of 115 adult women had jobs.

Modes of Earning

The Forum found unemployed men were of two categories—those who had never been employed and those who had jobs but were expelled or retrenched. Eleven people had never been employed, ten had retired and 15 were either dismissed or retrenched. Nine had odd casual jobs.

The duration of casual employment varied from two to six months depending on the nature of work. There was no guarantee that when they lost one job another would be available. Few admitted that they sent their children to beg alms. A few went about begging for old newspapers, magazines and rags which they sold to earn a day's meal. Some placed their services at the disposal of small business men, tourists and students, or helped in getting a taxi-cab for passengers. A few were hired by washermen on piece wages.

The Forum found that the huts in which these people lived were unworthy of human habitation. A hut was usually shared by two families. Most huts had one room and were made of mud covered by bamboo, palm leaves and old tin sheets. Five houses had more than one room but none had more than three. A slum dweller's hut was an all-purpose, one-room house. Oil lamps were used to light the huts.

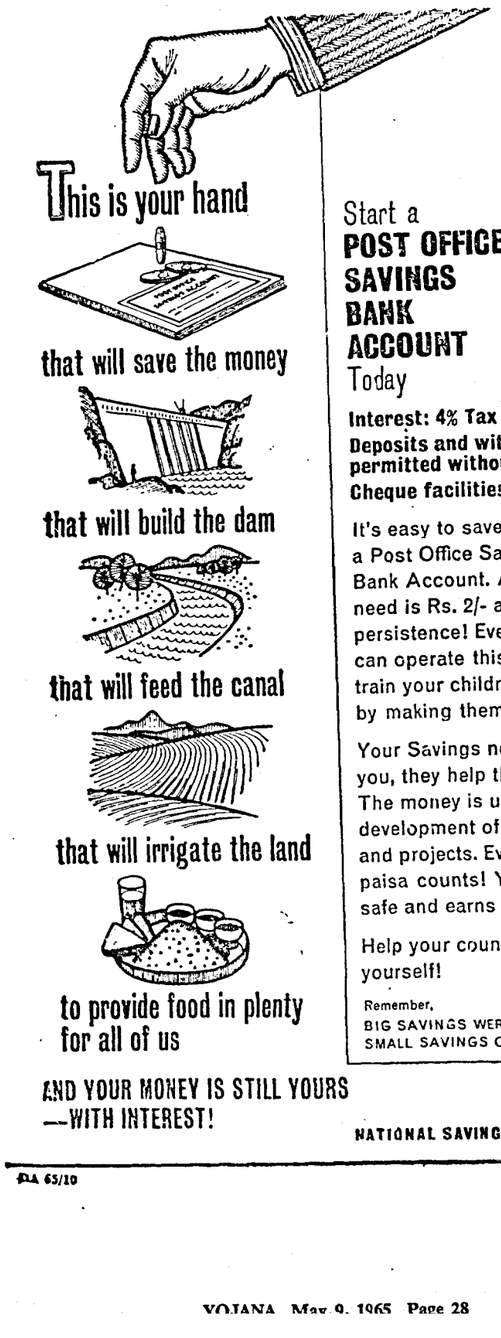
The entire area was dirty, there being no latrine. During the rains the area got flooded and dirty water flowed into the huts. Owing to stagnant muddy water, the slum area was infested with mosquitoes. Of the 250 men, 20 complained of abdominal ulcer, five of tonsilitis, three had mental troubles, and eight had eye troubles. Another 15 had meningitis and more than 30 had undergone operations. Of the boys 70 had been suffering from one disease or another.

As regards education, the Forum found that in most families parents were illiterate, though the children were not. Of the people covered by the survey, only 234, or 39 per cent of the population, were literate.

Nine out of 120 heads of families claimed having read up to the fourth standard. Another 15 had left school after the first or second standard. Except three married women who had read up to the third or fourth standard, the rest were illiterate.

The introduction of free primary education and free mid-day meals had lured some boys and girls to attend school. Yet many did not go to school because they preferred to earn a little to support their parents.

The Forum has recommended provision of minimum sanitary facilities, a latrine for each house, and supply of more water through taps. A health centre with a clinic should also be started. The Forum has suggested the setting up of a handicraft training and production centre which would help the womenfolk of the locality to be usefully engaged.



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DA 65/10

KOSI BARRAGE OPENED

THE Kosi, the river of sorrow for Bihar, has been harnessed to yield prosperity to its valley in Bihar and Nepal. A barrage built on the Kosi at Bhimnagar at a cost of Rs 23.63 crore was commissioned by King Mahendra of Nepal on April 24. Work on the excavation on the western Kosi canal also began the same day. The canal will cost Rs 13 crore.

The barrage, about 1,150 metres in length, is the longest in the country. It has been built over six years. Along with the 120 kilometres of embankments on either side of the river, the barrage will check the river from changing its course. It will feed the eastern and western canals, which together will provide irrigation for 26 lakh acres of land in North Bihar and South Nepal.

The barrage is a part of the Rs 54-crore project to benefit Nepal and Bihar. A hydro-electrical power house with a capacity of 20 MW will be built by 1966 and 50 per cent of the power will be supplied to Nepal.

The U.S.A. has given Rs. 36.22 as assistance for the Kosi project.



Bright Spot

MORE SUGAR THIS YEAR

The production of sugar this year is likely to exceed 30 lakh tonnes. It has already been more than 29 lakh tonnes from all the 104 factories working in this season.

The export target of 2.38 lakh tonnes for this year may now be revised upwards.

SNIPPETS

THE consumers co-operative stores had a turn-over of Rs 128.9 crore in 1964, meeting 9.5 per cent of the consumer needs of the urban people. In 1965, the total sale is likely to reach Rs 300 crore..... The production of rice in 1964-65 is expected to be 38.5 million tonnes, the highest so far.... Seven airfields at various places in India were built in about six months at a cost of Rs 17 crore.....Australia has offered six automatic bakeries (costing 250,000 Australian pounds) as gift to India under the Colombo Plan. They are likely to be located at Calcutta, Madras, Bombay, Delhi, Ahmedabad and Ernakulam.....The U.S.A. will supply India one lakh tonnes of jowar under PL 480 for distribution in Maharashtra and Gujarat .....The Rajasthan Government has spent Rs 3.54 crore during the past thirteen years on the welfare of scheduled tribes..... The Jhunjhunu district was declared for the sixth time as the ideal small savings district of Rajasthan when it collected Rs 55.5 lakh in 1964-65..... Thirty per cent of the rural population had been brought under the co-operative fold in Rajasthan State till December last..... Uttar Pradesh has so far set up 44 industrial estates—big, medium and small—during the three Plans, and 32 more are expected to be opened by December this year.

BHOPAL'S GIANT TRANSFORMER

THE Heavy Electricals, Bhopal, has undertaken the manufacture of its largest transformer (capacity 250,000 KVA, 21/230 KV). The transformer will be installed at the Rana Pratapsagar atomic power house, near Kotah in Rajasthan. It will weigh 220 tonnes.

The Bhopal factory has so far manufactured transformers ranging from 1000 KVA to 75,000 KVA.

The factory has also completed the manufacture of the first batch of six industrial motors.

ORTHOPAEDICS INSTITUTE

The Central Institute of Orthopaedics has been housed in a new building on the campus of the All-India Institute of Medical Sciences in New Delhi.

Rs 489 Crore Aid for Fifth Year

THE Aid India Consortium has pledged an aid of 1,027 million dollars (Rs 488.85 crore) to India for the final year of the Third Plan. Two-thirds of these loans will be in the form of grants and soft loans with a maturity of 25 years or more. About 50 per cent of the loan amount will be given as non-project aid.

The amounts in dollars offered by the different countries in the Consortium (along with the respective amounts for the last year given in brackets) are: U.S.A.—435 (435); World Bank and IDA—245 (245); West Germany—86 (95); U.K.—84 (84); Japan—60 (60); Canada—41 (41); Italy—36 (36); France—20 (20); Austria—5 (1); Belgium—4 (0).

With these amounts, the Aid India Consortium has given total aid of 5,472 million dollars (Rs. 2,604.67 crore) for India's Third Plan.

BOILER PLANT INAUGURATED

THE High Pressure Boiler Plant at Tiruchirapalli was formally inaugurated by the Vice-President on May 1. Built in collaboration with Czechoslovakia, the plant will produce about a dozen boilers totalling 750 MW every year when in full production in 1971. The value of annual production will be Rs 22 crore. The first boiler, to be installed at the Ennore power house in Madras State, will be ready by 1967.

The project, estimated to cost Rs 18 crore, is one in the chain of heavy power equipment plants being set up by the Bharat Heavy Electricals Limited.

ENGINEERS LIMITED

An engineering organisation, Indian Engineers Limited, has been formed in collaboration with the Bechtel International Corporation of U.S.A. The organisation will provide engineering services for the development of petroleum, petrochemical and other industrial programmes in the country. An agreement to set up the organisation was signed in November last.

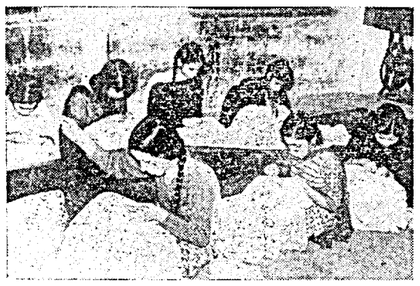
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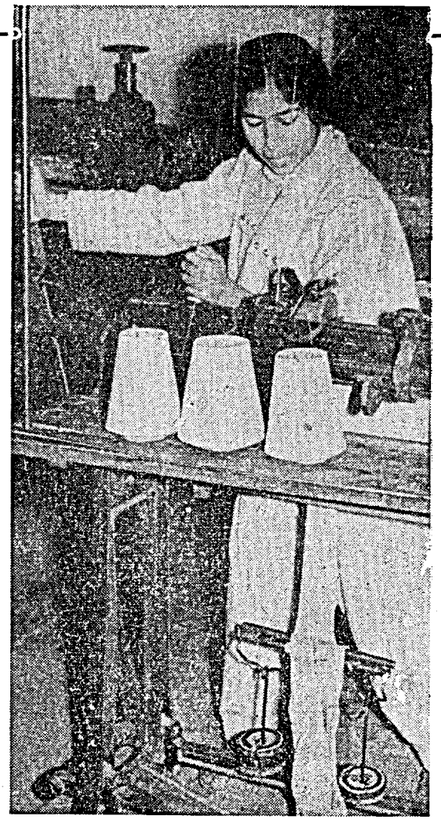
WHERE WOMEN LEARN

THERE is a growing keenness among Indian women these days to earn and contribute something to the family purse. More and more women are competing with men in the fields which were, till very recently, reserved exclusively for men. And they need not necessarily neglect their homes. There are 'jobs' which they can do at home by sparing some time from their domestic chores. For all this, they need the requisite training and skill. This they can get at any one of the industrial training institutes for women.

The Industrial Training Institute for Women at Dehra Dun, U.P., is one of such institutions, offering training to women in seven different trades and crafts.

The Institute was set up in 1949 on a modest scale mainly for the benefit of the displaced women. At present there are 268 trainees on its rolls.

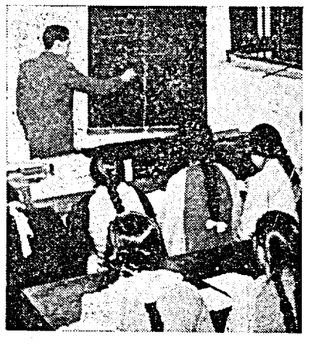




HOW TO EARN

Seventy per cent of the trainees come from the lower middle class, 25 per cent from the middle income group and five per cent from the well-to-do families. They include widows, destitutes, handicapped and also women from the scheduled castes. Stipends of Rs 25 per month each are given to all the scheduled caste trainees and one-third of other trainees during the period of training.

Tailoring is the most popular trade. Next in popularity is English and Hindi shorthand and typewriting. There are three sections of hand and machine embroidery, two of hosiery, and one each of dyeing and calico printing and hand weaving. The Institute provides raw materials also for all the trades and



makes arrangements for the sale of products in market.

Those who are trained in shorthand, typewriting and weaving are easily absorbed in various local Government offices, business firms and textile mills. Those trained in tailoring and embroidery work mostly at home on wage basis or join development block staff as craft instructors, gram sevikas, etc.

A number of new trades like fruit preservation, draughtsmanship, radio mechanism, etc., are being considered to be added to the Institute's curriculum.

A spacious hostel providing free lodging, medical treatment and other facilities is also there.

The Institute has so far helped more than 5,000 women trainees in eking out a living for themselves or becoming active contributors to their family incomes.

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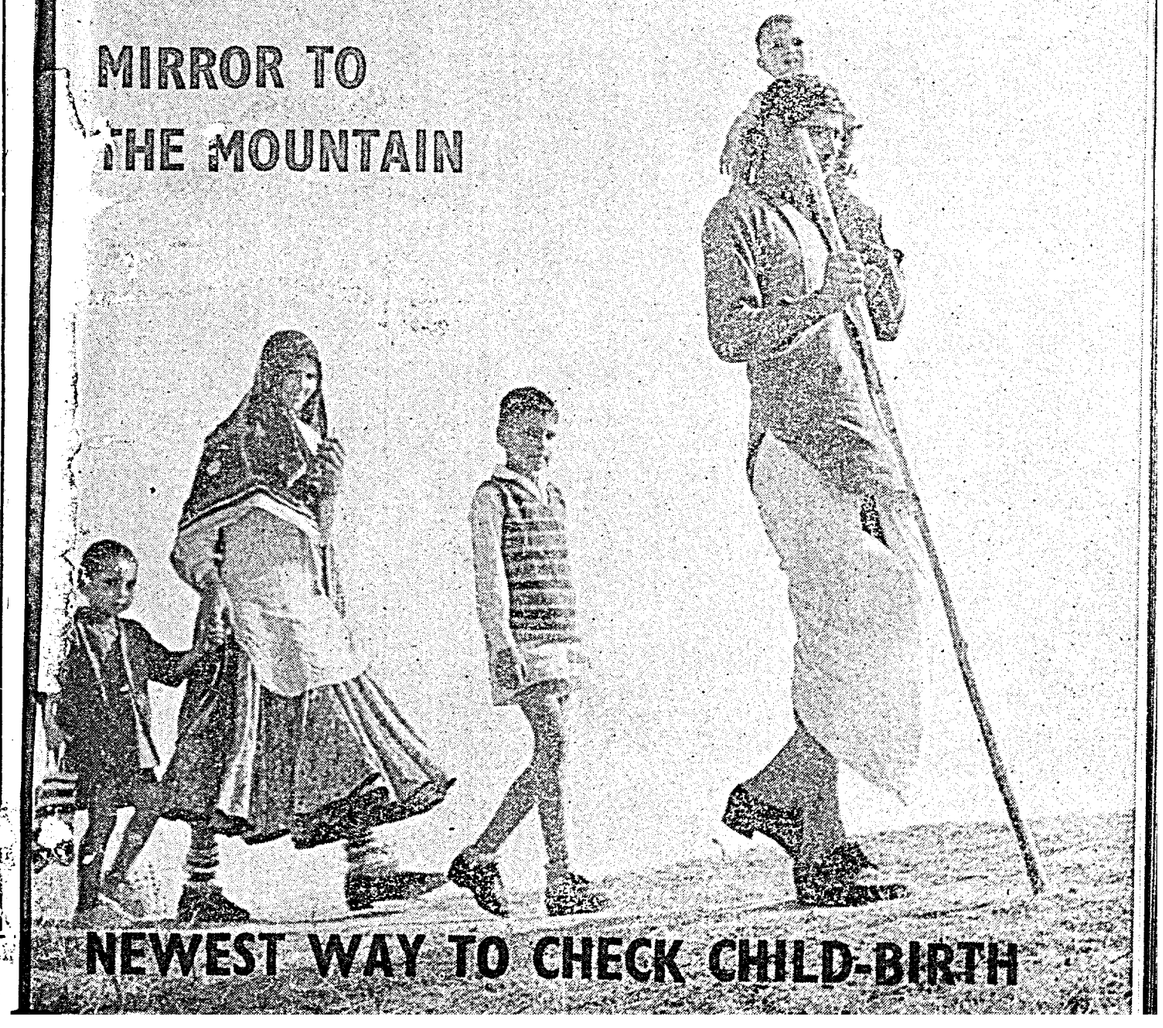
YOJANA

NINTH YEAR
10
MAY 23, 1965
25 PAISE

DEPUTY SECRETARY (F)
26 MAY 1965
FINANCE DEPARTMENT

INSIDE

A YEAR AGO
MIRROR TO THE MOUNTAIN



NEWEST WAY TO CHECK CHILD-BIRTH

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

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You Ask Us ... Cover III

COVER: Bhupinder Singh Dhillon's picture of a happy rural family brings out the importance of convincing our rural people that fewer children mean a better life for everyone in the household. See article on page 2.

QUOTATION BOX

In a democracy the faults of the politicians arise from the defaults of the officials.

—Mr J.M. Lobo Prabhu in "Swarajya"

The Divisional Commissioner of Jammu & Kashmir, Mr Anwar Karim, told newsmen that about 4,000 people took out what appeared to be a funeral procession. The "mourners" said it was the funeral of a person killed in yesterday's firing. The police got suspicious and seized the coffin. It contained grass.

—A P.T.I. report

Young Britons will soon be able to train to be parents and get a diploma in parenthood. Britain's Royal Society of Health is to introduce evening classes for parents and young people planning to wed.

—A Reuter report

It seems that our women have an unconsciously formulated aesthetic theory about their *choli* (blouse with the open waist). They are practising an archaism in order to appear charmingly Indian in the eyes of Western men.

—Mr Nirad C. Chaudhuri

The time has come when we should try to call things by their proper names.

—Mr V.K. Krishna Menon

The success of the Fourth Plan depends not on getting aid, foreign exchange and the rest but on putting the right man on the right job.

—Mr T.T. Krishnamachari

He (Mr Lal Bahadur Shastri) read the newspapers first thing in the morning "to find out what are the secrets which have been divulged".

—Report in "The Statesman" of the Prime Minister's speech to the Press Association

For many years yet, Indian teachers will be teaching examinations, rather than subjects.

—Mr C. Mortimer in "The Hindu"

Sariputta Consumers Co-operative Society Inaugurated at Sanchi.

—From a press note of the Madhya Pradesh Government

Weddings, receptions, opening ceremonies, social functions and other massive trivialities absorb too large a proportion of the time they (our Ministers) owe to serious public work.

—"The Indian Express"

The Planning Commission is indeed the Famine Commission.

—Mr Narasimha Reddy, M.P.

Neither loans, nor organisation, nor plans, nor poultry, nor fisheries, nor inputs would help at all unless the hon. Minister (for Food and Agriculture) can convince his colleagues that the peasants in flesh and blood are human beings.

—Mr Kapur Singh, M.P.

The spectacle of Mr Shastri being subjected to a torrent of abuse in the Lok Sabha has turned British sympathies away from a nation which is believed to be weak, querulous at home and adventurous abroad.

—London Correspondent of "The Times of India"

Formerly India was equidistant from both (USA and USSR); lately she has been trying to be equally close to either.

—Mr Inder Malhotra

YOJANA BHAVAN DIARY

The Planning Commission had a joint meeting with the Finance Commission on May 1 to discuss issues relating to devolution of resources from the Centre to the States and their impact on the formulation of the Fourth Plans of States.

The Planning Commission has created a new Division called the Employment, Labour and Social Planning Division, which includes the former Labour and Employment Division, the Social Welfare Division and the Rural Manpower Unit. The Division is headed by Mr B. N. Datar and forms part of the charge of Mr Tarlok Singh, Member.

Mr B.K. Kaul, I.C.S., formerly Chairman of the Life Insurance Corporation, joined on May 1 as Adviser, Programme Administration.

Dr Daya Krishna Malhotra, Joint Secretary, and Member-Secretary of the Research Programme Committee, left on May 6 on deputation to the ECAFE, Bangkok, where he will be Senior Planning Expert.

Dr A. Vaidyanathan, Assistant Chief, Perspective Planning Division, participated in the preliminary meeting of experts from member-countries of the Colombo Plan held at Karachi on May 17 and 18.

YOJANA

Vol. IX No. 10 — Fortnightly Journal Published on behalf of the Planning Commission — Jyaistha 2, 1887

MAY TWENTY-SEVEN

It seems but yesterday, and it looks so long ago, that Jawaharlal Nehru left us. And in the last twelve months there has not been a day when we did not remember him. More now than during the first pangs of loss are we able to get a measure of the man and his work, of his idealism and energy, of his knowledge and wisdom, of his zestfulness and ready sympathy, even of his shortcomings and errors of judgement.

His, it has been said, was an instance of the triumph of intellect in history. With mere intellect, however immense, he could not have called people to large tasks. He himself recognised his secret: that he was loved by people as he loved them. He was always a humanist. He would never concede the sacrifice of human well-being to the interest of a dogma. He never tired of explaining that his socialism was rooted in the quest for individual good in the group; that it recognised no right to coerce. To him violence was not a natural right.

That is what drew him to Gandhi. His faith received further sustenance in the later years from the humanist doctrines of the Buddha. The terror and the power of total annihilation that nuclear energy had brought to man made it, in his view, ever more necessary that man should take to mind the ancient teaching about right thinking, right conduct and right inclinations.

To Nehru a key problem of history was how to translate the great moral findings into the palpable facts of daily life. This, he felt, was the true function of politics and of political institutions. While he revered the seers, and recognised the validity of doctrines and theories, he stressed the role of humane leaders and institutions. His own ideal ruler was Asoka. Like Asoka he believed that there could be no true victory which involved defeat for anyone. Like him, again, he laboured in the cause of *dharma*, a *dharma* appropriate to our times and comprehending ths spirit and achievements of science. Nehru's national policies and international stances grew out of this deeply held faith. To have provided a worthy frame of reference for us to live by, valid now and for a long time to come, is among the gifts of Gandhi and Nehru. Masters show the way; disciples build. Nehru, thus, was involved with institutional problems: to evolve a constitution that gave expression to love of liberty and reverence for all religions; to build a Parliament that enshrined the right and the competence of people to rule themselves without tutelage; to initiate policies and programmes that struck at ancient wrongs and privileges and enabled people to have equal access to material and spiritual welfare.

Nehru was not a slide-rule man. He did not measure success by inch and ounce. He thought in terms of a large amplitude and long spans of time. When the Chinese scoffed at our faith and lunged at our territory he did not take that to mean a collapse of his philosophy or a reason to abandon the path chosen with deliberation. He rallied the nation in defence of the freedom it had struggled so long to win, but refused to let the people regard brute strength as being superior to the values of democracy and welfare. His concern with economic and social development increased, if anything, for he saw the real defence of the country in the growth and modernisation of our industry and agriculture, and in the building up of an order that promised more well-being to people and thus commanded their devoted allegiance. To the very last he thought ahead, and was concerned about his own work in building this better future.

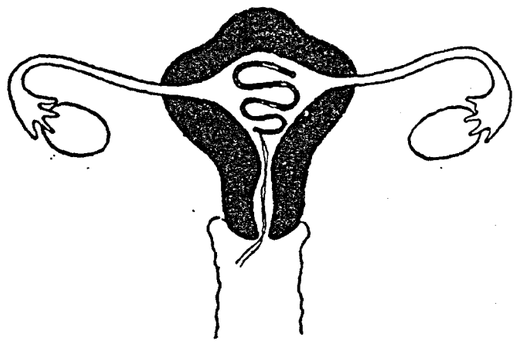
In his last few weeks, especially, he is known to have chafed at our slow growth. He wanted the nation to accept and work for a large Fourth Plan and a big push towards growth. He had a feeling that economic stagnancy or slowing down might make the people lose faith in democratic institutions. His concern was about speeding up economic development, so that our political institutions—parliamentary democracy, panchayati raj, secular state, free judiciary—could gain further strength.

Let us, on this anniversary day, pledge ourselves to carry forward his work. And let us salute a man who knew no defeat, and who from the thorn of frustration plucked the rose of fulfilment.

It is called the Coil; it is called the Loop; it is the latest, cheapest and safest family planning aid

INTRA-UTERINE CONTRACEPTIVE DEVICE

By KATHERINE KUDER
and Mrs RAMA RAU



Cross-section of uterus (frontal plane) showing loop in place with filaments extending through cervix

AMONG the early checks to increase in population were famine, war, child mortality, diseases in epidemic forms, and infanticide. Other calamities like floods, earthquakes, cyclones and tornadoes have also played a role in controlling population. In the modern world, when science is endeavouring to deal positively with all these challenges, the explosive growth of world population poses a serious problem for mankind. The problem has a direct and personal impact upon all of us. The standard of living, health, education and welfare of the people depend upon the rate at which they multiply. Today the attempt of science is to provide effective and safe means by which people of all cultures could limit their families. The means should not be sophisticated nor impose heavy demand on motivation, educational ability and intelligence in their use. They must be based on normal physiological principles and not produce any harmful effect with prolonged use.

Numerous methods have been used—and are still being used—to fight this battle of limiting the size of the family. Of the different methods available, people select that which they find most convenient. A good contraceptive should be safe, cheap, effective, easily available, easy to use, easy to store and easy to dispose of. No one contraceptive can be suitable for all individuals. The search for a contraceptive which will haye all the qualities still continues.

IUCD NOT NEW

INTRA-UTERINE contraceptive devices were in use as early as the eighteenth century. Silver rings as a method of contraception were used by Graefenberg, a well-known medical practitioner in Germany, and by Anklesaria in India in the 1920's. The method, however, fell out of favour. After the advent of the harmless material, polyethylene, and its wide use in medical sciences, the prospect of making intra-uterine devices out of it was considered. In 1959 the old idea was put to test but the devices were of polyethylene instead of silver metal. Work has been continuing since then.

When favourable reports on the new polyethylene device (Lippes Loop) came out from New York, following international conferences on the subject in 1962 and 1964, India was greatly interested. Clinical trials were started in India in 1962 under the over-all supervision of the Indian Council of Medical Research to evaluate the device.

The first clinical trial was started in August 1962 at the Family Planning Clinic of the All-India Institute of Medical Sciences, New Delhi. Subsequently, 50 clinical studies were set up during the period August 1962 to October 1964 in different parts of India. The results of the trials were considered in January, 1965, and the Advisory Committee on Scientific Aspects of Family Planning of the Indian Council of Medical Research recommended to the Government of India that "*it has been demonstrated that the IUCD is safe, effective and acceptable and should be made available through all medical and health centres having requisite facilities. No para-medical person should be permitted to insert the intra-uterine device. For the present Lippes Loop may be the IUCD of choice.*" The Government of India has accepted the recommendation and has accepted IUCD (Lippes Loop) as an appropriate contraceptive device.

HOW IT WORKS

THE Lippes Loop is made of polyethylene and takes the form of a double-S shape. The device is inserted into the womb and it is not at all a difficult procedure. It is done by a doctor and takes hardly five minutes, most of which time is taken in the internal examination of the woman. The device stays in the womb and only the thread protrudes from the mouth of the womb. The woman and her husband do not feel it, and it does not interfere in any way with normal family life.

The whole procedure of insertion is painless, is not an operation and does not require any anaesthesia. The diagram shows an intra-uterine device in place.

The time when the device should be inserted depends on various factors. Any time from the first to seventh day of the postmenstrual period is the best time to insert the device. Any time after six weeks following a delivery it is safe to have it inserted. After an abortion it is best to get the device immediately after one normal menstruation cycle. The device has no harmful effect on the body. At times, the normal menstruation cycle may be disturbed for a few months but then this disappears in two or three months' time. There may be some backache or pain in the legs, but it is bearable if the woman is serious about not getting pregnant without her desire.

It is difficult to say how long the device can be kept inside the womb. But experience in this country and abroad has shown that the device, even if left in for 5 to 6 years, has not produced any ill effects. When a woman wants to get pregnant or when the doctor feels that the device should be changed, it is removed. The removal is very easy and simple and can be done by pulling out the thread.

ADVANTAGES

THIS contraceptive has some definite advantages over others:

(1) The most important advantage is that when once inserted it requires no further action by either partner.
(2) It is very effective and does not permit 'taking a chance'.
(3) It is very economical and is the cheapest known method.
(4) It is convenient and does not interfere with married life.
(5) It can be left in place as long as the couple desires.
(6) It may be easily removed by a doctor if the couple desires to have another child.

The trials carried out in India with Lippes Loop have greatly strengthened our faith in the device. Out of 2,285 insertions till October, 1964, only 124 were removed and 113 expelled. But 74 were reinserted. For 4,830 reported months of use, there were only 10 pregnancies. The following table gives details:

TABLE

PERFORMANCE OF LIPPES LOOP IN INDIA

First insertion		2285
Removal		124
(1) Pain	15	
(2) Bleeding	81	
(3) Other causes	28	
Expulsion		113
Reinsertion		74
Pregnancies		10
(1) When loop was expelled	5	
(2) When loop not expelled	5	
Planned pregnancies		2

The pregnancy rate works out to only 2.5 for the reported months of use. In other words, those who were using IUCD were able to avoid the risk of pregnancy to the tune of 97.5 per cent. If those pregnancies which resulted when the loop was accidentally removed without knowledge are not counted against the loop, the effectiveness comes to nearly 99 per cent. It can therefore be said that this method is far more effective than any other known method.

It is said that roughly 10,000 to 12,000 women have been fitted with IUCDs in India. The Government has not launched any special programme to popularise IUCDs and whatever little popularity it has acquired is through word of mouth. Most of the hospitals in India where facilities for IUCD are available are in urban areas, and it cannot be said with certainty whether or not it will be popular in the rural areas. But it is interesting to note that the device, in urban areas, is most popular among low income group couples.

What is holding up the programme? If the device is so effective, why is it not spreading as fast as in other countries? In Korea more than 50,000 women were fitted with IUCD in one year and they hope to increase the number to 100,000. Why not in India?

The first reason is that facilities for insertion are available in only a handful of clinics.

Secondly, no effective arrangements for supply have been established. It is known that a foreign foundation has agreed to supply these devices free. India may also start manufacturing them by the end of this month. Still supplies are not regular.*

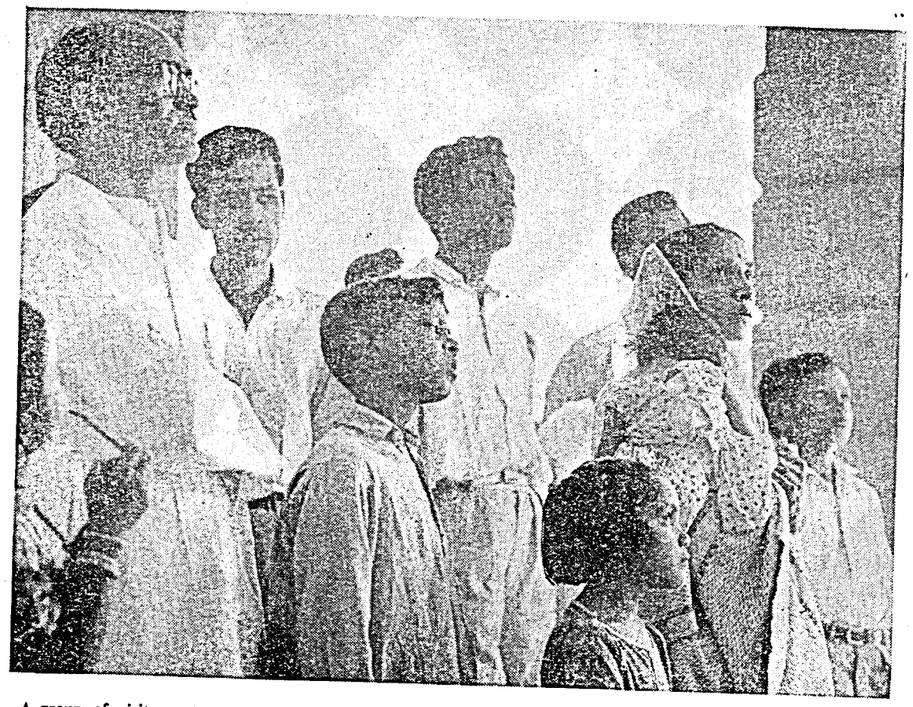
Thirdly, the Government has not started an effective propaganda for popularising IUCD.

During the Fourth Plan period India will have an average of 100 million married women in the reproductive ages. If serious efforts are made to popularise family planning in the rural areas through the help of social workers and social scientists, it is feasible that 20 to 25 million women can be fitted with IUCD in the five years. IUCD has the advantage of being a once-for-all method in the sense of sterilisation, and also an effective method for spacing children. It can, therefore, be popular among younger and older couples alike.

**The most popular sizes of Lippes Loop in India are 27 and 25 mm. Sizes 31 and 30 mm. are not popular.*

WITH CHILDREN IN

A HOUSE THAT CHILDREN LOVE



A group of visitors at the Nehru Memorial Museum, Teen Murti House, reading the will of Jawaharlal Nehru displayed on a panel.

MAY. The month of hot winds and *gul mohur* in Delhi.

May. A year ago one felt a hush as one approached the house. Hush from awe. Hush from hope that one might catch a glimpse of Jawaharlal Nehru.

Now too I felt a hush as I walked past the tall gate of Teen Murti House. I was one of a crowd, and I saw that most of the others left their sentences half spoken as they stepped on to the grounds of the house.

But only for a moment. The children soon began chanting, chirping, asking questions.

Children do not know what it is to die. Death has a different meaning to them: probably the right meaning.

In the talk of the children that afternoon, three words were frequently heard, three familiar words: Chacha Nehru Zindabad. The last word, as they spoke it, was inseparable from the other two, as if it was a surname.

We walked up the bend in the path past the lovely old structure that must have been built in the time of the Sultans.

"Where are the roses that Chacha Nehru was fond of?" a girl asked. "Look there," her father said, turning round to the terrace in front of the house where grew five rows of roses.

In the group in front of ours, in the group following ours, and in our own group, the children were now jabbering off.

We came into the portico, walked up the steps and into the lounge.

"This is where he received the morning visitors" a boy said, pointing to the adjoining room. He had just read that on a sign.

A little girl, his sister, wanted to slip under the rope and go there.

"Don't do that," the brother said. "We must follow the arrow."

Neither the children nor we could spend much time taking in the scene. There was a press of people from behind. I spied among them families from Rajasthan, a bunch of elders evidently from Maharashtra, another group from a pilgrim train, three Tamil housewives, a tall Sikh and his four smart children, and many others.

HIS WORDS

As we entered the back verandah, we caught the sound of something being read aloud. I looked that way. Elders and youngsters, men, women and children, were reading, as they would have read a class lesson, the Hindi translation of Jawaharlal Nehru's will.

We were overtaken by a cluster of sprightly village boys. They had caught a glimpse of the spacious back-garden and rushed forward. One of them pushed a pot and broke it—and got a mouthful from the attendant.

We followed the arrow, turned left, wheeled right and came to a ree with sumptuous leaves. It was the same tree that was much photographed last June sheltering the urn of ashes. On a small rock underneath it we read, carved on a smooth surface, the famous words: "If any people were to remember me..."

Back into the house again. The children weren't greatly impressed by the tapestries, but hurried on and now came into a room which recreated Mr. Nehru's office in the External Affairs Ministry.

"Look at the buff carpet," a girl said in convent English. Her younger sister, who was a few yards ahead, chimed in: "And it is blue here. Blue up the staircase also. I had thought they would have red carpets."

IS IT GOLD?

A smaller girl, this time in Bengali, said aloud: "Mother is this made of gold?" She was feeling with her fingers the thick brass railings up the main staircase. To her, everything yellow in Chacha's house was of course gold.

Now on the upper floor, we came to Jawaharlal's study and peered through glass panes into the sombre, book-lined, teak-panelled high room.

"Father, see, how many telephones!" a young fellow said.

A little girl in orange frock asked in all baby faith: "If the telephone rings, will Chacha Nehru speak?"

A boy in the Rajasthan group asked in Hindi: "Did Nehruji read all these books, father?" "Yes, *beta*, he did. He was a very learned man," the father said.

To the children the next set of rooms were a great delight. They had on display the costumes of various lands and numerous gifts presented during travels—the best work of the best craftsmen of the world.

"Look at the elephant, *bhaiya*."

"Ah, this elephant is better than that."

A dispute between two brothers. But who could decide whether the Burma elephant was indeed better than the Ceylon elephant? Their sister decided that far more beautiful was a silver-and-mother-of-pearl white peacock, also from Burma.

"It is Gagarin on that vase."

"No, it is the Shah of Persia."

Two other boys at dispute again. Evidently public-school chaps. They asked the attendant.

"*Yeh Tito hai*," he said.

The boys seemed satisfied; I had my doubts. What would a vase with Tito be doing under a label that said U.S.S.R? And since when had Yugoslav ceramists begun showing Tito in his 'twenties?

We threaded our way into a room that showed the degrees and honours Nehru had received from universities. "He was only a B.Sc. Tripos, but this certificate says he has been created Master of Arts," said one girl, puzzled, reading the Cambridge degree.

"And the biography says he passed in 1910 but this shows 1914," another girl who was with her remarked. They couldn't solve the mystery.

"And look," she added, "look at the strange English. It says: full convocation holden on..!"

Near there, in a glass case were displayed a *charkha*, a sari and a blouse. A card said: "Saree and blouse woven from yarn spun by Nehru in prison."

DIAMONDS & DOUBTS

But one of the Tamil ladies, who sported a bright diamond in her nose, had her doubts. She said: "I don't think these are really from yarn spun by him."

"Why do you say so, *mami*?" asked the youngest of the three.

"Because they weren't there when I was here last time."

"That doesn't mean they are telling a falsehood.."

"Tell me, where did he have th time to spin so much yarn?"

"But, *mami*, it says that he spu it in prison. Certainly he had tim there?.."

Just as I was eavesdropping on th sceptical housewife, I heard a choru in Hindi. I turned round and saw group of boys reading aloud th Bharat Ratna citation: "*Mai, Bhara ka Rashtrapati Rajendra Prasad vyaktigat gunon ke liye aap ke sar maanarth Bharat Ratna pradaan kart hoon.*" Having read this aloud on of the boys looked at the medal i peepul-leaf shape and said: "Se how lovely it is." Another fellow i the group didn't think it lovely. "Wh have they made it so black?..A award must shine, like those in th next case," he said.

"Mummy," said a girl, "So man keys. Where are the locks?"

Mother had a hard time explainin to her what the key to a city meant

But even before she had finished, the little girl had begun admiring the silver and gold scissors and trowels that had been presented to Mr. Nehru.

Back in the corridor and past more books, a young fellow exclaimed: "Why are there so many pictures of Tagore?" A little ahead there seemed to be a throng of people gesticulating with animation. All the boys and girls rushed there to see what was going on. It was Mr. Nehru's bedroom, and one had to peep through glass from a bay.

"Look, how many table lamps!"

"But the bed looks so short. Chacha was tall, wasn't he?"

"Papaji, there isn't any radio. Didn't Chacha have a radio in his bedroom?"

"Why is there a table fan? Didn't Chacha have air-conditioning?"

So the young voices went on. The young voices strangely got mixed in my mind with a wistful, earnest, well-known, and well-beloved voice.

H.Y.S.

KOYALI EXAMPLE

FEW people might know that Koyali, the village near Baroda where the refinery is coming up, has another claim to fame.

It is the place where an important battle has been won in the fight against soil erosion. Although this effort is modest compared to the refinery, it nevertheless means more food and employment for thousands of people.

Enterprising farmers of Koyali and a couple of neighbouring villages like Ranoli and Dhanera have, by hard work over the years, demonstrated how nature can be subdued and made to serve man.

Gujarat has suffered considerably from soil erosion. Wind and water have laid waste large tracts of land, thus leading to less food and fodder, less employment, less business and less prosperity. The State has nearly 10 lakh acres of ravine land, locally known as *kotars*. These are spread over the banks of big rivers like the Mahi, the Narmada, the Tapi, the Sabarmati and the Banas.

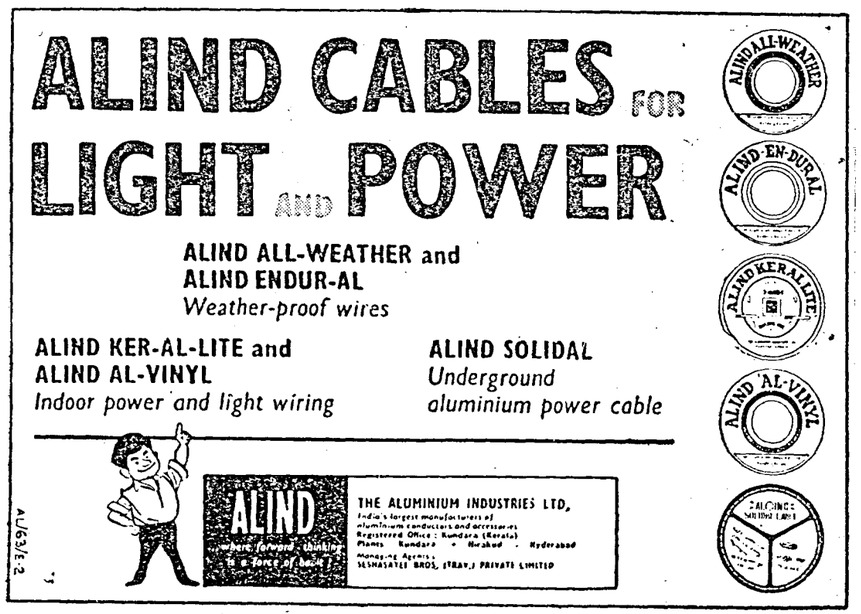
The work of combating erosion and reclaiming land started in Koyali as far back as 1915 when Bakorbhai Patel, a farmer with 40 acres of land, took up the work of reclamation. He was able to convert a desolate holding into a garden of fruit trees.

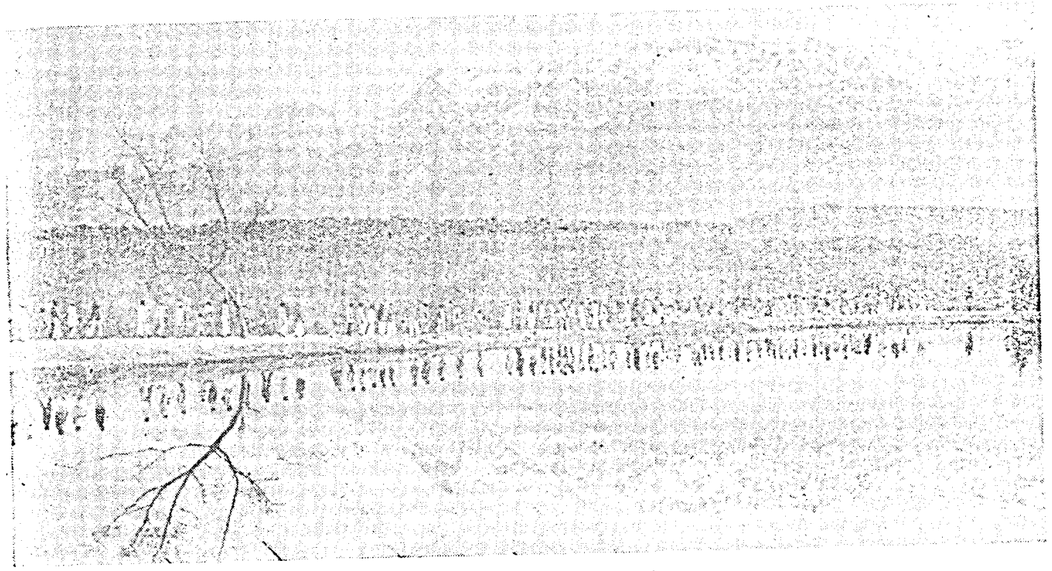
Bakorbhai Patel's brave work was continued by his sons. In 1951 they embarked on another experiment in reclaiming a 100-acre stretch. Besides growing tobacco, *tur*, castor and *bajra*, they have raised mangoes, lemon, *bor*, *amla*, *chiku*, *babul* and *neem*. The income per tree is estimated at Rs 10 to Rs 50 a year.

The broad solution to the ravage of *kotars* is to adopt contour-bunding.

The Department of Agriculture of Gujarat has, after making a study of the work done at Koyali, taken up the demonstration work on reclamation of 1,000 acres of *kotars* at Gambhira in the Borsad taluka of Kaira district.

M.P. DAIYA





A MIRROR TO THE WHITE MOUNTAIN

By

M. S. RANDHAWA

"HAVE you seen the eighth wonder of the world?" asked Parmeshwari Das. "It is only an hour's jeep drive from here in village Maniara," he added.

I had packed my luggage and was ready to leave Palampur for Mandi to see the agricultural work which has been going on in that district of Himachal Pradesh under an Indo-German aid project. I had already admired the snow-covered mountains and the Palam Valley green with a bumper crop of wheat. What could be more beautiful than what I had already seen and enjoyed? Ignoring the prospect of a late arrival at Mandi, I accepted the suggestion of Parmeshwari Das, as



KANGRA FARMERS LEARN of FERTILISER MIRACLE

his information about places in Kangra Valley was always reliable.

We left Palampur at 8.30 in the morning and after a couple of miles diverged to the left. We were on the familiar road to Tira Sujanpur and soon reached Bhavarna. There the metalled road ended, and we were on unmetalled track which ran through tea gardens. After a short distance the road was no longer smooth and was strewn with pebbles. I was already regretting having accepted the invitation while I had a long journey in front of me with people waiting at different places.

THE TWO GREENS

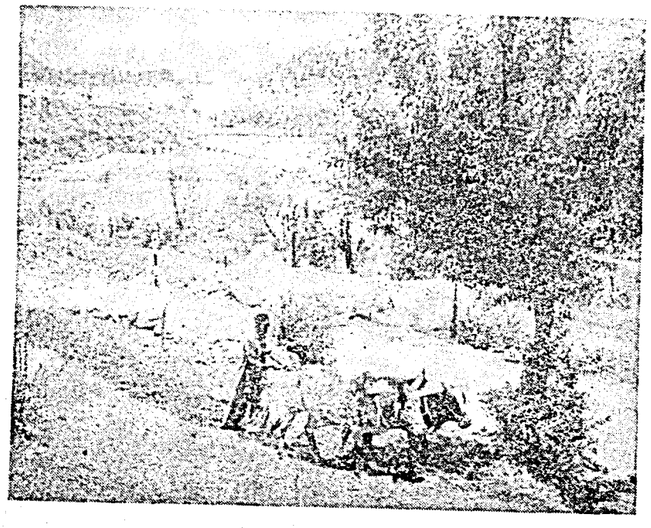
The road dipped down to the level of a *khud* and from here a remarkable view of the Dhauladhar was before us. Below the white mountains was a stretch of terraced fields covered with dark green and pale green strips of wheat.

The dark green wheat had been fertilised with calcium ammonium nitrate and superphosphate and gave the promise of a bumper crop. The pale green wheat was not fertilised, and had a poor stand and the size of the ears was also small. The pale colour of the wheat plants indicated how deficient the soil was in plant nutrients, particularly nitrogen. The production of fertilised wheat would easily be three to four times that of the pale green wheat raised according to traditional methods.

It is thus that nitrogen is changing the landscape of the Punjab Himalayas. It has not only provided a new colour to the landscape but has also added to the granary of the farmer. It has made four ears of wheat grow in place of one and they are also larger. There is a saying in Germany that when one ear of wheat has eleven grains in a row, the farmer can go on a holiday by himself; when there are twelve grains in one he can go on a holiday with his wife; and when he has thirteen grains he can go on a holiday with his girl friend. In Balh Valley in Mandi, and in some villages in the Palampur Intensive Agricultural Project, there are quite a number of farmers who have qualified for a holiday with their girl friends.

The hill farmer who has adopted the full package of practices has now more to eat and also a surplus to sell in the market to repay the price of fertiliser which the Government has given him on loan under the newly started scheme of intensive agriculture. "Was this the eighth wonder of the world which Parmeshwari had in mind when the led us into this unfrequented tract of Kangra?" I was wondering.

Our planners are carrying on an interminable discussion about the measures to overcome the food crisis in India. This crisis is mainly the result of reckless increase in population. Since we became independent, we have added 11 crore to our





Top: Miracle of nitrogen in Kangra Valley. While the average production of wheat was 8 maunds per acre, with the use of full dose of fertiliser it has risen to 24 to 32 maunds per acre, an increase of 300 to 400 per cent.

Left: A farmer of Kangra.



population and every year we are adding more than a crore of new mouths that have to be fed. Many more people are born, and few die. This imbalance is the result of the use of modern medicines, particularly antibiotics, which have lowered the death rate remarkably.

Experience has shown that a kilogram of nitrogen applied to soil will give an additional yield of 15 kilograms of cereals. If phosphorus and potassium are also added according to requirements, the increase will be much more. If one million tonnes of nitrogen are applied to the food crops, India's deficit in cereals would be eliminated. The soils of India are starved of nitrogen owing to continuous cultivation over thousands of years. This is the penalty which we have to pay for the ancientness of our civilisation.

> However, the response which our soils show to NPK is marked, and even remarkable. The present production of cereals can be doubled almost everywhere and in some areas it can easily be three to four times. This is the lesson which the scheme of intensive agriculture, also called the Package Programme, has taught us.

An average farmer in Kangra produces 6 maunds of wheat per acre, a good farmer using traditional methods produces 14 maunds per acre, while farmers who have applied the full package including improved and treated seed and fertilisers have produced 30 maunds per acre. In the plains of Punjab many farmers in Ludhiana and Rohtak have produced 40 maunds per acre.

JAPANESE SECRET

Students of Indian agriculture harp on the low yields of crop per acre in India, and dangle before us the high yields of Japan and European countries. Japan has high yields not because Japanese farmers are more hard working and intelligent than farmers in a number of our States but because Japan manufactures 1.5 million tonnes of nitrogen—which would work out to an average of 15kg per inhabitant. *If we could have 15 kg of nitrogen per inhabitant in India, our farmers could give similar performance. The solution of this problem is NPK.* The sooner we have it in the quantity which our cereal crops require, the better would it be for the economy of India.

Apologising for the digression, let me resume the account of my journey. Negotiating steep climbs we ultimately reached the small village of Maniara built on a plateau. A large number of men, women and children had assembled to welcome us. Among them was a group of Gaddis beating *nagara* drums, and blowing trumpets. Two of them were playing on bagpipes. The sound of the bagpipes and the kilts of Gaddis almost added a touch of Scotland to the scene. The young women of Kangra seated on platforms of stones under banyan trees appeared charming. With their clean complexions and chiselled features they reminded me of Kangra paintings. Some of them seemed to have stepped out of the paintings. How serene and beautiful they looked with their faces decorated with large nose-rings!

There was a large oval pool of water on one side and in it was reflected the white snow-range of the Dhauladhar. The pool had recently been stocked with mirror carp brought from the hatchery at Barot near Bilaspur. Though I have wandered extensively in the Himalayas from Almora to Srinagar, I had not seen so far a spectacle of such majesty. I could not take my eyes off this scene of sublime beauty. The air was full of fragrance of the *garna* flowers. The Kangra women in their colourful clothes decorated the hill-side like alpine blossoms. Where could one see a scene of such grandeur and beauty which satisfied all at once the senses of sight, smell and hearing! It was an intoxicating scene and I forgot myself and wanted to linger on.

Karam Chand, the Sarpanch of the village, now mounted a platform below a banyan tree and addressed us thus: "We are poor hill men of Kangra who live in one of the most picturesque valleys of the Himalayas. Many of us are oblivious of the beauty of the mountains, for only people whose bellies are full can admire beauty in nature. The scheme of intensive agriculture under which the use of fertilisers has been promoted has shown us the way how to fill our empty stomachs. Use of nitrogen has increased our wheat yields fourfold. We do not want a road or a hospital. Our only demand is that the price of fertilisers should be reduced so that they may be used by more of our farmers who have small holdings. We are

(Continued on Page 18)

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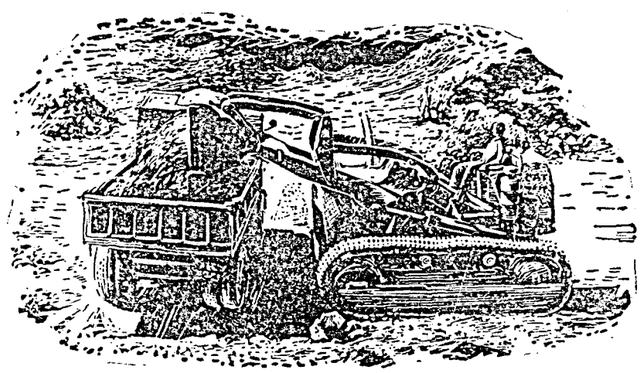
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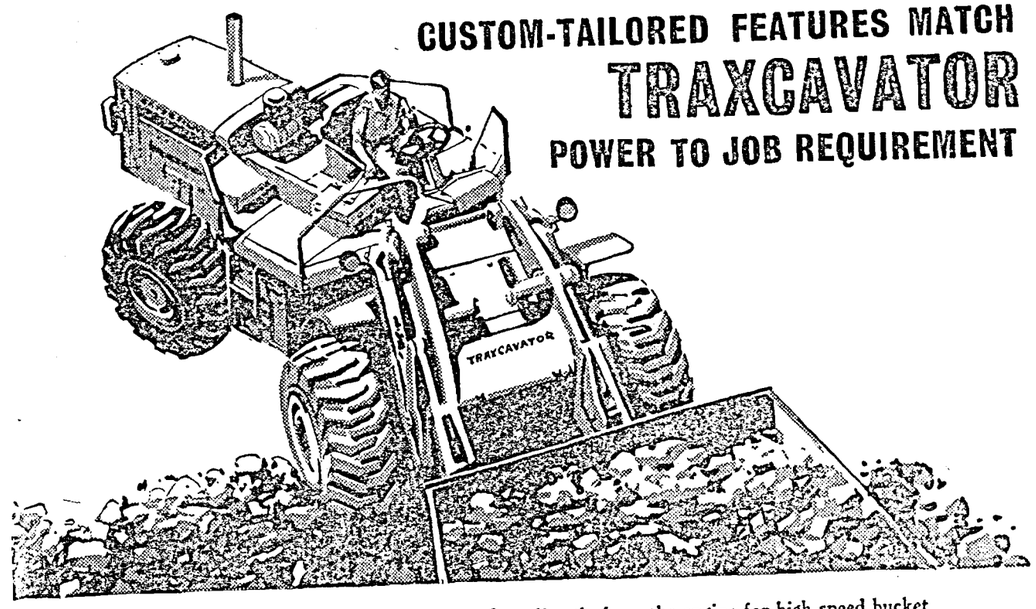


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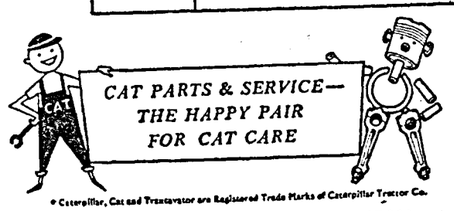


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ENTRUST RURAL INDUSTRIES TO ZILA PARISHADS

Block-Level Samitis Can't Run Them

RAM K. VEPA

WITH the complete coverage of the non-municipal areas by the Panchayat Samitis and the increasing transfer of functions to self-governing bodies at the block level, the specific role of the Zila Parishad (the district-level body) in States such as Andhra Pradesh has become a matter of some doubt.

Many of the Parishads have begun to feel that they are redundant and that they fulfil no useful function. There have, in fact, been suggestions that they may be abolished. On the other hand, in Maharashtra, there has been a wide deviation from the policy of wholesale decentralisation and considerable powers have been vested in the Zila Parishad which has control over all the district-level officers dealing with development and is assisted by a senior IAS officer equivalent in rank to the district collector.

It is too soon to say whether the Maharashtra experiment will succeed. In creating a development agency independent of the district collector, it is likely that the loss is mutual. In any case, it would be seen in Maharashtra that the decision-making level is not the block, as was recommended originally, but has been pushed up to the district. In the majority of States where panchayati raj has been functioning, however, it is the block-level body that is regarded as the most important. The allocation of functions between it and the Zila Parishad is of some interest.

In Andhra Pradesh, one of the earliest States to introduce the panchayati raj programme, the Zila Parishads were entrusted with the main responsibility for secondary education. Minor irrigation schemes with a command area of less than 200 acres in each case were also looked after by the Zila Parishad but later were transferred to the Panchayat Samitis. Recently, the maintenance of major district roads has been re-transferred to the Zila Parishad from the Panchayat Samitis. In spite of it, the work load of the Zila Parishad is somewhat inadequate and meetings of that body tend to lack much substance.

It is felt that the allocation of functions between the three tiers of the panchayati raj—the Gram Panchayat, the block-level Panchayat Samiti and the district-level Zila Parishad—should be on a more rational basis so as to yield the best results. Besides providing adequate (but not too heavy) work loads to each of these bodies, the distribution of work should be such as to yield the desired results.

Broadly, it is felt that each of these three tiers of institutions should take up a different category of facilities. Thus, for instance, the Panchayat should look after basic amenities of the rural sector such as drinking water, village school, panchayat roads and rural sanitation. The Panchayat Samiti should be made responsible for programmes of increased agricultural production, improvement of cattle, and the running of middle schools and high schools. The Zila Parishad should be made responsible for the major "infra-structure" facilities such as communications, artisan training schemes, rural industries programmes, all of which involve greater technical know-how and skill, and special programmes such as the Package Programme. They should also be responsible for the formulation and implementation of area plans of the panchayati raj institutions and the general supervision of the Community Development programme in the district.

Rural industrialisation, for instance, is a field that has suffered greatly in having been allotted to Panchayat Samitis in the first instance. The failure of the programme has been due to the inadequate technical skill available to implement such programme. Although the funds provided are admittedly modest, they have been mostly spent on distribution of improved tools and common facility centres which have failed to make the slightest dent on the problem. It is suggested that the more logical institution to tackle the important and intricate problem is the Zila Parishad which has the assistance of several experienced district officers. The district body could also run training centres and engineering workshops to provide adequate number of artisans to man the industries programme.

In the Fourth Plan period, a sum of Rs 5 crore has been provided in Andhra Pradesh for development of rural industries under the 'Area Planning" schemes. The Khadi and Village Industries Commission also channels, through the State Khadi Board, funds to the extent of Rs 80 lakh annually. Thus about Rs 9 crore are available in the State for the rural industries programme, which works out to almost Rs 50 lakh for each district of the State. This should be utilised to generate a matching share capital from the public and a loan equal to the total equity capital.

Thus it would be possible to raise as much as Rs 2 crore for each district during the Five Year Plan period which could be used to establish 30 to 50 small-scale industries scrutinised and approved by an expert committee at the district level. Such a committee, headed by the district collector, and consisting largely of technical personnel and industrialists with close

(Continued on Page 18)

Quick Prick

A COLLEAGUE recently went to see his cousin in a small town, which has a temple of some note and two middle-sized mills.

Riding a bus on a smooth, *gul mohur*-lined highway he got down in front of the cousin's house.

As he entered the verandah he caught the smell of a spirit lamp and the glimpse of a syringe and needle being sterilised. He crossed the verandah into the inner room or 'hall'.

Even before he could ask his cousin "Hope everyone is all right?" the cousin said: "You didn't get the letter?"

"No"

"It probably reached your place after you left...So I took the liberty of getting the doctor over. Meet Dr.....Have a prick. Then we'll talk."

It turned out that our colleague was preceded by another visitor to the town—cholera. There had been many attacks and a few deaths, one in the very colony in which our colleague's cousin lived.

The prick over, the cousin said to our colleague: "Sorry for this kind of welcome. You know how glad we are to see you, but we were worried, with this thing raging all round."

Our colleague explained that luckily he had some immunity, having had a cholera inoculation just two months earlier, when he had gone out of India, and anyway he didn't mind another dose.

The doctor, an earnest young man who evidently was in need of a lot of sleep, turned out to be the town's health officer. Our colleagues cousin was also an official, but in some other department. In a small town, officials fall into one group, whether they like it or not, and they begin talking, and our colleague was an interested listener.

"I believe the District Health Officer was here today for a couple of hours."

"Yes, and he gave me a mouthful."

"What for?"

"For not having brought the situation under control. I told him our difficulties. I told him headquarters didn't send us stocks for three full days after I had reported the first attack. And a mere fourteen miles. We don't even have a vehicle to take the victims to the isolation hospital at district headquarters. Do you know, in our town hospital they keep the suspected cholera cases in the general ward!"

"What did D.H.O. say to that?"

"He listened quietly. I told him we had done our best. We have closed all the hotels. We are not allowing any milk or curds to come from the villages. Fortunately the schools are already closed for summer. I then told him the main problem we have...

"And that is?"

"To have the mill closed. Four deaths took place right within the mill, you might say. But they won't close it. I pleaded with the manager. But he put me off saying he has to ask the Director in Calcutta. Why, when the workers, who mostly live in near-by villages, said the village committee had forbidden them to go to work until the week-long worship that had been undertaken was completed, the manager sent his men offering inducements—like Rs 50 to all workers who will come in."

"But doesn't the Assistant Commissioner have power to close the mill for a week or two because of the epidemic?"

"He has. But I have tried at least ten times in the last five days to meet him. He sends word back he is too busy.".

How Indian ?

Mr. Balraj Sahni, the actor, has hurled a stone at Hindi enthusiasts.

He maintains that films in the non-Hindi regional languages are more Indian than Hindi films. His argument is that in seeking to entertain the amorphous mass, Hindi films have merely become copies of foreign films.

Mr. Sahni knows more about films than we do, but many of the non-Hindi Indian films that we have seen struck us as being obvious copies of the Hindi films. This was true specially of the songs. The tunes were the same, but the words changed with each province.



I GNORAMAN

Wants to Know

A Paper Corporation
is to be started;
but aren't
all of them
Paper Corporations?

Heart of Matter

The old argument that the capital of India should be transferred from Delhi to a place more central was heard again in the recent session of Parliament.

It is hard to see the point of this theory.

In these days of air travel, geographical equidistance has ceased to matter. Apart from that, what is plumb at the centre isn't necessarily accessible. The geographical centre of India, if we go mathematically by the longitude and latitude, is somewhere near Ambikapur in Madhya Pradesh. We have gone there, and, believe us, it is one of the least accessible of places in India.

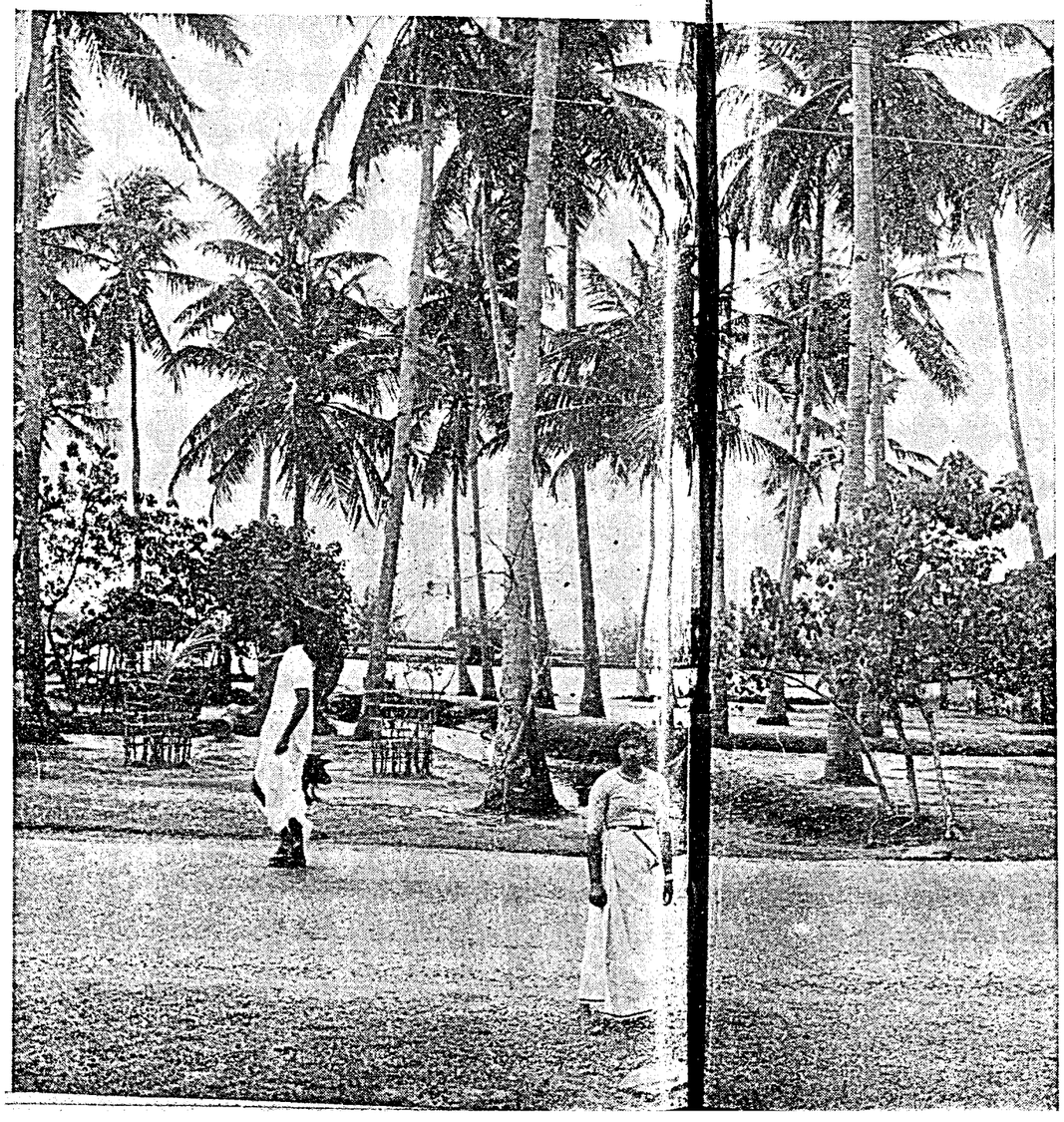
In the whole argument there is this usual mistake of taking a metaphor to be the truth. Governed by metaphor we feel that the capital should be at the heart of a country. But we forget that the heart itself isn't at the centre of the body. Its location isn't midway between top and toe. Also, much to the disapproval of conservatives, the heart is to the left of centre.

Anyway, isn't it better for a counry to be ruled from the head than the heart ?

4th PLAN OUTLINES OF STATES 5

KERALA PROPOSES 25 PER CENT RISE IN FARM OUTPUT

Country's Most Crowded State Wants to Lift Income to All-India Level



A typical Kerala scene of tall palms, people clad in white, and placid waters

THE Fourth Plan of Kerala State aims at an increase of 25 per cent in agricultural production. The outlay pattern is designed to take the per capita income in the State (which has the highest density of population in the country) to the all-India level.

The total outlay has been placed at Rs. 1,020 crore—Rs 442 crore in the State sector, Rs 326 crore in the Central sector and Rs 252 crore in the private sector.

Among programmes on which the Plan places stress are: intensive cultivation through improved practices, development of fisheries and poultry on modern lines, exploitation of power potential, establishment of a number of industrial units and encouragement to village and small scale industries so as to absorb the rapidly increasing labour force.

Improvement in the quality of education and technical training and a massive programme of family planning are also planned.

Kerala has several special features. Its average density of population is 1,200 persons per square mile. In the coastal areas the pressure is twice as much. The State has the highest percentage of literacy, half its population being able to read and write. The rate of growth in population has also been higher, which has resulted during the past few decades in a very high percentage of unemployment and underemployment and a very low per capita income.

The State is deficient in food grains and produces only half of its requirements. There is little scope for increasing the area under cultivation. Agriculture absorbs only 38 per cent of the working force, while the percentage is nearly 70 for the country.

The State lacks raw materials for basic industries. Traditional industries like coir and cashew employ low levels of technology and a large body of labour.

AGRICULTURE

The output of agriculture, as noted at the outset, is to be increased by 25 per cent. The two main crops, paddy and coconut, with half a dozen other crops—arecanut, tea, tapioca, rubber, pepper and banana —account for 80 per cent of the gross agricultural output.

Adoption of improved practices will form the basis for increasing agricultural production. Targets of consumption of fertilisers for 1970-71 are 250,000 tonnes of ammonium sulphate, 312,500 tonnes of super-phosphate and 100,000 tonnes of muriate of potash. If the prices of fertilisers cannot be brought down, subsidy will be given, at least for paddy cultivation. Two to three lakh acres will additionally be brought under improved seeds.

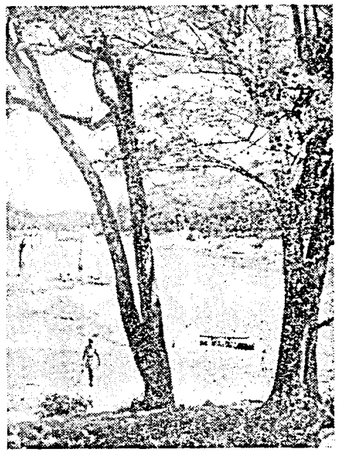
The Planning Commission's suggestion of setting up an agro-industrial corporation to popularise improved implements and co-ordinate activities in the industrial field to meet the needs of agriculture, is being considered. An extensive programme of pest control by providing supplies, credit and trained personnel may also be undertaken.

A sum of Rs 36.88 crore will be spent on agriculture.

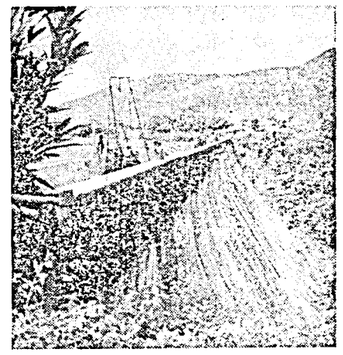
IRRIGATION

For minor irrigation, a programme of sinking wells (including filter point wells) and installing pumping sets has been drawn up, in addition to other schemes of regulating surface water. A provision of Rs 12.50 crore has been made for minor irrigation schemes which are expected to benefit an area of 1.32 lakh acres.

Major irrigation programme will cost Rs 25 crore. All spillover



Tourist attractions, like the Thekkady game sanctuary (above), will be expanded.



The Periyar dam. From Plan to Plan the State has more power and irrigation water.



The spice box of India, Kerala is sponsoring research in essential oils.

schemes of the Second and Third Plans, such as Pothundy, Meenkara, Periyar Valley, Neyyar stage II, Pampa, Kuttiadi, Chitturpuzha, Kanjirazha and Pazhassi, will be completed. It is also proposed to secure technical clearance of the Kallada project and start work on it in right earnest.

On the completion of the spill-over projects, an additional area of 194,000 acres will be brought under irrigation. A crore of rupees have been earmarked for detailed investigation of new schemes like Idikki, Kabini, Vamanapuram, Bhavani and Palakuzhipuzha, and another Rs. 1 crore for flood control works.

Sea-erosion has assumed serious dimensions in recent years. Anti-sea erosion works have to be undertaken on an extensive scale. For protecting at least 120 miles of the coastline, an expenditure of Rs 30 crore will be incurred.

Effective soil conservation measures in the catchments of the major river valleys has become an immediate necessity. Such works in the catchments of the projects like Idikki, Neriamangalam, Neyyar, Kanjirapuzha, Malampuzha, Cheerakuzhy, Kuttiadi and Valappattanam may be undertaken as Centrally sponsored schemes. Besides, soil conservation work will be undertaken in an area of eight lakh acres. Provision of Rs 3 crore has been made in the State sector and Rs 1.30 crore in the Central sector.

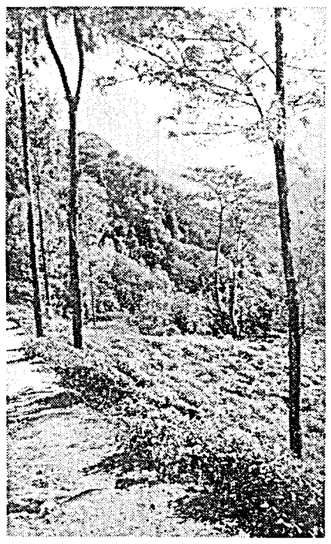
Other land development schemes like land reclamation and colonisation have been allotted Rs 1.87 crore in the State sector and Rs 1.10 crore in the Central sector.

ANIMAL HUSBANDRY

An intensive cattle development project has been included in the animal husbandry schemes. New schemes relate to intensification of key village activity on a package basis and promotion of cross-breeding and developing cattle feeds. A programme for the development of poultry and piggery on scientific lines is also contemplated. An outlay of Rs 7 crore is proposed.

The existing milk supply schemes at Trivandrum, Ernakulam and Kozhikode will be expanded and a new recombined milk plant with a capacity of 20,000 litres per day will be installed at Alleppey. Efforts will be made to increase milk production. Loans will be given for the purchase and distribution of cattle feeds. The outlay on dairy development is Rs 2.75 crore.

For the development of forests, schemes in the Third Plan will be continued. The programme aims at the extension of the area of teak plantations by 30,000 acres, of soft wood and fuel plantations by 20,000 acres each, of sandalwood and bamboo by 4,000 acres, and *anjili* by 1,000 acres.



Tea is one of the plantation products which loom large in the State's economy.

An additional area of 50,000 acres will be brought under eucalyptus plantation. Besides, the Government of India may be requested to include at least 1,000 square miles of the forests in the proposed survey. The outlay is Rs 5 crore in the State sector and Rs 1.67 crore in the Central sector.

Fisheries have an important place in the economy of Kerala. It has been suggested that a corporation may be formed with Central assistance for the maximum exploitation of fish wealth of Kerala.

The scheme of mechanised fishing boats will be expanded for increasing the catch, which is expected to be 9.5 lakh tonnes by 1970-71. In addition to completing the works at fishing harbours taken up during the Third Plan, many other suitable places will be developed as landing centres. Supply of modern fishing equipment and establishment of ice plants and processing units are considered equally important. The schemes will cost Rs 10 crore.

A sum of Rs 50 lakh each has been earmarked for warehousing and agricultural marketing.

CO-OPERATION

Proposals for the development of the co-operative sector will cost Rs 5 crore.

Primary agricultural credit societies will be expanded and at least 36 lakh of people will be brought within their fold. The short-term credit requirements of small ryots with holdings of less than five acres would be met in full, and of the rest to the extent of at least 30 per cent. The targets are Rs 30 crore of short-term credit, Rs 6 crore of medium-term credit, and Rs 8 crore of long-term credit. Other schemes include increased facilities for storage and marketing of agricultural produce and establishment of more wholesale consumers' stores.

The State has now been fully covered by the Community Development programme. In the Fourth Plan Rs 5.68 crore will be spent for financing schematic budgets of the blocks.

With the impending adoption of legislation in this regard, Panchayati Raj organisation will be the sole agency for rural development. Rs 4.32 crore will be spent on establishing Panchayati Raj.

INDUSTRIES

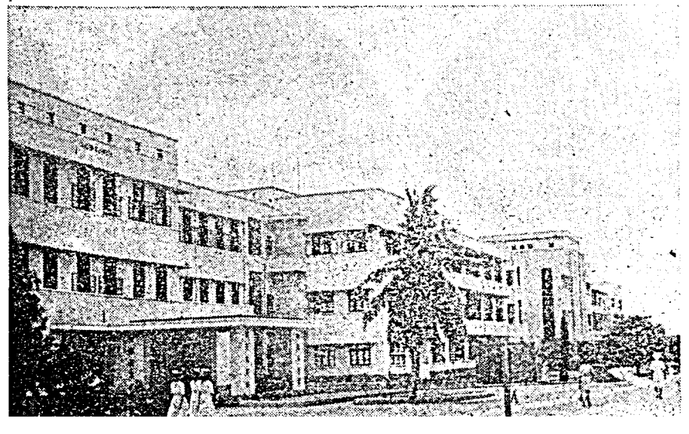
Industrial investment in the State in the Fourth Plan will be on a much larger scale than now, in both the public and private sectors. An outlay of Rs 38 crore is proposed from the State Government's own resources for setting up large and medium industries, plantation industries and mineral development. Besides, there will be an investment of Rs. 130 crore in the Central sector and of Rs 103 crore in the private sector. The plans, as drawn up, will take due note of the need for expansion.

In view of the low capital formation in the State, the State industrial financing institutions, like the Kerala Financial Corporation, the State Industrial Development Corporation and the State Small Industries Corporation, will be provided with more funds to enable them to promote the maximum industrial activity. It is hoped that some of the consumer industries proposed by the Government of India will be located in Kerala.

Schemes for small-scale and village industries aim at the introduction of improved technology at a cost of Rs 16 crore. Industrial units, complete with buildings and equipment, are proposed to be made available to small entrepreneurs on hire-purchase basis.

The schemes for coir development will bring all coir workers and small producers into the co-operative fold and establish sound institutional arrangements to finance them. Several new industrial estates will be set up, besides the expansion of the existing ones.





Onam, Kerala's No. 1 festival, is a harvest feast. Larger production would mean happier Onams. Below: Kerala nurses are popular all over the country, and the State's own health services are fast expanding. Seen is the general hospital of Trivandrum.

POWER

So far only 8 per cent of the State's power resources have been exploited. With the commissioning of the projects now under execution, nearly 21 per cent of the available potential would be utilised. Power schemes costing Rs 146 crore have been proposed in the Fourth Plan. Sabarigiri, Kuttiadi and Idikki projects will be completed. New projects include Edamalayar, Lakshmi, Silent Valley, Perinjankutty and Lower Periyar and a thermal plant costing Rs 12 crore.

TRANSPORT

Kerala has to depend more on road transport as railways are inadequate. There is need for increasing the road mileage as well as for improving the existing roads. Rs. 30 crore will be spent on road development. The need is to develop National Highway 47, which connects Cape Comorin with Salem, as well as the West Coast road, which is part of the Bombay-Cape Comorin road.

An outlay of Rs 7.53 crore has been suggested for the development of road transport.

Among Central proposals in this field are the laying of new railway lines and the development of the Trivandrum airport and of a new aerodrome at Kozhikode. The proposals for the railways include the conversion of the Ernakulam-Trivandrum line into broad gauge and the doubling of the Cochin-Coimbatore and Shoranur-Mangalore stretches.

The port of Cochin, which is the only major port in the State, will be developed to handle the traffic for the proposed oil refinery and the Cochin shipyard. The construction of a port at Neendakara near Quilon will be completed, and the minor ports of Kasaragode, Azhikkal, Tellicherry, Badagara, Kozhikode, Neendakara and Trivandrum will be modernised. The outlay for the development of ports is Rs 22 lakh in the State sector and Rs 163.50 lakh in the Central sector.

Inland navigation will also be developed at a cost of Rs 1.20 crore in the State sector and Rs 4.30 crore in the Central sector.

OVERLEAF

To attract tourists to this picturesque State, Bolghatty, Thekkady-Edappalayam and Kovalam will be developed as tourist centres. A five-storeyed hotel with 200 rooms will be built either at Bolghatty or at Ernakulam. Thekkady, famous for its game sanctuary, will be provided with more accommodation facilities. A tourist development corporation might also be established.

The state will spend Rs 1.05 crore and the Centre Rs 5.86 crore on the development of tourism.

SOCIAL SERVICES

The education programme will cost Rs 39 crore. Under primary education, schools will be opened for a lakh of new entrants every year. In the age group 11-14 the target of enrolment is 80 per cent. More teachers will be trained so that there is one teacher for every 35 pupils. The existing shift system in 2,800 schools will be discontinued. In the field of secondary education, the objective is to increase the enrolment in the age group 14-17 from 32 per cent to 35 per cent.

The higher education programme aims at providing facilities for 120,000 students. This number would be more than double the present total strength of colleges.

With regard to technical education, the intake capacity of the engineering colleges at Trivandrum and Trichur as well as of the polytechnics will be increased, and a degree course in textile technology provided.

Public health schemes aim at one bed per thousand persons and one nurse for every seven beds. It is also proposed to have one auxiliary nurse or midwife for every 5,000 people. Top priority will be given to family planning. As for medical education, post-graduate courses may be instituted in as many subjects as possible.

A provision of Rs 7.75 crore has been proposed for water supply and drainage schemes.

A number of welfare measures have been envisaged for the housing, education and employment of the growing population. A housing board may be established.

Schemes for the welfare of backward classes comprise grant of educational concessions, measures of economic uplift and provision of houses, water supply and medical care, at a cost of Rs 3 crore. A provision of Rs. 70 lakh is also proposed for programmes of welfare of women and children, rehabilitation and social welfare and training.

Facilities under national employment service will be expanded and 7,800 additional seats will be provided in the industrial training institutes. The Employees' State Insurance Scheme will be extended to two lakh workers.

(This article is based on Kerala's Memorandum on the Fourth Five Year Plan.)

MIRROR TO THE MOUNTAIN

(Continued from Page 9)

poor and have nothing material to offer you on your first visit to our village. We have, however, one gift to offer you, if you care to accept it. *We present to you, sir, the finest scene in the world.*"

So he concluded, pointing towards the reflection of the white snow-covered mountain in the pool.

"I accept your present with the greatest joy, my friend," I replied. "People come from long distances to admire the reflection of the Taj Mahal in the tank in front of it. The Taj Mahal is the creation of man, while your Dhauladhar is the creation of God. You have provided a mirror to the White Mountain so that she could admire her own beauty. Truly you have shown me the eighth wonder of the world, " I concluded with my eyes glued on the reflection of the mountain in the pool.

The Dhauladhar was admiring her own beauty, Narcissus-like, in the pool of water, which the people of Maniara had created by their labour. The beauty of the mountain was truly breath-taking. All the same I was left guessing which wonder I should admire more, the miracle of nitrogen on the crops, or the grandeur of the white mountain reflected in the pool of Maniara.

ROLE of ZILA PARISHADS

(Continued from Page 12)

knowledge of local conditions, will be in a position to evaluate the potentialities of each venture and appraise it critically.

Such an approach is likely to make a more appreciable contribution to the growth of rural industries than the attempts made so far. The basic weakness of the existing Community Development programmes in the industries sector is its inability to generate equivalent capital for the setting up of new ventures. It has been estimated that for every rupee the Government has spent, it has been able to attract only 75 paise from private funds, while the ratio should have been at least 5:1 between private and Government funds. It has been assessed by the Small Industries Extension Training Centre at Hyderabad that in a district with a population of one million, at least 500 new industrial enterprises will have to be set up during the next ten years if the concentration of industry is to be anywhere like that obtaining in rural Japan.

Similarly, in the matter of irrigation facilities, it is the Zila Parishad that should take on the responsibility for their proper maintenance rather than leave it to the Block-level body where local politics tend to play a great part. Similarly, the running of artificial insemination centres which serve more than one block should be the responsibility of the district level body. Thus the division should be rather on the specific functional level in each subject, the more basic ones being allotted to those nearest the people and the "infra-structure" facilities to the district body. Such an allocation, it can be seen, is more rational and will help each of these bodies to function with greater effectiveness than at present.

Dr Vepa, I.A.S., is Deputy Secretary, Andhra Pradesh Government.

KANAKADASA

Saint-Singer of 400 Years Ago

V. SITARAMIAH

THE Haridasas are Vaishnava saint-singers. Purandara and Kanaka, the chief among them, belonged to the fifteenth and sixteenth centuries and lived in the Vijayanagar empire. They came under the influence of Sri Vyasaraya, the influential *guru* of the Emperor Krishnadevaraya. Their songs did the work of social and spiritual enlightenment which the *vachanas* in their intense personal way did about the middle of the twelfth century in the Karnataka country. Whereas the *vachanas* were more revolutionary and set up a new Protestant Veerasaiva community, the Haridasa movement contented itself with an effort of cleansing the life of the people at the individual and social levels and directed men to thoughts of God and liberation from the trammels of life.

We do not know exactly the dates of birth and passing away of Kanaka; nor the exact place of his birth and expiry; nor the exact community to which he belonged. He was perhaps born about the closing decades of the fifteenth century and lived more than three score years and ten. His name is associated with towns like Bada and Kaginele, in the southern part of the modern Dharwar district, He must have lived for some time at Hampi to be participant in the life and enthusiasm of the pupils of Sri Vyasaraya. But he seems to have moved about many places of pilgrimage of Vaishnava importance, like Tirupathi and Udipi, though the God of his worship was chiefly the Adikesava of Kaginele which is his signature.

We do not also know whether he was a Kuruba, a shepherd (there is a song indicating it), or a Beda, of the hunter class, who would be having the appellation of Nayak. Smaller men twitted him on his birth and inferiority in social status. He seems to have smarted under it at first, but in the light of the larger understanding that came to him later he took that in his stride—and his strictures on men who made too much of the disparities of caste are no severer than those of Purandaradasa. He tells them the truth that quality of life should count more than birth, for what after all, is the caste of the Elements, of the Soul or of Life and the things that matter in spiritual life; honey and milk and the lotus are no less worthy as offering to God, even if they derive from a fly, animal flesh and from the slush of standing water!

Possibly, Kanakadasa was at first a follower of Sri Ramanuja and the

> In a quater-centenary tribute, a poet asks : Can the traditional faith serve us now?

doctrine of devotion which Tatacharya was propagating, for both of whom he had veneration and regard. And Kesava in some form or other is the deity of his worship—not Vitthala, as with the other Haridasas. But he does not get into the doctrinal toils of the Dvaita system such as those we find in Purandara and others.

That in spite of jealousy, resentment and intolerance of the orthodox followers of Vyasaraya, he won the affection and esteem of the great Guru is certain. More than a few anecdotes are current about how the Guru pointed to his greatness of spirit and worth. Two instances may be mentioned to illustrate it: the Guru seems to have distributed some fruit and asked the best among his pupils each to take a fruit and eat it where nobody could see him. Many were the exploits of others in narration as to how they finished off their fruit unseen by anybody. Only Kanaka brought back his fruit uneaten for he was at a loss to find a place where the eye of God was not.

Another episode is more crucial. A question was asked if anyone among the worthies there could attain to God and go to Heaven. The only one who answered was Kanaka, who, to the utter indignation and disgust of all, seems to have said, 'I might, if I went'—only the Guru understood the meaning; that if the 'I' in each disappeared, all might go to heaven. That was wisdom along with insight.

Kanaka, before he became a devotee of God, must have been a rich, prosperous and powerful chieftain, leader of the hosts, a mighty killer on the battle-field. His presence on the field and in the camps he says, put heart into the drooping spirits of his men even as it struck terror and confusion in the ranks of the enemy. He was followed with pomp, with a retinue, bugle and drum, with umbrella and fan when he moved among men, but one day, when possibly he had lost a battle and saw heavy death and destruction on the field, he gave up the martial life as unsatisfying and his conversion into the ways of the Lord saved him from all that might hold him prisoner to the earthly life and its limitations. A song, "Hari Ninna Paramartha", in Saveri, records it that the drop of water became a pearl through the *mantra* of the *guru* which redeemed him totally.

After that his life was a passage into purity and light, spaciousness and godliness. He moved about talking to others, and weaning them from wrong ways and directing men to see light and right and prove to men that if they did not let them into the temples and shrines God would appear to bless him wherever he was. That was exactly what happened at Udipi, where today we have a peep-hole through which all can see the Krishna image. The songs enshrine his faith, his attitude and his message.

If Purandaradasa had given up the life of a rich and grasping money-lender and taken to the ways of a *dasa* (a servant of the Lord), Kanaka

had converted himself from being a *nayak* (or a military chief) to being a servant of God. Poetically, Purandara is perhaps richer, more racy and concrete, and has more colour. There is more life and light-heartedness and humour and more milk of human kindness in him. Kanaka is deeper and sounds more learned and has a philosophical depth and reference which make his songs more serious in tone.

That is what makes songs like: Was I born out of myself?' (*Nanninda Vane Janisi Bandene*?) 'This body is yours even as this life is yours' *Tanu Ninnadu Jeevana Ninnadu*), or Is the Maya in you or are you in Maya?' (*Nee Nayeyolago Ninnolu Mayeyo*)—some of the profoundest in our language. There is cleverness and word-jugglery also, anecdote and reference and a lot more of puzzlement in some of his symbolic poems. But when he talks to men the words go home and his comparisons tell.

Technically, the structure of his songs continues to be the same as that used by Purandara (and the great Annamacharya of Tirupathi, an elder contemporary of Purandara): a refrain and its specialisation and a few verses in expansion and illustration. With the *raga* and *tala* indicated, *dasa sampradaya* retains the the traditional form till today. All through the songs, we feel we are in the presence of a person who has realised the essential truths underlying life with a mastery of the secret which can redeem it. If his heart was simple and tuned to the Lord it is the positiveness of this faith and the clarity of his understanding that strike us today as the supreme and compelling features.

But this is a religious solution—as it has been that throughout. Today we lack faith; our understandings are clouded; our intellectual, social and secular life burn with doubts and scepticism, while our external life is full of secular oppressions and deceptions on a scale which never seemed to beset the earlier centuries. Saints and singers and reformers through the succession of the ages have inweighed against crudeness and superstition, dishonesty and cruelty, sinfulness, selfishness and passion. There doesn't seem to be a respite from them, and the same message in principle is, perhaps, needed today as ever before.

But, since this age lacks religion, the type of faith that could redeem a Kanaka or a Meera, a Prahlada or a Nanda has no compelling power. The faith of an earlier time was simple and clear and total. The principles in guidance could be spoken freshly and frankly; the precedents were known; the sanctions were real and such as they could heed; the appeal to God and man and to the claims of the spirit was accepted but the sophistications of the modern age have made doubt and scepticism deeper.

The old solution doesn't seem any longer to convince, let alone be effective. The Vedas, the Smritis, the Puranas, the faith of the Middle Ages, the examples of older idealism are no longer items in belief or in regard. There are no claims of happiness in heaven or threats or terrors of hell which appeal to public opinion and conscience. If one was asked why one should be good, the old arguments seem to fail in function.

In this 400th anniversary year of Kanakadasa, we might, therefore, ask ourselves this question whether even if his demands and appeals are right, his type of argument and solution would still persuade. The world scene is beset with the same type of event but it doesn't believe in a God or a soul. W.B. Yeats's line:

> The best lack all conviction; while
> The worst are full of passionate intensity

seems truer of us than of many an other. In individual and in social life, in the life on the political, national, international planes, the principle of the Good has got to be analysed again and the impulses to conduct have got to be argued and established in a new way. Much more seems to have to touch chaos before modern life will be redeemed.

When we hear the songs of the *dasas* and the singers of the past, we envy them for their simplicity and the positiveness of their faith. It is hard—this task of redeeming a modern complexity; this modern sophistication. East and West have jointly to strive for it in the matter of impulse and conduct, organisation and idealism, for it is not only a Shaiva or a Vaishnava sect of the Hindu fold that is seeking direction. These religions, as religions, are hardly factors and forces in the current scene except as interest and pressure zones. It is the larger secular demand in India, of an Indian people or nation which comprises not only the warring, sectarian Hindu elements, but the Muslim, Christian, Sikh, and other conflicting claims and the ideologies of the time that have got to be considered in any effort at reconciliation, understanding and solution. India has been a laboratory of religious experiment and cultural synthesis and call for it today is more difficult if at least as insistent. Celebrations like Kanakadasa's quatercentenary deserve to wake us all to the need.

I have said that before he became a servant of God, Kanakadasa was some sort of a chieftain; he must have done a lot of reading also and seems to be conversant with the literature in Kannada before his time and with all the conventions of writing. He is credited with a *Nalacharitre* and a *Haribhaktisara*, in the Bhamini Shatpadi, a six line verse form; with a short poem in praise of Narasimha; with a fairly large work called *Mohana Tarangini*, (in a song metre called Sangatya) in more than 40 cantos. There is another clever piece of work on the comparative excellence of Ragi as a grain, whose superiority is established over Rice; Rama himself awarding the certificate of merit and conferring his name Rama —Raghavadhanya—on Ragi. As contributions to literature, these are fairly good works, *Nalacharitre* and *Mohana tarangini* being substantial.

But Kanakadasa as Kanakadasa has value and validity as *par excellence* the singer of those great songs which calmed, and still partially can calm, the human spirit, giving it life and warmth. His assurance to the restless and anxious soul in *Tallanisadiru Kandya*, "God will protect and save all, there is no doubt about it", still appeals emotionally. But the implications of a scientific age and its impact on the national economic and political edifice threaten to rob the assurance of its power so to convince and calm. It is the tragedy of the time and of the human situation in India. One could believe in all this assurance and the effectiveness of the moral directive. Can one?

Books

INDIAN FEDERALISM

Essays on Indian Federalism—Edited by S. P. Aiyar and Usha Mehta. Allied Publishers, Bombay. 342 Pages. Rs. 25

N. Srinivasan

This is a collection of essays by different authors on some aspects of federalism in India edited by Dr Aiyar and Dr Mehta, Readers in the Department of Politics and Civics in the University of Bombay, and presented to Professor M. Venkatarangaiah who was the first occupant of the Sir Pherozshah Mehta Chair of Politics and Civics of the University of Bombay. The theme is well chosen, as federalism is one of the two areas in which Professor Venkatarangaiah was deeply interested and had made a notable contribution through his books *Federalism in Government* (1953) and *Competitive and Co-operative Trends in Federalism (1951)* and other papers. The book is a token of the deep affection and respect in which Professor Venkatarangaiah is held by his former students and colleagues.

The essays attempt to trace the growth of the federal idea in India, and survey the developments in the field of federal-state relations since the adoption of the Constitution that have tended to modify the federal system as visualised by its framers.

In the context of the goals of a Welfare State and democracy which India has set before herself, the character of inter-governmental relations—relations between the Union and State Governments and relations among State governments themselves—is a matter of the utmost practical importance. The implementation of vast programmes of economic and social development and the balance and development of the different parts of the country require co-ordinated and joint action by the Central and State governments in the country and a large measure of Central direction and control. The maintenance of national unity in the face of the challenge posed by differences of language, religion, caste and tribe also demands a powerful centre.

The classical federal model with its emphasis on the co-ordinate character of the Ceneral government and the governments of the component states of a federation, each exercising sovereign powers in clearly demarcated spheres of exclusive authority, would seem to be hardly adequate to India's special needs. Anticipating in some measure the problems of the future, the framers of the Constitution invested the Union Government with an amplitude of legislative financial and administrative powers without parallel in other federal systems. Under the impact of national planning which began after the Constitution had come into force, the powers of the Centre have tended to increase largely through executive action. This has been reinforced further by extra-constitutional party control of the Congress exercised over the party in the Central and State legislature and on the governments.

To some extent this is both inevitable and necessary in a country that is new to a planned economy as well as party government. But the question may be raised whether such an accession of power of the Centre is consistent with the maintenance of democracy and a federal system. Can such an accession of power take place without endangering the freedom and initiative of the States in the spheres allocated to them by the Constitution and considered essential to a genuine federal system? Both democratic and federal theory postulate that the autonomy of the States should be preserved and fostered. The escape from the dilemma posed by the needs of economic development and political unity on the one hand and democracy and federalism on the other is possible only through a balance between centralisation and decentralisation that assures the Centre the requisite power to maintain the unity of the country and effectively implement its plans of economic development and at the same time allow the States to function freely in the spheres allocated to them by the Constitution.

The problem is, in no sense, peculiar to India. In all federations the imbalance between revenue resources and functions of the Central and State governments under the constitutional division of powers has resulted in a large measure of federal centralisation. The component States have had to seek federal financial assistance to achieve a national minimum standard of social services such as education, health, social security and welfare. In these fields which fall within the

BOOKS RECEIVED

Nehru: The First Sixty Years. Volumes I & II. Dorothy Norman. Asia Publishing House. 638 and 618 pages. Rs 60 per set.

Design For Tomorrow by B.G. Verghese. Times of India Press, Bombay. 303 pages. Rs 11.

Studies in Economic Problems. General Editor S.K. Basu. Asia Publishing House. 256 pages. Rs 28.

Town Planning in Maharashtra, 1914-65. Published by The Town Planning and Valuation Department, Government of Maharashtra, Bombay. 80 pages.

Indian Rural Economics by S.C. Jain. Published by Educational Publishers, Hospital Road, Agra. 234 pages. Rs 7.50.

Agricultural Demonstration and Extension Communication by Ram Krishan. Asia Publishing House. 261 pages. Rs 15.

Britain—An Official Handbook 1965 edition. Published by the British Information Service, New Delhi. 584 pages+1 map.

Economic Trends and Indications 1965-66, Central Budget X-Rayed by Bhikha Lal Kapasia. Published by Economic Trends and Indications, New Delhi. 25 pages. Rs 3

Soviet-Indian Economic Co-operation 1955-65 by J. Sokolov. 60 pages. Re 1. Bhilai—Symbol and Portent by Girija Kumar Sinha. 92 pages. Re 0.50 paise. Both published by the Information Department of the USSR Embassy in India, New Delhi.

Agricultural Officers' Guide Book 1965. Published by the Department of Agriculture, Kerala. 195 pages.

The Control of Industry in India by L.A. Joshi. Vora & Co., Bombay. 265 pages. Rs 15.

The U.P. Co-operative (Quarterly) Journal, Oct-Dec. 1964 Vol. XXXX, No. 2. Published by The U.P. Co-operative Journal Quarterly, Lucknow.

Perspective Studies in Social and Political Forecasting, Vol. XI, No. 1, Jan-March 1965. Published by Indian Institute of Public Administration, New Delhi.

States power the latter have had to accept federal leadership and varying degrees of federal supervision and control. This new development, which has taken place in Western federal democracies during the last fifty years, has come to be described as "co-operative federalism".

The central thesis of the essays collected in this volume is that Indian federalism has also tended to develop in the same direction under the impact of national planning. The expansion of the powers of the Central Government in fields such as community development, agriculture, education, social welfare etc., illustrates this trend. These developments differ in degree rather than in kind from developments in other federations.

The essays in this volume cover the field only in part. They deal with the impact of community development, agriculture and social welfare, local government and the operation of the Emergency powers on Centre-State relations. Studies of other functional aspects of Centre-State relations in the fields of education, health, industries and over-all national planning and of the political forces like party and leadership that have a profound influence on Centre-State relations which would have made the book complete, have not been presented. The studies included achieve a high degree of competence. The analysis of developments in the field of Centre-State relations is objective and the interpretations offered are sound.

These essays are an excellent introduction to the study of the problems of Indian Federalism and the book is a valuable addition to the literature of political science in India.

Trade with North Africa

India-Africa Trade Series—Northern Africa. Published by the Federation of Indian Chambers of Commerce and Industry, New Delhi. 100 pages.

M. K. Ramamurthi

INDIAN Trade Commissioner's reports are happily supplemented by the survey of North Africa provided by the Federation of Indian Chambers of Commerce. Whether the development of trade will proceed on lines desired and expected may not be in much doubt, though competitive capacity is a major requirement in export trade. The private missions that have examined opportunities are optimistic because North Africa is changing and political ties are strengthened by the current preference for non-alignment.

The French and Italian connections with Algeria and Libya are not disappearing and trade has survived the withdrawal of political authority, as it has done in Morocco and Tunisia. If a common language like Arabic helps to define aspirations, the differences in culture between nomadic and settled communities are not to be overlooked. The Overseas Trade department surveys provide a familiar pattern for such reports as that of the F.I.C.C.I. and the background information is related essentially to economic analysis.

North Africa has closer association with Mediterranean countries like Spain. This is due largely to history. But the need for extensive capital is being satisfied by many countries. India, too, will have to furnish capital for local ventures as it has done in recent floatation of joint ventures in East Africa. Concessions may be available but local experience and knowledge have to be secured. Poor and undeveloped as the region may be, there is yet promise of trade opportunities especially in Libya whose oil exports to Europe have made the desert kingdom prosperous in recent years. In Morocco, tradition is a force to reckon with.

India's need for long staple cotton is satisfied by purchases from Africa and the rise of local textile industries in U.A.R. or Sudan cannot spoil the market for Indian yarn and piecegoods, if the customers' requirements are studied and Pakistani competition countered. There is perhaps a limited market for tea and coffee in North Africa but the demand for spices should keep growing as also that for vegetable oils. Outlets for electric fans, sewing machines, bicycles and diesel engines have been found by engineering exporters.

Trade agreements have helped to enlarge trade, and goodwill missions have found that development is

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Our Soils

Soils—An Introduction to Soils and Plant Growth (second edition) by Roy L. Donahue, 1965. Prentice Hall. 363 pages.

S. P. Raychaudhuri

The book treats of soil-water-plant relationships in two parts. The first part deals with: soil factors influencing plant growth including nutrient-supplying power of soils and areas of mineral toxicity and deficiency for livestock, man and plants; the physical properties of the soil; parent materials of soils and soil formation and classification; chemical and colloidal properties of soils and their classification; movement of soil water; and role of individual plant nutrients. The section on soil surveys and their use will be particularly useful to students of soil science for field work. The fundamentals of the important subjects of life in the soil and of organic matter have been described very lucidly.

The second part of the book is concerned with the application of knowledge of soils to problems of plant growth. This part deals with: lime and liming practices; fertilisers and their characteristics; use of fertilisers; soil and water conservation; irrigation; drainage; manure; compost; sewage; sludge and sawdust; and soil and plant diagnosis. At the end, the book contains useful tables on atomic weight and valencies of common elements, conversion factors, definitions of textural classes and a glossary.

The get-up of the book is excellent. It has been written in a clear and simple language and is illustrated with a large number of photographs and charts. Each chapter is followed by a useful summary, typical questions and references. Although the data and illustrations are mostly drawn from American literature, the fundamental principles of soil-water-plant relationship and the application of the knowledge of soils to problems of plant growth will be quite applicable under Indian conditions. There is no doubt that the publication will not only be very useful to students, teachers and research workers in soil science but will also serve as a reference book to the general workers in agricultural science in India.

Triple Role of

Andhra Agricultural University

It Will Educate Students, Inform Farmers and Conduct Research

C. V. H. RAO

SIX years ago Indian Agricultural Research Institute, New Delhi, was the only institute of higher learning in the field of agriculture in India. Though the Institute had been doing useful work since its inception in 1905, the facilities provided by it were not adequate to meet the increasing demand for higher education and research in agricultural science. To meet this urgent need, the Government of India decided to set up a number of agricultural universities all over the country.

These universities were not to be mere seats of learning and scholarship, but were also to assume a large measure of responsibility for the economic development and improvement of the status of the rural population of the State in which they were situated. Besides being seats of learning, they were to be of service to the farmers.

The first such university was established at Pantnagar in Uttar Pradesh in 1960. Then followed the universities at Bhuvaneswar, Ludhiana, Udaipur and Hebbal near Bangalore. And on March 20 this year, the Andhra Pradesh Agricultural University was inaugurated at Rajendranagar near Hyderabad by the Prime Minister of India. Constituted under an Act of the Andhra Pradesh Legislature, the university aims at providing an integrated system of teaching, research and extension, "so that the fruits of research can flow into the fields and the problems of the farmers are transmitted back to the teaching and training centres for solution".

The Agricultural University's main function at present is to train students for a degree in agriculture and to provide facilities for post-degree training. For this purpose, six institutions—three agricultural colleges at Rajendranagar, Bapatla and Tirupathi, two veterinary colleges at Hyderabad and Tirupathi, and the Home Science College in Hyderabad—have been transferred to the control of the university. As an initial step towards the integration of the courses in the three inter-allied disciplines, a college of basic studies in agriculture, veterinary science and home science, has been set up.

Blending of Theory and Practice

In the sphere of teaching, the university has been experimenting with schemes which provide for a harmonious blending of theoretical instruction in agricultural science and practical application of the theory and assessment of the results of instruction. The assessment of the students' work is frequent and continuous; and to the extent the universityauthorities enlist the purposeful co-operation of the students in the implementation of the scheme, it should bring about a highly desirable and significant change in the attitude of students towards studies and obviate waste of effort.

To impart practical training to students in scientific agriculture, there is a well-established Agricultural Research Institute in the neighbourhood of the university college at Rajendranagar. Spread over about 500 acres of land, the Institute has well equipped laboratories, a cattle breeding centre and dairy farm, and a complex of training centres for community development and extension personnel.

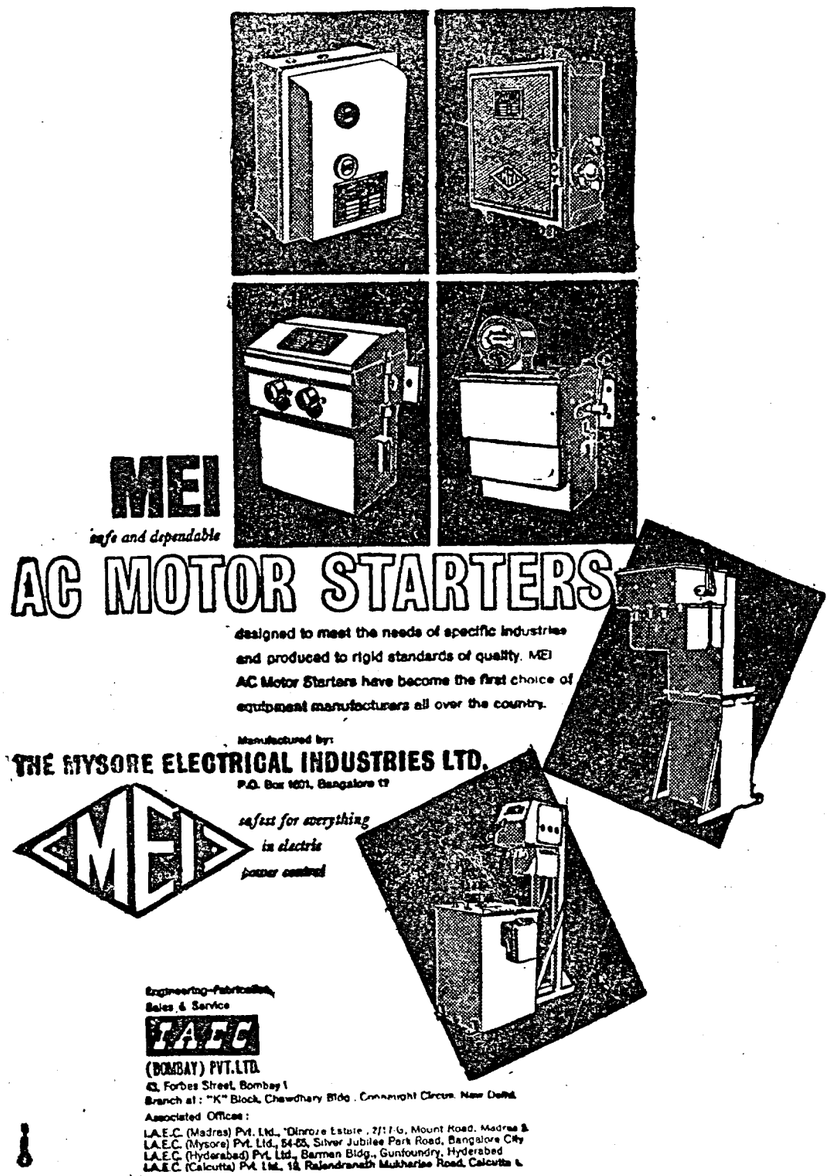
Of the three agricultural colleges affiliated to the university, the college at Bapatla is the oldest and best organised. It has more than 20 years of teaching experience behind it and has adequate facilities for practical demonstration work. The college at Tirupathi, located in a proverbially backward and drought-ridden area like Rayalaseema, has an important role to play in toning up agriculture in that area. The Rajendranagar college, which constitutes the nucleus of the university, has been in existence for nearly 20 years and has been playing an important part in the promotion of agricultural education and in providing facilities for post-graduate studies. An extension education institute, started in 1962, is attached to the Rajendranagar college. Altogether the three colleges have a total annual intake capacity of about 300 students.

The veterinary colleges at Hyderabad and Tirupathi have an annual intake capacity of 140 students. They are well equipped with laboratories and have facilities for practical work. The Home Science College at Hyderabad, which admits 30 women students every year, has at present a total of 140 students on its roll. It provides teaching and practical training facilities, leading to a degree in home science.

As the various institutions, now under the aegis of the Agricultural University, were earlier under three different universities, common courses of study, syllabuses and standards of examination have been evolved.

Of the three declared functions of the university, the most important and ultimately most significant one is extension, involving the communi-

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Fertiliser Demand up by 50 per cent in One Year

PRODUCTION of fertilisers in India was 2.24 lakh tonnes in 1963-64, an increase of 5,000 tonnes over the previous year's.

The consumption of nitrogenous fertilisers is estimated at 5.91 lakh tonnes in 1964-65, an increase of 2 lakh tonnes, or 51 per cent, over the previous year's. The consumption of phosphatic fertilisers also is expected to have reached 1.80 lakh tonnes from 1.40 lakh tonnes in 1963-64.

The Sindri Fertiliser Factory earned a net profit of Rs. 2.37 crore for the five years up to 1963-64.

CHANDRAPURA'S UNIT II READY

The second unit, with a capacity of 140 MW, of the Chandrapura thermal power station of the Damodar Valley Corporation, has begun trial runs. The third unit of the same capacity is being installed.

The power-house will be expanded in the Fourth Plan to increase its total capacity to about 1,000 MW.

New Loan Agreements

During the first quarter of 1965, India signed agreements for foreign loans amounting to Rs 137.85 crore including Rs 100.5 crore from the Soviet Union for the Bokaro steel plant. This brings the total to Rs 3,462 crore of foreign loans so far, excluding assistance from PL 480, drawals from International Monetary Fund and all grants.

India had signed agreements for loans of Rs 3329.65 crore with 17 countries and two international agencies (I.B.R.D. and I.D.A.) up to the end of 1964. Of these loans, Rs. 2149.78 crore had been disbursed and equipment and stores worth Rs 2804.74 crore ordered.

Among the countries, the U.S.A. gave Rs 1121.35 crore, West Germany Rs 405 crore, the Soviet Union Rs 383.81 crore, the U.K. Rs 321.96 crore and Japan Rs 144.96 crore, besides I.B.R.D.'s Rs 403.41 crore and I.D.A's Rs 230.93 crore.

As The PLAN Moves...

SNIPPETS

NEW PAPER MILL AT AMLA

POWER-HOUSE AT AMARKANTAK

Hindustan Insecticides, Delhi, produced 1480.28 tonnes of technical DDT in 1964-65, the second best production during the past ten years of its working...India's biggest paper mill has gone into production at Amla in Madhya Pradesh. Built in the private sector at a cost of Rs 17 crore, the mill will produce 2,000 tonnes of paper daily...A thermal power station, with an installed capacity of 60 MW, has been commissioned at Amarkantak in Madhya Pradesh. It cost Rs 12 crore...Maharashtra and Madhya Pradesh have agreed to build jointly a hydro-electric power-house on the Narmada river at Jalsindhi in Dhulia district of Maharashtra...A wagon repair workshop will be set up at Raipur in Madhya Pradesh at a cost of Rs 6.37 crore. It will overhaul 30 wagons per day...The Bombay Port Trust earned a net profit of Rs. 1.50 crore in 1963-64...Exports of fish products were valued at Rs 7.15 crore in 1964-65, an increase 1.07 crore over the previous year... India exported pure silk fabrics valued at Rs 2.23 crore in 1964. The U.S.A. and the Soviet Union are our biggest customers...The strength of the junior division of the National Cadet Corps is to be doubled to six lakh cadets this year.

CENTRAL BOARD FOR HOUSING

A Central Housing Board is to be set up to co-ordinate the activities of the State Housing Boards and to accelerate the construction activity throughout the country. Over 3.47 lakh houses have been built so far under different housing schemes and Rs 71.27 crore were spent during the first four years of the Third Plan. Besides, 1,45,565 tenements have been built under the subsidised industrial housing scheme and 92,000 houses under the low-income group housing scheme.

U.S. CREDIT FOR PRIVATE INDUSTRY

The Industrial Finance Corporation of India (IFC) has received a credit of 10 million dollars (Rs 4.76 crore) from the United States Agency for International Development (USAID). The credit will enable IFC to give dollar loans to private industries for importing equipment, materials and services from the U.S.A.

The credit will be repaid in 15 years in rupees to the Government of India which in turn will repay it to the U.S.A. in dollars over 40 years.

IFC has received credit of more than Rs 19 crore from the USAID so far.

BRIGHT SPOT

BEL MAKES MORE

Bharat Electronics Limited, Bangalore, which doubled its output in 1963-64 (valued at Rs 6 crore) as compared to the previous year, further increased it to Rs 7.08 crore in 1964-65. The profit in 1964-65 is estimated at Rs. 78 lakh.

Rs 126 CRORE IN SMALL SAVINGS

The deposits in small savings in 1964-65 are estimated at Rs 126 crore. It is likely that the final figure will reach the previous year's total of 128.31 crore.

Maharashtra led with Rs 28.74 crore, followed by West Bengal with Rs 20.86 crore.

STATE PLANS: HOW TO IMPROVE PROGRESS REPORTING

K. V. NATARAJAN

VERY often a long-term plan has to be modified and adapted to changing circumstances. During the implementation of the plan, delays in the execution of some projects might necessitate modifications in other related projects or higher priority to some new projects not contemplated when the plan was formulated. Additional information and study might prove that certain projects are not likely to be so economical as thought earlier. Cost estimates also require revision. Timely modifications and adaptations are thus essential for an intelligent implementation of plans. Major changes in the Plan programmes were occasioned in India in the wake of the Chinese aggression and the mid-term appraisal of the Third Plan. Such modifications can be done only in the light of correct information about the progress in implementation of the plan programmes. An effective progress reporting thus becomes an inevitable part of planning and programming.

In India each State has evolved its own method of keeping itself informed about the progress of plan schemes and programmes and has devised various procedures for review of their implementation. However, no comprehensive study of the nature, content and frequency of reporting on the progress of programmes and projects has been made so far.

In Maharashtra, progress of plan schemes is watched through quarterly and annual progress reports. The responsibility of collecting data at regional, district and lower levels and of consolidating schemewise reports is placed on the heads of departments. These quarterly reports, after consolidation, are submitted to the Secretariat Department concerned, Finance (Planning) Department, the Bureau of Economics and Statistics and the Accountant-General.

For the district level schemes, each District Officer submits quarterly progress reports to the Collector and sends a copy to his Department. The Collector consolidates the progress reports for the district as a whole with the assistance of the District Statistical Officer and forwards three copies, one each to the Commissioner of the Division, the Finance (Planning) Department and the Bureau of Economics and Statistics. Similarly, for the Divisional level schemes, a Divisional Officer submits periodical reports to the Commissioner, who prepares a consolidated report for the Division and forwards it to the Finance (Planning) Department and the Bureau of Economics and Statistics.

A qualitative analysis of the data received in the block reports on inputs and performances is made by the Bureau of Economics and Statistics. As in other States, Finance (Planning) Department undertakes an appraisal during the middle of the term of a Five Year Plan. The Additional Development Commissioner, usually a senior official, is entrusted with the task of reporting and he undertakes field visits to improve the quality of the progress reports.

In Uttar Pradesh, reports on monthly expenditure on Plan schemes are submitted to the Finance Department with copies to the Planning Department. The Planning Department also receives quarterly progress reports from the departments on the utilisation of funds and on physical achievements against fixed targets. The Progress Assistant at the block level prepares the report which is forwarded by the Block Development Officer to District Planning Officer and the District Statistical Officer. The District Planning Officer consolidates them with the help of the District Statistical Officer. The Deputy Commissioner or the District Magistrate sends quarterly progress reports for the district to the Divisional Commissioner. A copy is simultaneously sent to the Director, Bureau of Economics and Statistics. The Divisional Commissioner sends a consolidated quarterly report for the Division to the Secretary, Planning Department. Finally, the quarterly progress report for the State is prepared in the Bureau of Economics and Statistics. The report of the Bureau is both qualitative and quantitative in content.

Uttar Pradesh has recently decided to reduce the number of items of progress reporting on certain key items like agricultural production. No mid-term appraisal of the Third Plan was attempted.

In West Bengal, progress reports on block plans are submitted quarterly to the Community Development Department by the Block Development Officers through the District Magistrate. There is, however, no system for reporting on the progress of the district plans. Even in the block plans, systematic progress analysis is done only in respect of agricultural items. The Bureau of Economics and Statistics is not involved either in progress reporting from the districts or its analysis at headquarters. A mid-term appraisal of the Third Plan was undertaken by the Planning Department in co-operation with other departments.

In Orissa, the Block Development Officers send monthly progress reports in the prescribed form to the district headquarters, which are reviewed by an Administrative Committee of officials and the Zila Parishad. Collectors send reports to the Divisional Commissioner as well as to the Government. An annual review of progress of Plan schemes in panchayati raj sector is made at the district level in a conference of the Development Commissioner with the heads of departments and the Additional Development Commissioner. At the State level the Planning and Co-ordination Department reviews the quarterly progress reports on physical performances and the monthly reports on expenditure. The monthly reports on expenditure also go to the Finance Department, and the State Cabinet is appraised of the financial position. A mid-term appraisal of the Third Plan was made in Orissa.

In Andhra Pradesh, there are at present 39 heads of departments for implementing various schemes included in the Plan. Plan units were established in major Departments such as Agriculture, Irrigation and Industries, for attending to the regular processing of plan progress data. In the Departments where there are no planning units, a part of the existing staff does the planning work. The reports received from various officers are scrutinised and consolidated in these units. Heads of Departments are required to report the expenditure on all plan schemes by the tenth of every month to the Bureau of Economics and Statistics which forwards the reviews to Government for approval by the 20th of every month.

A Planning Cell was established in the Bureau of Economics and Statistics in July 1957 to collect information and assess the progress of plan schemes periodically and to prepare various reports on plan schemes on a monthly, quarterly and annual basis. With the setting up of a separate Planning Department in September 1963, the Planning Cell was abolished.

The Planning Department scrutinises and analyses the data for consideration at the bi-annual meetings of the General Co-ordination Committee of Secretaries. The processed data and reviews are also sent to Government of India and the Heads of Departments and are considered at the meetings of the Departmental Co-ordination Committee concerned normally held once in two months. Six Co-ordination Committees have been set up for allied Departments. Since 1963, these committees also review the progress of the centrally sponsored schemes.

In addition to the General and Departmental Co-ordination Committees, an Informational Consultative Committee for the Panchayati Raj Department functions on the lines of a similar committee constituted at the Centre. Andhra Pradesh constituted in October last Informal Consultative Committees for five more Departments, namely Food and Agriculture, Industries, Education, Health and Housing, and Public Works. These committees consist of legislators drawn from both the Houses of the State Legislature. These committees meet once in three months.

Besides these bodies, there is also a State Advisory Committee for Planning which generally meets twice a year and reviews among other things the progress of the Plan. This Committee is the chief consultative body to advise the Government on the broader questions of planning.

Reporting on expenditure is done by the State Finance Department to the various Ministries at the Centre through quarterly expenditure statements for claiming Central assistance. Reports from all the Heads of Departments implementing the Plan schemes are obtained by the Finance Department. In order to avoid confusion in figures on Plan schemes, the departments have been advised to furnish only three sets of figures of annual expenditure, namely, provisional, revised and final on April 30, June 30 and September 30, respectively.

Main difficulty in plan implementation is with securing financial sanction for approved works without delay and undertaking all sanctioned works with requisite speed. The detailed procedure of financial sanction and control of expenditure varies from State to State, but it has been felt both by the Centre and the State Governments that better results could be achieved if timely operations are undertaken so that advance intimation of budgetary allocations to the concerned offices is given in time at different levels. Andhra Pradesh has evolved a procedure by which after the annual State-Centre plan discussions are over in November-December every year, detailed proposals are obtained from the Heads of Departments and processed so that sanctions could be issued within a month after the Budget is passed by the Legislature.

Material for progress reporting at the district and lower levels is inadequate. One of the means of reviewing Plan progress at the district and sub-divisional levels is the co-ordination meetings. Instructions were issued by the State Government to the Collectors to make the co-ordination meetings more meaningful by having detailed discussion with each B.D.O.

Since 1963, the preparation of the draft annual review for a district has become the responsibility of the District Statistical Officer. After completion of the review it is sent by him to the Secretary, Zila Parishad, who places it before the appropriate Standing Committee of the Zila Parishad for consideration in consultation with the District Officers concerned.

The Planning Commission has stated in the mid-term appraisal of the Third Plan that while arrangements for reporting in each State had improved, those relating to the reporting as between States and the Centre were not yet quite satisfactory. While various implementing departments have evolved their own arrangements in the light of their requirements for progress reporting, it has been recognised that no attempt has yet been made adequately to introduce a "Plan orientation" in the types of data reported and their processing at different levels. Only in respect of community development has progress reporting been systematised. It is also commonly agreed that there is need to rationalise and co-ordinate the reporting system in the districts and to analyse data at higher levels.

The Working Group on Evaluation felt that the Bureaux of Economics and Statistics in the States should be more closely associated with the administrative intelligence set up for all sectors, and that the Planning Departments in the States should use the services of both the Bureau and the evaluation agency for quarterly and half-yearly reviews of progress and for the mid-term and other appraisals.

One way of improving the quality of reports and reviews and making them effective would be to improve the working of the Bureaux of Economics and Statistics. The quality of staff in the Bureaux is not always uniformly good and in most cases they receive very little training in progress reporting. It may be possible for the Programme Administration Division of the Planning Commission to organise training courses for the staff of the Bureaux in the States with a view to making them participate intelligently in the reviewing process.

Agricultural University

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cation and channelisation of knowledge of agricultural techniques and skills to the lakhs of farmers in the villages.

This objective can be achieved by field demonstrations carried out by students in the agricultural farms attached to their respective institutions. Information about the results of agricultural research and of improved techniques and methods obtained in the extension and other research institutions should be disseminated through a series of publications written in simple non-technical language for the benefit of the farmers. The services of the graduates of the university, who would have received training in extension methods, can be utilised for the propagation of new techniques and methods partly on their own farms which they can run as model farms, and partly by their being employed in suitable capacities in the agricultural, animal husbandry, panchayati raj and social welfare departments of the State.

By far the most important means by which the university can maximise its usefulness to the agricultural community is by utilising the services of the extension staff in the panchayati raj institutions in the State to popularise knowledge of new methods and techniques in agriculture. To enable them to maintain continuous rapport with the panchayati raj extension staff, brilliant agricultural graduates can be recruited to supervisory positions in zila parishads, from which vantage position they can co-ordinate extension work in the rural areas. Simultaneously, selected extension officers in the samitis can be deputed for orientation training in the extension wing of the university.

Promotion of agricultural research is another function of the university. It can discharge its responsibility in this sphere effectively and successfully if the agricultural research stations and institutions located in different parts of the State are transferred to the control of or affiliated to the university. They should constitute its research wing. The transfer of research institutions to the university should be effected in a phased manner in the next few years.

On the tapis of the university's development programmes is the establishment of a college of agricultural engineering. Many problems of engineering significance are implicit in agricultural development as, for example, the manufacture of tractors and improved implements and equipment needed for diverse agricultural operations, soil conservation and soil testing. The college is expected to provide for specialised training in these subjects.

The pre-conditions for the successful implementation of the objectives of an agricultural university exist in Andhra Pradesh, with its predominantly agricultural economy and its fairly intelligent and forward-looking agricultural community. The benefits the university would confer on the State will depend on how these favourable pre-conditions are effectively utilised.

Having established the university, the Andhra Pradesh Government are professedly anxious to ensure its success so that it can play, as President Dr. Radhakrishnan said, "its vital role in bringing about a qualitative and quantitative increase in our agricultural production". The State Government have assured their full co-operation to the university authorities in furthering its objects and aims and a grant of Rs 1.5 crore has already been made by the Government to the university.

HAMARA HINDUSTAN

The 50-P BIT

I HAD a counterfeit coin. Unfortunately, I had no idea where it came from. It was a 50-paise piece, but I wondered if it could fetch even eight paise in exchange. People now-a-days are very hard to please. They do not look towards the profitable side of bargains in general.

Where did I get stuck with it, anyway? I thought of the places I had visited the day before. I had done quite a bit of roaming about. On a conservative estimate, there were eleven places from where I could have got it. I decided to visit as many of these places as possible.

The first of these was a stationery store. I knew the shopkeeper, for he supplied our monthly needs. Now, I resolved to look cold, dignified and distant. I tried my best. He, however, did not seem to notice the change. Anyhow, I produced the coin and said in what I meant to be a casual tone, "I believe that, through carelessness, you passed this to me yesterday." It sounded like a prayer, for all my attempt, I stopped short as I saw the expression on his face, and added hastily—"that is, I think."

The man inspected it, and calmly returned it to me. "Sir", he said, "If I accepted coins like that," (unusual emphasis)—"I would have to start pulling up stakes. Between you and me, if you ever run short of money, nothing would please me better than to..." I felt that the discussion was taking a rather unforeseen turn and that the time to finish it had arrived. I said apologetically, "Of course, it could be that I acted hastily. Perhaps I did not get it from you at all. Sorry to trouble you." "No trouble at all," he assured me. I came out of the shop in double-quick time. What a fool, I thought. Of all the people, what did make me pick on him?

Just around the corner was a little stall, and the old keeper was dozing. Ah, here was my man! The mind revolted at first: Cheating? Besides, he was a stranger to me. Why him? But the rational part triumphed over conscience: the fellows I met the day before—well, some of them were also unknown. It is the way of the world. Take or be taken. "Be taken" I had been. The first part had to be fulfilled.

So I strode confidently and bought a pack of chocolates. As I handed the coin, I tried desperately to act natural. But I felt almost sure he could hear my heart-beats.

But what he did, I had never dreamed of encountering. His senses did not enter the issue at all. "A moment, Sir." He then called a passer-by. "Excuse me, would you mind checking this? Can't see well, you see." The man, clearly, did not mind at all. He said almost triumphantly, "It's false." The old man seemed resigned as he declared, "This is what comes of trying to take a nap now-a-days. Our educated men, from colleges and schools, have peculiar way of paying. If a poor man had done it we would have taken him to the police." The situation was becoming awkward. "Counterfeit?" I said, "I hadn't noticed it." I even worked up some indignation. The stall-holder kept quiet, but his look said all that could be said in a civilised community. I produced another coin to settle matters quickly and walked away. I could almost feel the man's eyes on my shoulders.

To me it was now a challenge. The coin wasn't mine, and I must get rid of it. But who in his senses would take it? For a moment I felt like throwing it away. But no. It was sure to be found, and then some innocent fellows like myself might be cheated. Supposing it came right back to me!

I had done so much of worrying for the day that I had forgotten about a couple of things I had to finish. I got busy about them,and they took up the whole of the rest of the day. It was late evening when I turned my weary feet homewards. It had been a long, hard day, and not a very good one. The look on the blind beggar's face sitting under the deserted street lamp also expressed the same sentiment. Unconsciously, I put my hand in my pocket and handed him a coin.

About twenty steps later, I stopped. The counterfeit coin! I searched for it, but it was missing. It was that coin I had given to the man. I looked back and was about to approach him, when something in his manner made me stop.

He, apparently, was counting the day's takings. He was anything but blind. I crept closer. Soon I found him taking a coin, inspect it briefly, and throw it down the gaping drain, muttering an unprintable name. It was doubtless my 50-paise piece.

ASHISH BISWAS

SHAMBU by Malinda Topa



YOU ASK US WE TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

The Fight Against Corruption

S.G. Parmar, Jhansi

What are the steps taken by the Government to curb corruption rampant in the country?

ANSWER: The Union Home Minister recently stated that corruption in any sense was not more rampant in our country than elsewhere. However, we had to be more careful because we were struggling to emancipate the people from the sway of poverty and backwardness. We needed a high standard of integrity in our public services and among politicians to sustain people's morale and faith in democracy.

The steps taken by Government can be classified into three categories: administrative reforms, anti-corruption measures and the creation of a social climate of respect for moral values. The more important steps under the three categories are given below:

In the field of administration, delay is a potent instrument of the corrupt. A Committee on Administration of Secretaries to Government meets frequently to minimise delays and improve efficiency in administration. A Cabinet Committee is to be set up for reforming administration. Selected departments in the Central Government have set up teams to survey the organisational machinery and methods and procedures of their working.

Surveys of corruption in selected fields have been initiated. A survey of corruption in giving new water connections in Delhi has recently been completed. There was a Committee on Prevention of Corruption, whose recommendations submitted last year have mostly been accepted by the Government. The Government Servants Conduct Rules have been tightened. The Discipline and Appeal Rules are being revised. An Anti-Corruption Laws (Amendment) Act has been passed to cover a wider range of offences. A Special Police Establishment was set up to keep watch on cases of corruption. The activities of the SPE have veen greatly stepped up in recent years.

A Vigilance Commission has been instituted at the Centre, after which seven States have already established similar commissions and three more are following suit. Four other States have set up organisations on somewhat different lines. Also, an Economic Offences Bureau has been opened in the Central Bureau of Intelligence to deal exclusively with offences under customs, excise, drugs, gold control, etc.

To associate the people with the anti-corruption movement and to voice their grievances, a Sadachar Samiti of voluntary organisations has been formed. The Samiti has branches in a number of States. Its main function is to create a moral climate and promote ethical values.

The impact of these measures is gradually being felt. However, a more unified approach and concentrated action against corruption in coming months is being considered.

Education of Workers

P. S. Rajan, Guntur:

What are the facilities available in our country for educating the industrial workers on their role, rights and responsibilities in the industrial growth of the country?

What is the system of such education?

ANSWER: A programme of industrial workers' education is being implemented for the past six years. A network of workers' education centres has been expanding throughout the country.

The scheme of workers' education has been formed on the recommendation of an international expert committee, appointed by the Government of India in co-operation with the Ford Foundation in 1957. Accordingly, a Central Board for Workers' Education, consisting of representatives of Government, employers, workers and educational institutions, was set up in 1958 to implement the scheme.

The Board has so far opened 62 regional centres and 36 sub-regional centres all over the country and two lakh workers have so far been trained, including 5,000 as worker-teachers. It is expected that by the end of the Fourth Plan a million workers will be trained.

The training programme has three stages. In the first stage, training is given to education-officers who are full time employees of the Board. In the second stage, the education officers are posted at the regional centres where they conduct training classes for selected workers, who in turn become teachers for the ordinary workers. In the third stage, the worker-teachers organise primary centres at the place of work to impart training to workers.

At each stage, the training period is three months. As a part of the training, the trainees go on short educational tours to visit important projects, factories and trade unions. The Board has prepared a large volume of literature in the various regional languages for the information of workers.

(*Continued from Page 22*)

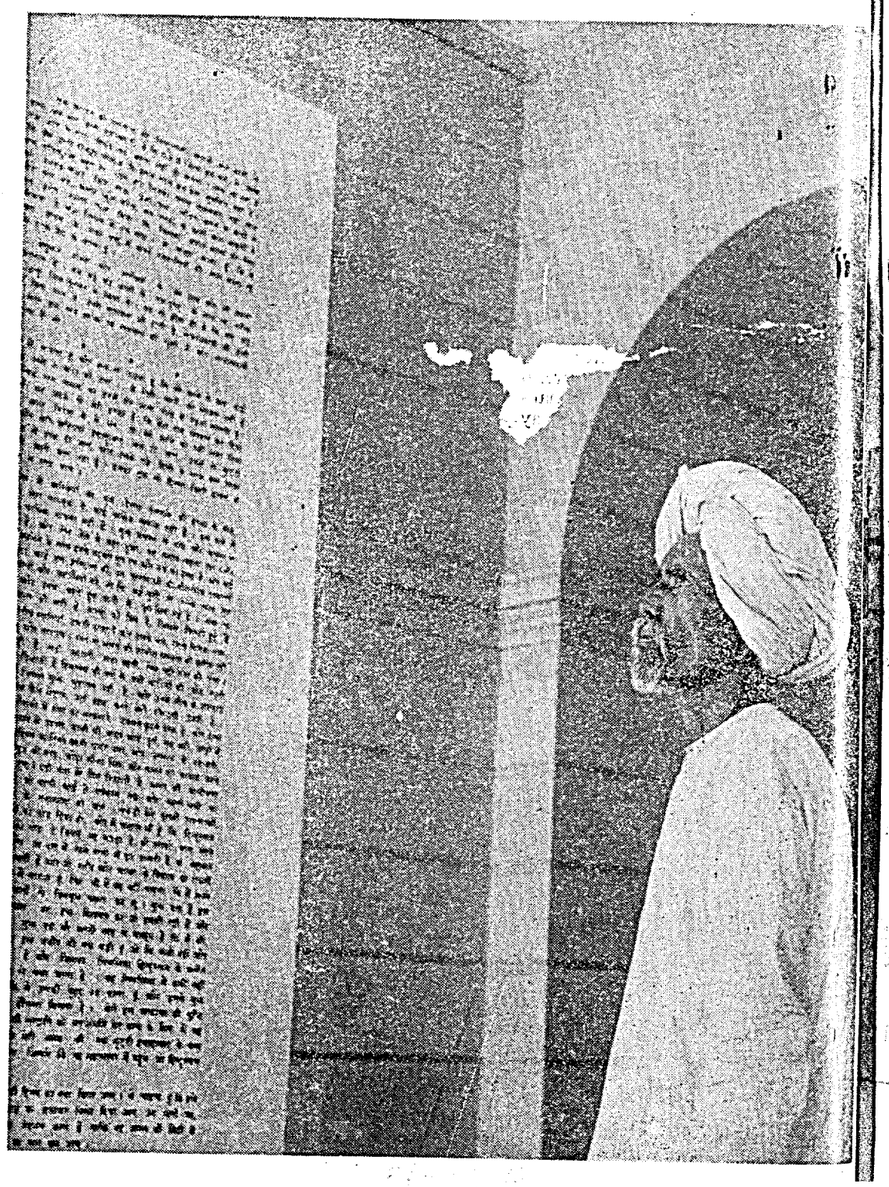
probable and possible. If India were to import phosphate rock for fertiliser production here under the new crash programme, the enlargement of trade will be convenient. We may not be able to provide a market for cheap Algerian wines, but we can improve tobacco exports, as also those of sugar, especially if South African supplies are reduced for political reasons.

Succinct, stimulating and practical, the F.I.C.C.I. report proves that business men can see the trees more clearly than the wood. As developing countries whose experience may not vary greatly from India's own record, the new republics and the old monarchies may make good trading partners, if India can arrange for rupee payment.

YOJANA

NINTH YEAR
11
JUNE 6, 1965

Words that have passed into history



A farmer from Pandharpur, Maharashtra, reading Jawaharlal Nehru's will and testament displayed in Teen Murti House, New Delhi



FROM EARLY BIRD TO EARLY BIRD

—Page 10

BIG CO-OP OF SMALL FARMERS

—Page 2

MORE ABOUT THE LOOP

—Page 17

"Many have been admired, some have been revered, but the affection of all classes of the Indian people has come to me in such abundant measure that I have been overwhelmed by it. I can only express the hope that in the remaining years I may live, I shall not be unworthy of my people and their affection."

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Chief Editor : H. Y. Sharada Prasad

25 PAISE

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THE COVER shows Damayanti, the heroine of early story, with a swan that carried a message from her to Nala, her husband. The famous painting by Raja Ravi Varma illustrates the article on Page 10 on Early Bird, the latest communication aid.

THE MAN FROM ZURICH

"Very hot," he said.

I nodded.

"This lime juice is no good," he said.

I looked at him across the narrow restaurant table. Plump young man. Twenty-eight maybe. Dress non-descriptive, usual Terylene shirt rolled above the elbows. A thin line of hair on the upper lip. Friendly type; unselfconscious.

But why was I stiff? Why did I refuse to be drawn into the conversation? Why was I behaving British? There is nothing British in me. I am wholly Swadeshi in education. I am Swadeshi in dress. And I do not think of table manners as being more important than food. And why was I being stuffy?

"Did you say the lime juice was no good? Then I won't order it" I said, making up for the early uncommunicativeness.

He didn't seem to have noticed either my aloofness or the deliberate attempt to be friendly.

"Where are you from?" he asked.

"Delhi."

"Ah, I was there last week. As hot as here."

"And where are you from?" it was my turn to ask.

"Heard of Zurich? I live in Zurich."

"What do you do there?"

"Earn my living. Work."

"Yes, but how?"

"What do you mean how?"

"What is your profession, your trade, your business?"

"Oh I see. I am a mechanical engineer. I work for a Swiss firm."

"On home leave now?"

"No, sales trip on behalf of my firm."

"Married?"

"No."

"Going to marry a Swiss girl, I suppose."

"*Baap-re*, No! Only a fool marries a foreign girl."

"Why do you say so?"

HAMARA HINDUSTAN

"Simple, you see. Our culture is so different. We have to keep on making all sorts of adjustments. Then where will we have the time? And then, one day or other we have to come back to India. Always better for an Indian to marry an Indian girl."

"Negotiations going on?"

"That's the trouble. You see we fellows who go out don't stand much of a chance. We are away from the local market when the best girls are going."

"Aren't your parents on the look-out?"

"That's another trouble. Like old days we can't let them handle things."

Hard luck, really. I changed the topic. "Tell me," I said, "you must have seen and worked with any number of foreign engineers and technical people. Are they much better than our fellows?"

"In brains we are as good as they are; more often we are better. But there is one big difference. And that is that they are more sincere."

"What do you mean sincere?"

"I give you an example. Last year I hired a man from India for our firm. A fellow from Madras. Bright chap, mind you. First class in chemical engineering from Madras. Very brainy. In brains I am nowhere near him. I honestly say that. Show him anything, he immediately understands it. Give him a problem, he will tell you what to do. I ask him to put it down; the fellow won't. Very lazy. His heart isn't in his job. His heart isn't in anything, in fact. The Europeans are different."

"Why don't you come back and work in India? India needs technical men."

"Go and tell it to someone else. India does *not* need technical men."

"What do you mean?"

"Every time I come here—and I do it once in six months—I see quite a number of my old class-fellows. Every one of them is miserable. They have jobs, they get pay; but they are not allowed to do any work. They are not given field responsibility; and they are not working on designing boards. Whenever a design is wanted you people buy it from abroad and get foreign technicians. Why do you want us?" S.P.

WORD FROM HILL-TOP

Great things are done when men and mountains meet.
This is not done by jostling in the street.

So said William Blake. In our own country the mountains have called men for centuries—but called them for contemplation. Pilgrims have scaled hills and icy cliffs in spiritual quest or pilgrimage. But the mountains have also lured those who have adventure in their heart. Jawaharlal Nehru, who called himself the son of the mountains although he was born in the plains, once sang the praise of mountains in these words:

"All of us have our choice of living in the valleys below, with their unhealthy mists and fogs, but giving a measure of bodily security; or of climbing the high mountains, with risk and danger for companions, to breathe the pure air above, and take joy in the distant views, and welcome the rising sun."

Risk and danger for companions. What an unusual, exhilarating phrase. It sums up the true spirit of daring.

As a monument to daring and youth and adventure, Indians have at last scaled the Everest, not once but thrice. We can even claim that more than half of all those who have ever set foot on the highest point of the earth have been either Indians or members of Indian teams.

The signal triumph of Lt. Commander Kohli's expedition comes a hundred and nine years after the Everest began to be called by the name. In the middle of the last century, surveyors of the Trigonometrical Survey of India measured the heights of a great number of Himalayan peaks. They found that one of them, Peak XV, was more than 29,000 feet and was thus the world's tallest peak. Years later, it was named the Everest, after Sir George Everest who had been the head of the survey organisation. In the region itself the peak had been known as Chomolungma, which in Tibetan means Mother Goddess of the Winds. To the Sherpa inhabitants of the region it had always been a holy hill, but fastidious scientists found that Chomolungma was the name of not just one peak but a whole cluster. Gauri Shankar, the name by which we refer to Everest sometimes, but wrongly, is 36 miles away.

While mountains have been there ever since man came on the earth, mountaineering, as an organised sport, is recent. It was only after the First War that climbing the Everest was recognised as a challenge to human courage and endurance. The first reconnaissance was undertaken only in 1921 by Colonel Howard-Bury. Many lives and 32 years later, the Everest was at last climbed by our own Tensing Norgay and New Zealand's Edmund Hillary, who were both members of a British expedition.

It was Tensing's eighth try. Thirty-nine years earlier, he had been born under the shadow of the great mountain, and a lama, forecasting fame for him, had advised his parents to change his name from Namgyal Wongdi to Tensing Norgay ('fortunate follower'). Even as a boy he had made up his mind to reach the top of the world. The peak eluded him. But he kept returning. "Seven times have I tried. I have come back and tried again, not with pride and force, not as a soldier to an enemy, but with love, as a child climbs into the lap of its mother." And on May 29, 1953, he and Hillary did it.

Tensing's feat became an event in Indian consciousness. This simple man gifted the country with a new pride, and opened new doors of the spirit. In the wake of his achievement, a Himalayan Mountaineering Institute was established, and an Indian Mountaineering Foundation. The Indian flag was placed on Cho Oyu, the world's sixth tallest peak, in 1958. In 1960 we decided to bid for the biggest of them all. Three members of Brigadier Gyan Singh's team almost made it. They were a mere 700 feet from the top. The expedition gave immense confidence to our people. Major John Dias led a second expedition which also had to turn back only 400 feet from the destination. And now we are third time lucky. What is specially remarkable is that we have touched the 1963 American team's record of sending three teams up.

It is a victory for Indian leadership, for Indian organisation, and for Indian ability to plan details and anticipate problems. We also manufactured within the country most of the needs of the expedition. But it should truly be seen as the well-merited victory of Indian youth.

Cheema, Nawang Gombu, Sonam Gyantso, Sonam Wangyal, C.P. Vohra, Ang Kami. Honest Indian and Nepalese names. Well-beloved names. Names that will be magic for a long time.

We salute them. We salute their captain, Kohli. We salute the members of the earlier expeditions. We salute Nandu Jayal, who gave his life to Indian mountaineering. And we salute Tensing, the inspiration for them all.

Asked to say why Everest must be climbed, Mallory had said "Because it is there." When Annapurna was climbed, Maurice Herzog said "But there are other Annapurnas in the lives of men". And Everest will always be there. Climbed could peaks be, but they will never be "conquered". As long as will peaks be there, adventure will be there too, in the human heart.

80,000 SMALL FARMERS' BIG CO-OP



Morning begins with milk in a Kaira village.

AMUL Has Many Firsts in Organisation & Technology

ANAND is a legend of modern India and a triumph of the co-operative sector. The dairy products that come under the name Amul are household words in all parts of the country. The maker of the Amul products, the milk Union of Kaira district of Gujarat, with its headquarters in the town of Anand, has been able to maintain its reputation for vision and venture, for organisation and service, by a determination not to rest on its oars but daily surpass itself.

In the last few months, the Milk Union has expanded its base, undertaken new lines of activity and doubled the dairying capacity. With the second plant in April, Amul can now handle half a million litres of milk a day. It also makes milk powder, condensed milk, baby food, butter, ghee, cheese and casein.

A milk train leaves Anand every day to supply a half of the milk distributed to Bombay citizens. The Milk Union also gives free milk to 10,000 pre-school children within the Kaira district.

But the Anand marvel consists not only in the *PLANT*, so neat and efficient, but in the entire *PLAN* of its organisation and work. The principles of self-reliance, service, and steady growth allied to a remarkable capacity to harness dairy technology, has made a big difference to the life of the district, and to the country.

YOJANA REPORT ON KAIRA SAGA BY EDITOR

The name Amul is short for Anand Milk Union Limited. By a happy coincidence, Amul means 'priceless' in our languages. But the full name of the organisation itself is Kaira District Co-operative Milk Producers' Union.

Kaira is Sardar Patel's home district. It was the Sardar himself who gave the first impetus to the Milk Union. Starting with just two villages in 1946 it now covers 425 out of the 497 villages in the district.

The 425 primary societies have a total membership of nearly 80,000.



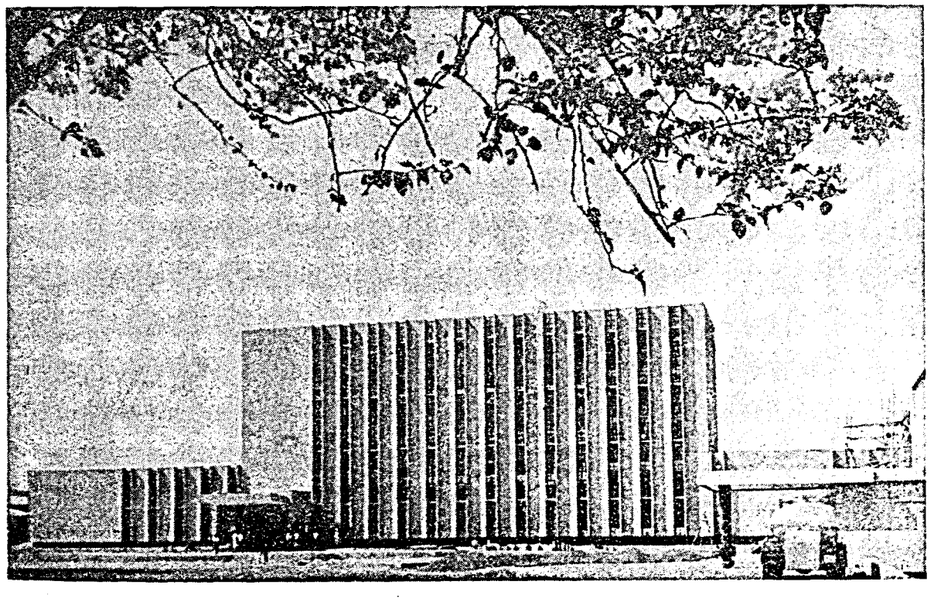
Mothers and daughters line up outside a village society carrying milk in shining vessels. Below : A view of Amul's second dairy, just inaugurated.

The members are small farmers, with an average holding of three acres. They keep a buffalo or two and sell their milk every morning and every evening to the village. Some 80,000 payments are thus made every morning and every evening.

The milk from each village is pooled together and kept in cans. Trucks call at appointed hours every morning and evening and take away the cans to Anand, where the milk is chilled, pasteurised, despatched or processed into products.

The village society pays cash to its members every day in the evening for what was bought in the morning, and in the morning for the previous evening's purchase. The cash transaction reduces red tape and does away with delays and doubts. The small farmer has an assured cash income, which is specially welcome in the difficult periods.

The society itself is paid twice a month by the Milk Union. The society, depending on its size, makes a profit of Rs 5,000 to 10,000, be-



sides getting its share of the profits of the Milk Union. Since the whole scheme is making profit, each society in turn pays its members an annual bonus of between Rs 30 and 60 in a lump.

The societies consist of 300 to 400 farmers who buy a share of Rs 5 or Rs 10, and pay an entrance fee of a rupee.

Last year the producers got nearly 4½ crore rupees from the societies.

"If the milk union had not been there," said Mr Narendrabhai Patel, the Milk Union's executive who deals with the primary societies, 4½ crore rupees' worth of milk might still have been sold, but the farmers would have got only 3½ crore out of it. The rest would have gone to middlemen."

The Milk Union gives the producers more. It also relieves them of worry about transport. They do not have to go to the buyer; the buyer, their own organisation, comes to their village. **All producers all over the district receive a uniform price irrespective of the distance of their village from Anand.** And it is the central union which bears the cost of taking the milk from the village to the dairy.

The total earning of the Milk Union in 1963-4 came to Rs 6.03 crore—Rs 2.70 crore from selling milk, and Rs. 3.31 crore from milk powder, baby food, butter and other products.

The national finances also benefited. In that year alone, the country was saved foreign exchange of nearly Rs 3 crore.

STEADY GROWTH FROM SMALL START

THE Kaira story is a story of organic growth from small beginnings. It is in the true Indian tradition of the banyan seed. The scheme was not born like Ghatotkacha who sprang out a full-blown warrior from Hidimba's womb. It was not imposed from above but built up from below.

As we saw, the Union came into being in 1946. By 1948 it had only two societies, which were supplying a mere 250 kg of milk to the Bombay scheme. Thereafter the movement grew rapidly, but by 1953 a stage had been reached when the Milk Union couldn't buy all the milk the villagers could sell. In that winter (—and winter production is two and a half times the summer level) the producers were faced with a serious problem.

It was then realised that if the Union embarked on making of milk products, instead of being content to despatch milk, it would be in a position to collect all the milk that its members produced throughout the year.

With the help of the United National Children's Emergency Fund and the Government of New Zealand, the Milk Union put up a dairy products factory costing Rs 50 lakh. The factory went into production in October 1955. A couple of years later the plant was enlarged to make condensed milk.

Again a stage was reached when technical capacity prevented further expansion of membership. It was at this stage that the Milk Union took up the project of making milk powder and baby food.

Amul was the first plant in India to produce these two products.

The pioneering effort did not just mean copying what had been done elsewhere. A scientific problem was also involved.

Until then milk powder had been made only from cow's milk. The properties of buffalo milk being very different, a good deal of applied research had to be undertaken.

Scientists of the Central Food Technological Research Institute at Mysore finally solved the problem. Their efforts and the Anand technologists' skills combined to give Amul two new sections. Cheese-making was also undertaken.

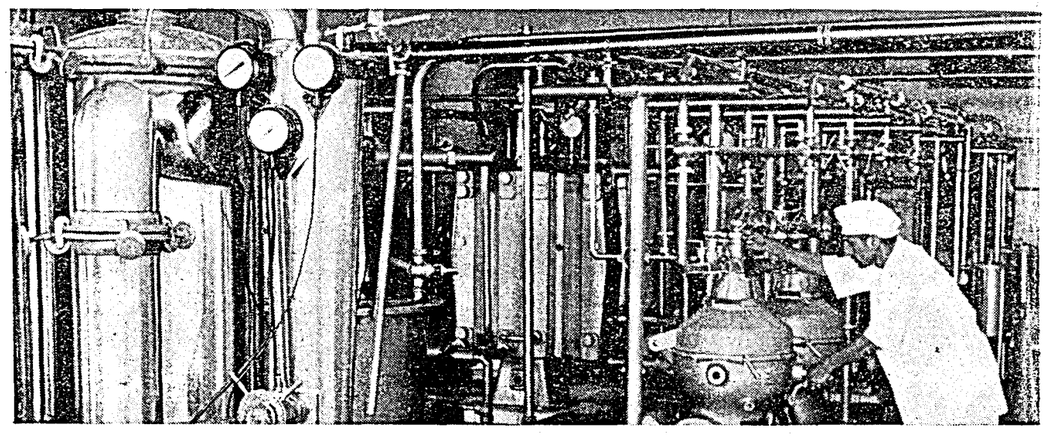
These helped the Union to expand further. In fact on a single day, the first of February 1964, as many as 102 new societies were opened.

And now a second dairy has been set up.

EXAMPLE THAT IS CATCHING ON

THE organisational and technological abilities of Amul have earned for it a high place as a training centre in dairy work. The Milk Union acts as consultant to the Gujarat Government. It has helped in the setting up of the Ahmedabad Municipal Milk Scheme and the Rajkot scheme. The Kaira example has spurred the neighbouring Mehsana district to set up a district milk union of its own, and Amul is helping.

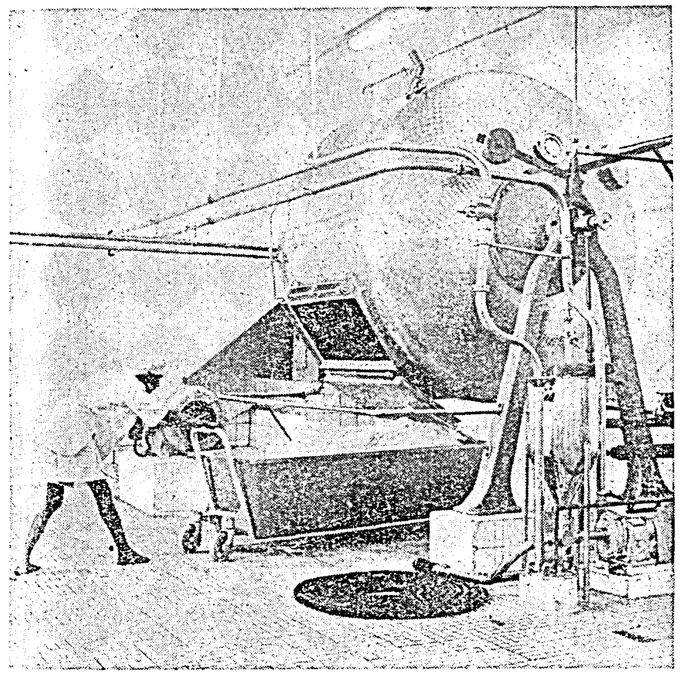
Amul's president, Mr Tribhuvandas Patel and the general manager, Mr V. Kurien have won many honours and recognitions. Mr Kurien became a 'Padma Shri' this year.



The pasteurisation plant at Anand

When a society is started, the central organisation takes on the responsibility of showing the secretary the ropes. A worker from either Anand or from an older society stays in with the new society for a couple of weeks and teaches the new men how to run the business.

Amul's team of 40 supervisors sees to it that the primary societies are kept in trim. When any particular society's affairs go badly, the Union might even step in to run it on behalf of the village.



The butter-making machine

WHAT is the relationship between the Milk Union and a constituent society ?

I asked Mr Narendrabhai Patel this, and he explained.

Each Amul society has a paid secretary belonging to the village. He gets a salary ranging from Rs 50 to Rs 150 depending on the size of the society. The society also employs three or four others—a measuring man, a clerk, and a man who carries out fat tests.

Payment is by fat content and not by the mere volume. Every vesselful of milk that is brought in is tested for its fat content in the presence of the member. This has kept the vice of adulteration away.

The central union also gives the village society a hand-operated fat-testing machine. Many societies later buy electrical ones. The central union also pays Rs 6,000 to a village society to build a milk collection centre. Many societies spend an additional Rs 10,000 from their funds to build the centres. There are nearly a hundred such buildings in the district, which also serve as centres of social activities.

TOWARDS IMPROVED CATTLE-BREEDING

OTHER highlights of the Milk Union's work are veterinary service, the popularisation of artificial insemination and the development of a ready-mix cattle feed.

The mainstay of Amul is the Surati buffalo. The breed may not look as stately as the Kankrej breed of cows, the dominant bovine variety of the neighbourhood, but it yields much more—1100 lb. compared to the Kankrej cow 450 lb. in a lactation period. The Surati breed is also smaller than the hulking Murrah of the Punjab. But the Surati gives milk with a higher fat content and consumes less fodder.

The Amul scheme has meant a big change to the Surati buffalo and its way of life.

When the lorries go to collect milk cans in the morning and evening they also carry small ice-boxes to the villages. Each ice-box contains buffalo semen for administration to she-buffaloes that might have come into heat.

The Amul organisation has nearly sixty pedigree buffalo bulls to serve the region. Collection, examination, dilution and storage of semen is done by trained staff.

The secretary of each village milk society is trained to administer the artificial semen. Actual pregnancy examination, however, is done by qualified veterinarians. The Milk Union has six mobile veterinay dispensaries. All the villages which have societies are visited at least once a week.

Not only the members' cattle, but the cattle of even non-members are attended free by the veterinarians. Only for emergency cases is a small fee levied.

The number of cases treated by mobile dispensaries in 1964-65 was 29,886 in addition to 42,195 first aid cases and 4,344 emergency calls.

The progress of artificial insemination can be seen by the fact that in the five years between 1960-61 and 1964-65 the number of insemminations went up from 9,077 to 31,582.

But a psychological battle had to be fought before this could be achieved.

The farmers did not at first take kindly to the idea of their buffaloes getting pregnant by a sleight of hand, as it were. Farmers' wives thought that their she-buffaloes were being denied their natural needs if they were artificially inseminated.

How was the prejudice overcome ?

The Milk Union did of course adopt the usual methods to publicise the advantages of artificial insemination. Simultaneously they undertook a survey of 200 villages in the district (paying the investigators ten paise per household) which showed that there was only one male buffalo for every 220 females.

This insufficiency was depriving the she-buffaloes of their chances of motherhood. Instead of calving once in 12 or 13 months, they were calving once in 18 to 19 months on an average.

The farmers could easily see this point. They could also appreciate the economic loss they were undergoing.

The Milk Union began inviting women from the villages to visit Anand and see how the milk plant was working. The visit included not only lunch but a look at the semen collection centres. The importance of improving quality and yield thus went home.

BALANCED DIET FOR BUFFALOES

ANOTHER venture in the direction of better cattle-care that the Milk Union has undertaken is the evolution of a new balanced cattle-feed.

The product is called Amuldan.

In addition to the staple ration of *bajri* stalks, cattle-owners of Kaira feed cottonseed to their buffaloes in order to obtain richer milk. The buffalo, however, does not digest (or need) such high oil content as cottonseed provide. The new balanced feed contains all the oil that a milch buffalo can assimilate plus cereals, calcium and vitamins.

The Milk Union has been able to prove that the farmer can save Rs 70 per lactation period by changing over to Amuldan. Then again, the feed is sold at constant prices, whereas prices and supplies in the cotton-



An illustration from the newsletter that Amul distributes among its 80,000 members

seed market are subject to wide fluctuations.

The Amuldan factory is located at Kanjari, eight kilometres from Anand. It has cost Rs 45 lakh and is housed in a seven-storey building.

The cattle-feed project has received help from the World Food Programme and the Oxford Famine Relief Fund.

To keep in touch with the individual members, the Milk Union publishes a newsletter in simple Gujarati. Seventy thousand copies of each issue are produced and distributed.

TANKS, CANS, TINS AND TUBES

IF you want to get an idea of how or why Anand ticks, you must let Dr Jehangir Contractor take you round the Amul plant.

He is the kind of person who is building the new India—young, highly qualified technically, full of drive, but with none of that tosh that characterised old-time administrators.

Dr Contractor is Amul's Manager of Production. As you walk with him, you will notice how fastidious he is about keeping his plant clean. You will also see him settle plant problems with the least fuss.

"Let's start with the laboratories," Dr Contractor says. "This is where everything that comes in and leaves this place is tested. Anything substandard is rejected. The quality control people are supreme around. Everyone of us has to bow to their judgement."

Crossing the corridor of the compact, unpretentious building, we come to the milk-arrival yard.

It is good to smell milk without smelling dung and urine. It is good to find milk cans resting on clean floors where you can see the colour of the cement.

Lorries after lorries; some that have emptied their cargo. Near by a "milk special" being filled; the train that carries to Bombay half the milk that the city's population gets from its milk scheme.

A maze of pipes and tubes transfers the milk to huge cone-shaped containers which chill and treat the milk. After each handling operation the flasks are cleaned chemically. So are the milk wagons returning from Bombay.

Then the drying plant which makes milk powder (mostly for the Defence Forces now) and the butter churners which make more butter in half a day than a hundred women can churn in a month, then the baby food plant, where you see milk in the form of dry flat sheets before it is powdered and reinforced with vitamins—it is a sweet-smelling milky way.

And a lucid commentary by Dr Contractor on the technological achievements of Amul.

The flavour changes as you enter the cheese section. Unlike Bengal's 'chhana' or the 'paneer' of the North, western cheese if fermented. And the tang grows as the cheese ages. Cheese has to be kept for nine months in chilled condition before it acquires the taste and smell that cheese-eaters love. Amul was the first in India to make cheese from buffalo milk on this large scale.

We are back again where we stated.

"I forgot to show you one other product we make. Here, smell it," Dr Contractor says and offers a glass beaker with a liquid looking like *til* oil.

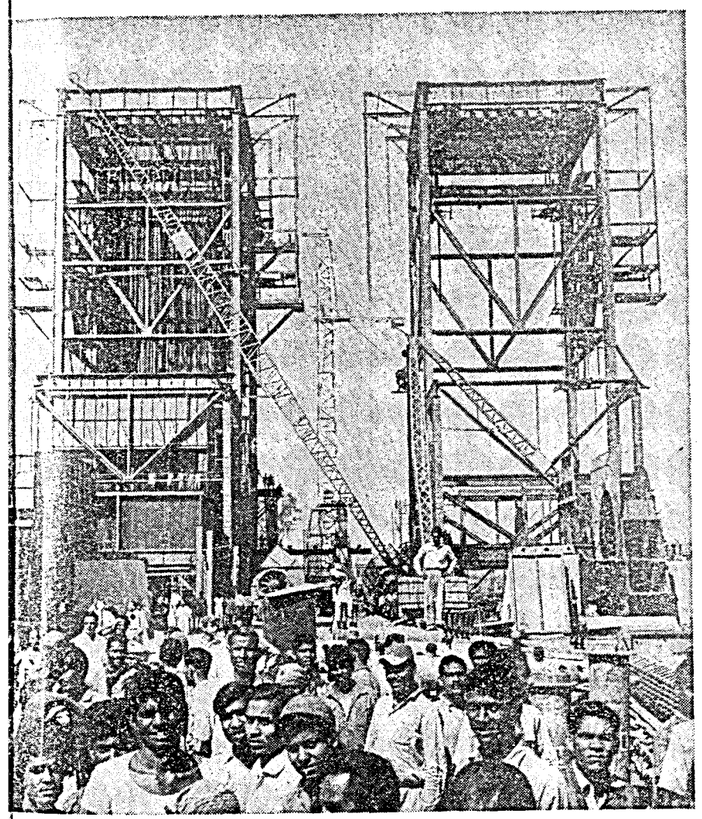
I smell it. Strong lemon smell. "What is it?" I ask.

"Oil made from the skin of limes."

"But limes are no friend of milk; what are you doing with limes here?"

(*Continued on page 26*)

MADHYA PRADESH CAN PRODUCE INDIA'S CHEAPEST POWER



The Satpura thermal power station under construction.

TREBLING OF CAPACITY IN SIX YEARS

Based on an article by Mr. S. N. MEHTA
Chairman, M.P. Electricity Board

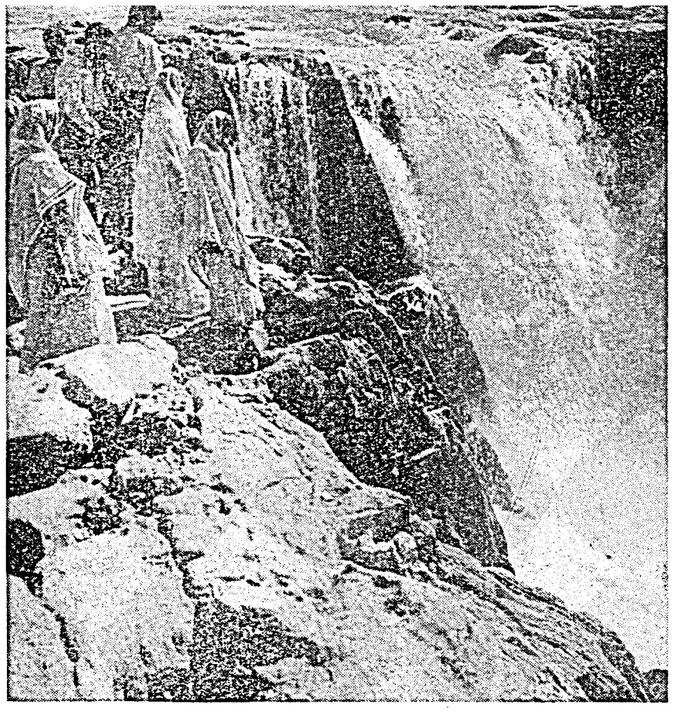
MADHYA Pradesh is making a big break-through in electricity. The recent inauguration of the 60-MW Amarkantak thermal station highlights the big strides that power production has made in the State. The State has extensive coal deposits and a large hydro-electric potential. Thanks to the forward-looking plans, the so-called industrially backward State is laying the basis for a dynamic growth in industries. Already Korba is supplying power to the renowned Bhilai steel works. Korba will also house the proposed 100,000-tonne aluminium factory which will have Soviet collaboration.

When Madhya Pradesh was formed, the biggest power houses of the old Central Provinces, those at Khaperkheda and Ballarshah, went to the Bombay State. Two major projects, the 69 MW Gandhisagar Hydel Station and 90 MW Korba Thermal Station were then under construction. They were completed during the Second Plan period, taking the generating capacity to 225 MW.

Another thermal project, the Amarkantak, had been launched as a part of the Second Plan; but, owing to foreign exchange difficulties, work on it had to be suspended. It was resumed at the end of the Second Plan. The capacity today is 325 MW.

Realising that industrial and economic growth should proceed unhampered by power shortage, the State took quick action in order to meet the short-term requirements of the Third Plan and early Fourth Plan period.

The quickest, though by no means the most economical, way to gene-



The Narmada fall near Jabalpur. The Narmada valley gives Madhya Pradesh immense hydroelectric potential.

rate power is by setting up coal-burning stations. These take three to five years to establish and generate power at 4 to 5 paise per unit at pit-mouth stations. Madhya Pradesh is very rich in coal resources. Of the 25,600 square kilometres of coal-bearing area, only 500 square kilometres or so have been prospected. Reserves amounting to over 2,000 million tonnes have been recently proved in a small portion of about 26 square kilometres in the Singrauli coalfield. In less than three square kilometres of the Korba coalfield, on which the Korba Thermal Station is based, 100 million tonnes of coal have been proved.

The cheapest source of power, however, is from hydroelectric stations. In addition to yielding cheap power, they provide irrigation for agricultural development. But hydro-electric works require larger investments and take longer—six to eight years—to materialise.

Madhya Pradesh has a hydro-electric potential of about 4,500 MW of which about 2,000 MW is concentrated in the Narmada Basin and about 1,500 MW in the River Indravati. The cost of generation from these sources has been estimated at 1½ to 2 paise per unit.

By a combination of pit-mouth thermal stations and hydroelectric stations on these rivers it would be possible to produce the cheapest power in India.

In order to give ourselves sufficient time to execute hydroelectric schemes during the Fourth Plan period, we decided to set up a 200 MW thermal station at Korba and 300 MW Satpura station of which 120 MW will be Rajasthan's share. The Korba station is expected to go into full production sometime next year. The first units of Satpura station will also be ready then; it will be fully commissioned in 1967.

The output of these thermal stations together with our share of Chambal, Rihand and Matatila hydel power will raise the total capacity to about 750 MW, an increase of over 250 per cent in the brief six years between 1961 and 1967. This will also meet the demands for the next six years or so.

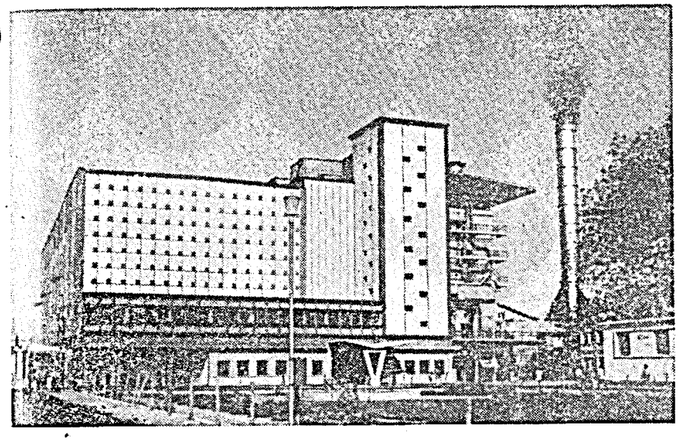
Meanwhile, with concentrated effort, it should be possible to complete one or two major hydroelectric projects on the Narmada and other rivers without interrupting industrial and economic growth. When they are accomplished, not only will the average cost of power generation be lower, but agricultural production will improve in the Narmada valley, reputed to contain some of the world's best agricultural and garden lands.

As regards distribution, there was hardly any network till the end of the Second Plan period. In a couple of years, there will be a 220-kv. grid line running through the heart of the State with 132-kv. line radiating north and south. This network would sustain large-scale development of our vast mineral, forest and agricultural resources.

The 300 MW Satpura thermal station, coming up on the northern slopes of the well-known Satpura mountains, a tract which was until recently the abode of teak and tiger, was conceived in the early 'fifties' along with Bhilai and Korba. The original intention was to locate it at the dam site of the Town project as a part of a complex consisting, besides, of a fertiliser plant, a low-temperature carbonisation plant, petro-chemical, elctro-chemical and other industries. But the execution of the Tawa project got delayed and as this project could wait no longer in 1960, we looked for and discovered the present dam site for an independent but smaller lake to serve as a cooling water reservoir for the power station. After the State Government's technicians had proved large reserves in the adjoining Pathakheda coalfield, the National Coal Development Corporation stepped in to work it. The reserves are so large that the capacity of the plant can even be expanded to 2,000 MW.

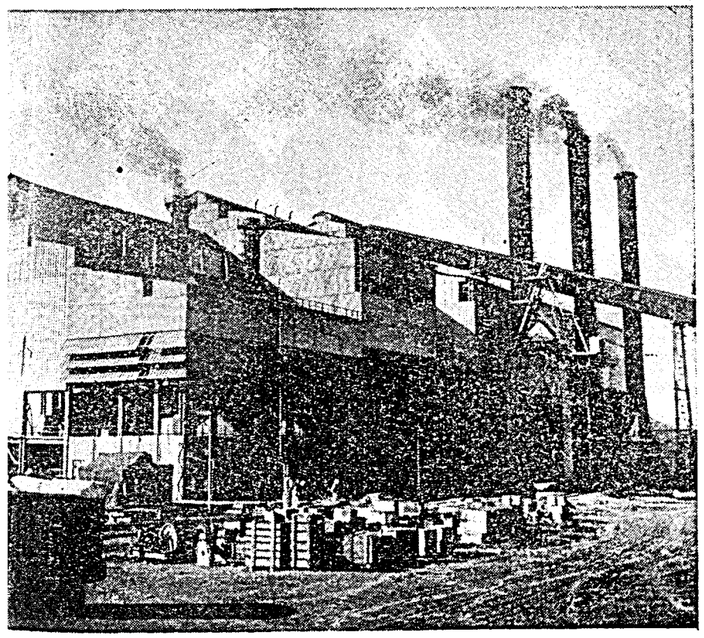
The plant in the first stage will consist of five boiler and turbo-alternator sets of 60 MW capacity each. Three of these belong to Madhya Pradesh and two will supply power to Rajasthan. The first set is expected to be commissioned by the middle of 1966 and all the five sets by the middle of 1967. The Rs. 37-crore project is being assisted by the U.S. Agency for International Development.

Studies have shown that the Satpura station, based as it is on the western-most coalfield in the centre of India, can serve Western India and also the Central region as far north as Delhi. It is also situated in the middle of the Narmada basin. The Satpura-Narmada system may, therefore, prove to be the most precious possession of Madhya Pradesh and the main source of the State's prosperity.



Above : The Amarkantak thermal power station

Below : A section of the Korba thermal station



BOYS AND GIRLS SPEND ROUGHLY THE SAME ON COSMETICS

How much does a college student spend on cigarettes ?

Most elders would say : more than he spends on books.

How much does a college girl spend on cosmetics ? A minor fortune, if you will believe the disapproving aunts.

Actually, a survey in Andhra University showed that cigarettes accounted for only 1.6 per cent of the expenditure of boy students. As for cosmetics, girls did not seem to spend much more than boys did for prettifying themselves. The beauty aid bill of girls added up only to 3.7 per cent of their total expenditure; the percentage worked one to 3.2 for boys.

These were some of the unexpected figures shown on a chart on expenditure pattern of the Andhra University students at an exhibition in Visakhapatnam.

Food and rent took the lion's share of expenditure for both the sexes. Boys were found to spend 36.5 per cent on food and 13.4 per cent on rent and girls 37 and 12.6 per cent respectively. The food bill included the money spent on coffee, tea and eatables.

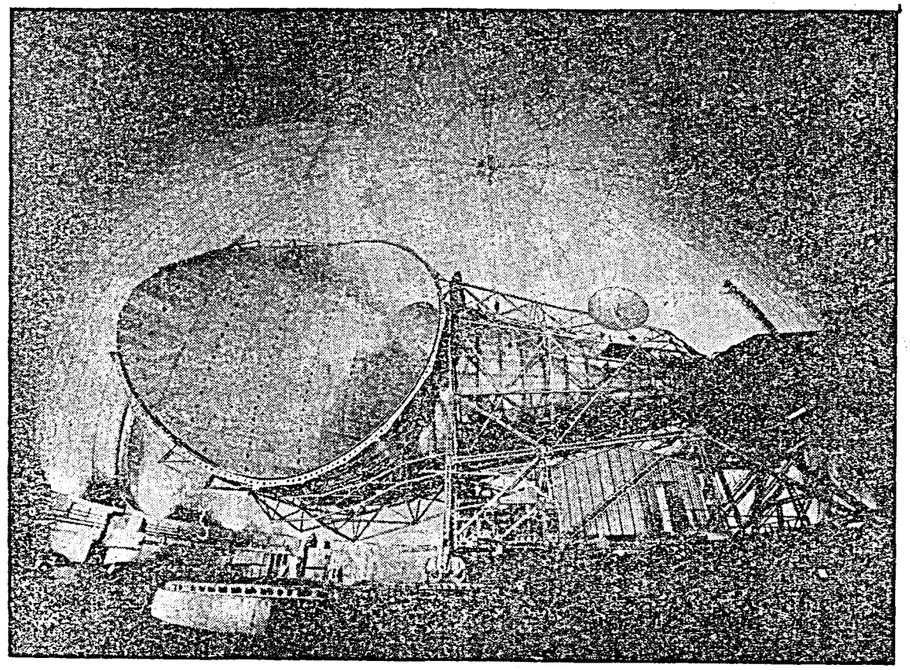
In the men's budget cinema took up 8.2 per cent. It was the fourth largest item of consumption in a list of 15 items. In the women's budget cinema, with 3.7 per cent, occupied the sixth place.

The advent of Terylene does not seem to have reduced the expenditure on *dhobis*. The washing bill for men was on a par with what went for cinema. Women appear to spend less money on washing charges, only 4.6 per cent of their budget: perhaps 'wash and wear' is easier with the sari. But women's expenditure on clothing was almost three times more than what the men spent.

Women also spent more on text-books—6.3 per cent of the budget, compared to the men's 3.2 per cent. But men spent more on magazines and newspapers (1.6 per cent) than women do (0.9 per cent).

A.G. PRASAD

A TALKING STAR



The Early Bird is seen on the facing page. Above is a horn antenna which commands the satellite. On signals from this antenna, Early Bird turns on its equipment to transmit telephone calls and television between North America and Europe.

SOME DAY, SOON, INDIANS WILL BE HELPED BY SATELLITE TO SEE & SPEAK TO REST OF WORLD

YOJANA FEATURE
BY ROSSCOTE
KRISHNA PILLAI

FROM the messeger-swan of the love-lorn king of Indian legend, Nala, to the world's first commercial communications satellite, the "Early Bird" launched by the United States in co-operation with 44 other countries including India, is a saga of man's progress from poetic imagination to scientific achievement.

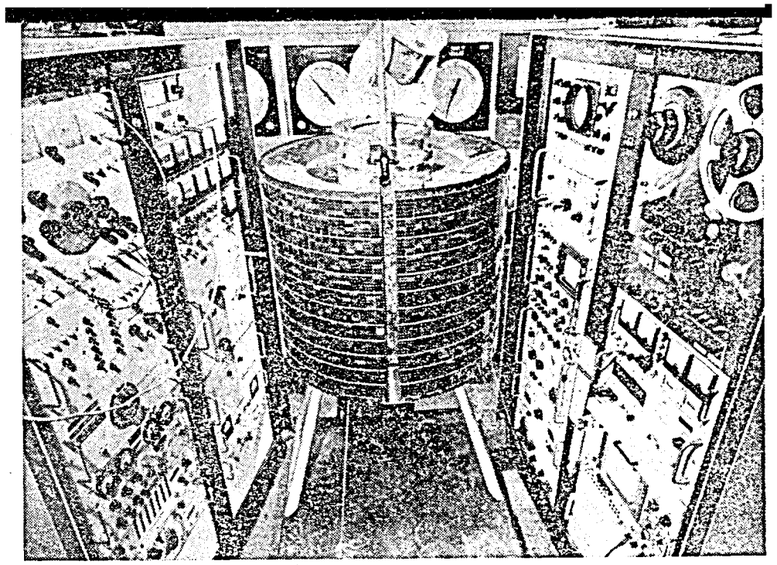
The day is not far when a person in India will be able to telephone to any part of the world through the communications satellite. A family in New Delhi may then sit at home and watch a live television programme relayed from Europe and America. India's decision to establish a ground station at Ahmedabad with financial aid from the U.N. Special Fund is a concrete expression of this country's eagerness to make use of this miracle in global communication.

After the invention of printing by movable type, the discovery of electricity in the first half of the nineteenth century was the first big change in modes of communication. In 1844 Samuel Morse opened the first public telegraph line. Not long after came the telephone and whithin the next two decades the first successful wireless transmission. By the end of the third decade of the twentieth century, radio had become a household word in most advanced countries. Television was also in its infant stage. Radar was developed during the Second World War and the evolution of a truly complete system of world-wide communication was not far off.

The problem of transmission was comparatively simple. For, sound is one-dimensional and with really good equipment it is possible to transmit any complex sound across trans-oceanic distances. But, to transmit sound and vision together over such long distances across land masses and seas is a tremendous problem. Here one has to deal with a two-dimensional pattern of light and shade. Whereas at a single instant a sound can possess just one level of loudness, a scene possesses thousands of variations in brilliance. All these have to be dealt with when images also are to be transmitted.

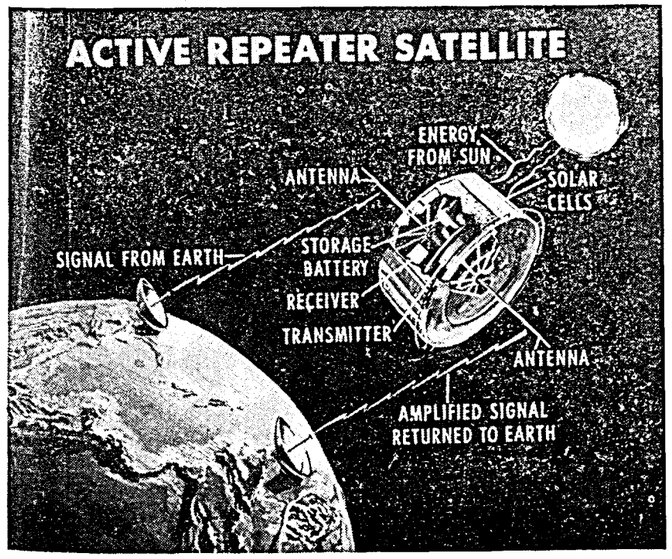
Radio waves travel in straight lines and the ionosphere reflects back these waves in the broadcast bands. But this does not happen with the very short waves of TV. These waves slice through the ionosphere and move on out into space and do not get reflected. This is the main difference between TV and radio broadcasting.

In TV, the receiving point has to be in the straight line of vision from the transmission point. TV impulses go straight on into space and may be picked up on the Moon, but not in the neighbouring district. That is why hundreds of TV relay stations are needed to cover a large area like Asia or Europe. Also, it is impossible to span the oceans; they are great obstacles to TV. One relay station in a satellite, a few thousands miles above the Earth, will solve all these major hurdles for trans-oceanic transmission of TV. All that is needed are a receiver to pick up the signals from one continent and a transmitter to rebroadcast them to the other. And two or three such satellites equally spaced around the Earth will provide really complete world-wide communication.



Early Bird undergoing a final check-up in Los Angeles before being launched as 'public satellite no. 1'. The satellite with an orbit so synchronised with the earth's rotation as to make it stationary over certain portions of the earth, will enable television, telephone and teletype transmission between continents. With two more such, the entire world will be able to have a communication "grid". PICTURES : COURTESY USIS

Drawing below shows how a communications satellite, powered by batteries that receive energy from solar rays, can operate the receiver and transmitter.



Invisible TV Towers

In 1945 a British engineer-turned science-fiction writer, who was awarded the Kalinga Prize for popularisation of science, in a brilliant flash of imagination, proposed the use of artificial satellites on high orbits as relay stations for transmitting telephonic messages and television to any place on earth. Clarke envisaged the use of three satellites 35,000 kilometres above the Equator. At that height, he calculated, a satellite would take exactly 24 hours to complete an orbit, and thus would stay fixed for ever over the same spot on the earth. "The laws of celestial mechanics," he wrote, "can thus provide us with the equivalent of invisible TV towers 22,000 miles high!"

Twenty years later, the Communications Satellite Corporation of U.S.A. has set its "talking star", the Early Bird satellite, in a stationary orbit.

A new age in communications has been born with this drum-shaped,

85-lb satellite in the orbit. It is the latest in a series of communications satellites the U.S.A. has launched, beginning with Telstar on July 10, 1962. Telstar was the world's first intercontinental television link. The first telecast was then accomplished between the United States and European stations. Then followed Relay I in December 1962 and Telstar II in May 1963. The first live television programme between Asia and America was handled by Relay I on November 22, 1963. These satellites were launched by Delta rockets and demonstrated the feasibility of using satellites to relay television, telephonic conversations, teletype, facsimile and data over transoceanic distances.

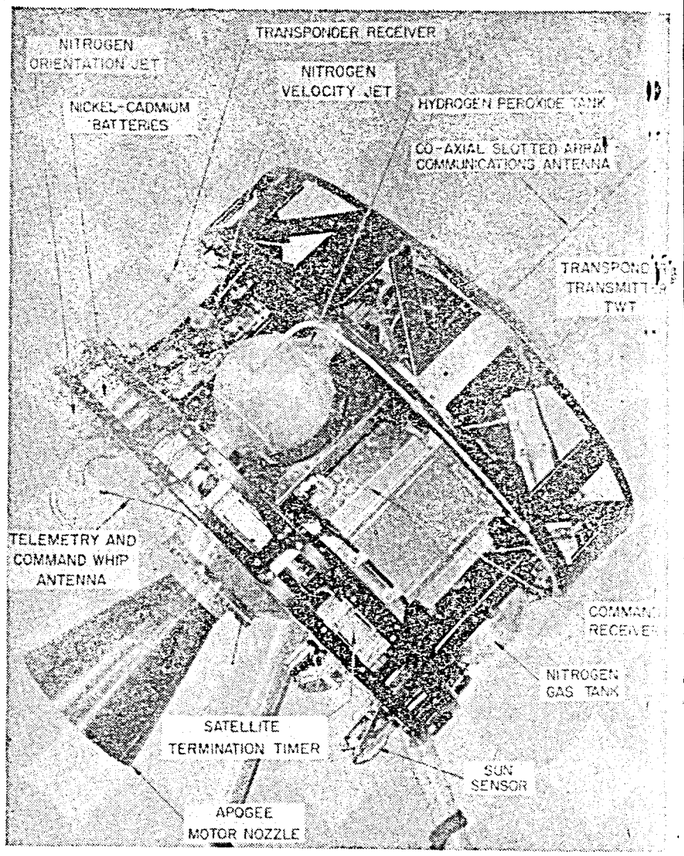
Synchronous Satellites

A step towards Clarke's stationary satellite system was taken in February 1963 when the first synchronous communications satellite, Syncom I, was launched into space by the National Aeronautics and Space Administration of the United States. It achieved a successful synchronous orbit, that is, an orbit in which the satellite would have a period of revolution of 24 hours, the same as that of the earth's rotation.

But the electronic equipment of Syncom I failed to function. Syncom II, launched on July 26, 1963, was orbited by a 57-ton Delta rocket and it operated almost perfectly for four months at a height of 35,680 kilometres. The radio and other equipment in the satellite were operated by 3,840 solar cells using sunlight.

Syncom III, the first satellite designed to appear motionless in space but hurtling at 11,000 kilometres through space was sent up in August, 1964. The satellite was in an unprecedented orbit 35,700 km. high, directly above the earth's equator, moving due east. It performed a unique feat with the help of its electronic equipment in televising the Tokyo Olympic Games to America. The earlier satellites could not have done this.

The orbits of the first two Syncom satellites differed from Syncom III in that they cut across the Equator.



A view of the instruments inside Syncom (synchronous communications satellite)

The satellites did not appear stationary as their orbits were not directly over the Equator. Syncom III travelled straight eastward directly above the equator without drifting north or south.

These synchronous satellites had to encounter very serious problems. Great rocket effort was needed to place them on high orbits. Earth's gravitational irregularities caused by the Sun and the Moon continually pushed them out of position. So they had to carry propulsion devices that would always restore them to their proper place.

Undaunted by these formidable problems, the engineers of the Hughes Aircraft Company in California, USA, scored a big success in devising Early Bird, the latest and the youngest in the family of synchronous satellites. Launched from Cape Kennedy by Comsat, a U.S. company co-operating with 44 nations including India in an international television venture, Early Bird carries both trans-Atlantic television and telephone traffic. The picture and sound transmissions of this satellite have been acclaimed as excellent by communications experts. Pictures of Indian troops patrolling the Great Rann of Kutch were among the first television transmissions by this setellite and were seen by more than three-million people in America and Europe. The space vehicle is the forerunner of a communications network expected to link many nations around the world within two and a half years. It will be devoted to commercial telegraph, telephone and television services.

Like the earlier Syncom III Early Bird is operating from an unchanging position above the equatorial Atlantic Ocean at a height of 35,700 kilometres. Its orbital velocity is synchronous with the earth's rotational speed and so, to an observer on earth, the satellite always maintains a fixed position in the sky. The satellite's curved sides are covered with 6,000 solar cells to supply electric power. One short antenna receives radio signals from the earth. They are fed to a transponder which amplifies them and then transmits them back to earth.

Even though much transmitted energy is lost in space, enough reaches the earth to be picked up by powerful receiving stations in the U.S. and Europe and amplified once more before being transmitted to local receivers. Early Bird can handle 240 two-way voice telephone channels which will increase trans-Atlantic cable service by about 60 per cent. It is able to provide 24-hour service, which earlier Telstar and Relay satellites, moving in much lower orbits, could not do. Early Bird covers more than one third of the globe. If two more similar satellites soar into orbit, for the first time in history every nation will have the possibility of direct visual contact with every inhabited spot on earth.

How Does It Work?

How does a satellite enable communication? A satellite serves as a repeater; that is, it receives signals sent to it from a ground terminal amplifies them, and retransmits them. It could be in contact with many points on earth at the same time, With a sufficient number of satellites (from three to 24, depending on the type of system) the entire world could come under the communications net.



This is the Telstar, which was launched in July 1962 and which has enabled instantaneous TV transmission across the Atlantic.

A terminal station in any country would link that country, through a global satellite system, to the rest of the world. India has joined the Consortium of Nations which will establish the Global Commercial Satellite Communications System. The system with a world coverage is expected to become operational by the end of 1967, when India's first Ground Station will be ready.

Soviet Union has not joined this global network. On its own it launched its first communication satellite Moluiya I on April 23. It has gone into a twelve-hour orbit that will keep it over the Soviet land mass for a considerable time during each revolution. The first series of telephonic conversations between Moscow and Vladivostok via this satellite was held on May 7.

Conventional long-distance radio reception is often interrupted by magnetic storms. The quality of cable reception is high, but cables are expensive and complicated, and they must physically connect terminals in the various countries. The quality of satellite transmission is almost the same as that of cables, but unlike cables, satellites can handle television in addition to telephone and telegraph.

Despite the advantages of these satellites, all experts are not ready to agree that they are foolproof enough to take over global telephoning and TV. For one thing, there is one key problem—time delay that is, the amount of time required to complete a transmission. When two persons talk, either face to face or separated by thousands of kilometres of cable the time delay is so small as to be unnoticed. The distance to a very-high-altitude satellite, say Early Bird, is so great that voice signals, which move with the speed of light, about 300,000 kilometres per second, take six-tenths of a second to get from speaker to listener and back. Smaller delay in the land lines add to the lag. This makes no difference for one-way transmissions but telephoning may sound disjointed with an extra one-half second between remarks and replies.

Electronic echoes are another problem. At synchronous satellite distances they may be highly disconcerting.

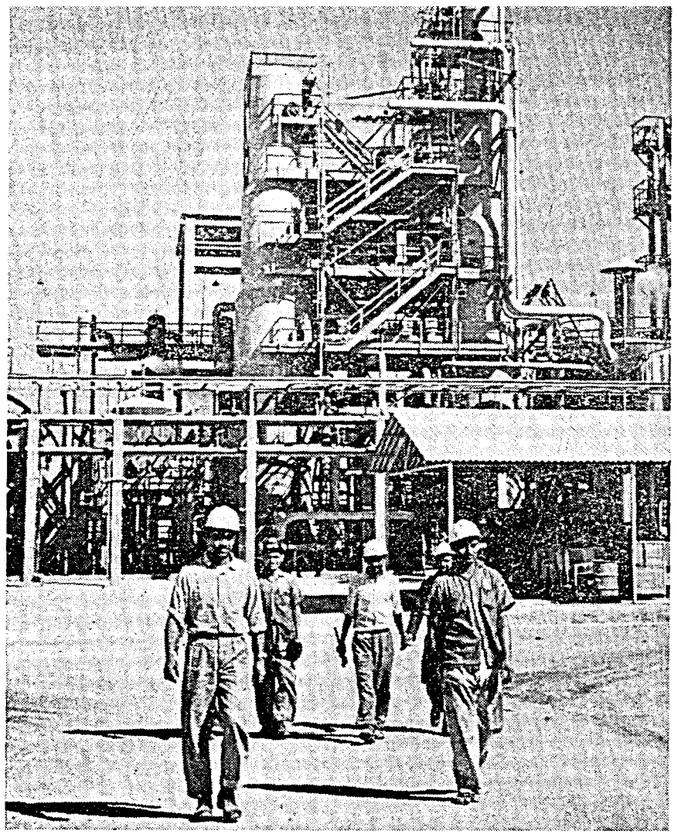
Satellites cannot be taken for repairs and their life expectancy is unknown. It may be short, especially during periods of high solar activity. But enthusiastic optimists dismiss these potential troubles as mere "engineering difficulties".

Sweeping changes will be touched off in man's life by this marvel of science. World-wide telephoning will become as commonplace as the dialling of local calls and the cost may not be exorbitant; educational television will guarantee that all the world's culture will be available to everyone under the sun; all men will become neighbours whether they like it or not; medical men will be able to keep in constant touch with their colleagues; cities may disappear; facsimile systems will automatically transmit and reproduce the equivalent of an entire book in less than a minute.

All this is very good. But some prophets will shake their head. "Won't the world be besieged with more and more noise? Isn't there enough of it already?" they will say.

However, the advent of satellite communications is fast breaking down the barriers of national boundaries and other artifices which separate man from man and region from region. When all men, wherever they may be, have equal access to the same vast communications network, they will inevitably become citizens of one world.

Arthur Clarke fancies a noble vision of the world with satellite communications. He says that this system "will have a profound impact upon language. It may lead to a single dominant tongue, others becoming merely local dialects. More probably it will result in a bi- or tri-lingual planet. Far higher above the Earth than builders of Babel ever aspired, we may at least undo the curse that was visited upon them."



is being set up at Koyna in Maharashtra with help from West Germany. The Mettur and Alwaye plants are being expanded.

With this, it is expected that very early in the Fourth Plan the capacity will have risen to 100,000tonnes.

And now, as a result of the talks between the Indian Planning Commission and the Soviet Planning authorities, a plant of 100,000 tonnes capacity is being set up in the public sector. This will be at Korba in Madhya Pradesh.

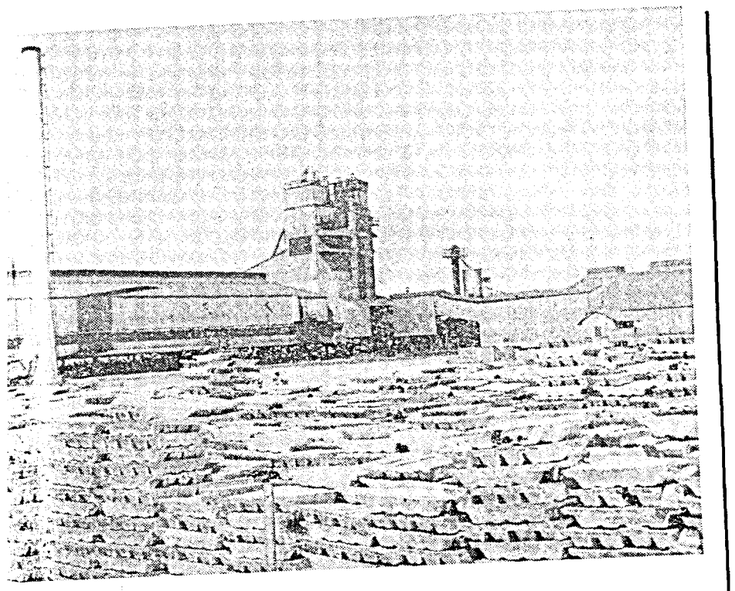
In addition, the Indian Aluminium Company is setting up a plant of 30,000 tonnes capacity at Sharavaty in Mysore. The Government is also planning to enlarge the capacity of Koyna from the proposed 25,000 tonnes to 50,000 tonnes.

As a result of all this by 1970-71, that is, by the end of the Fourth Plan, we are likely to be in a position to manufacture more than 200,000 tonnes of aluminium a year. Indeed, a target of 210-220,000 tonnes has been proposed for the Fourth Plan. In this expansion the private and public sectors will have full scope and opportunity.

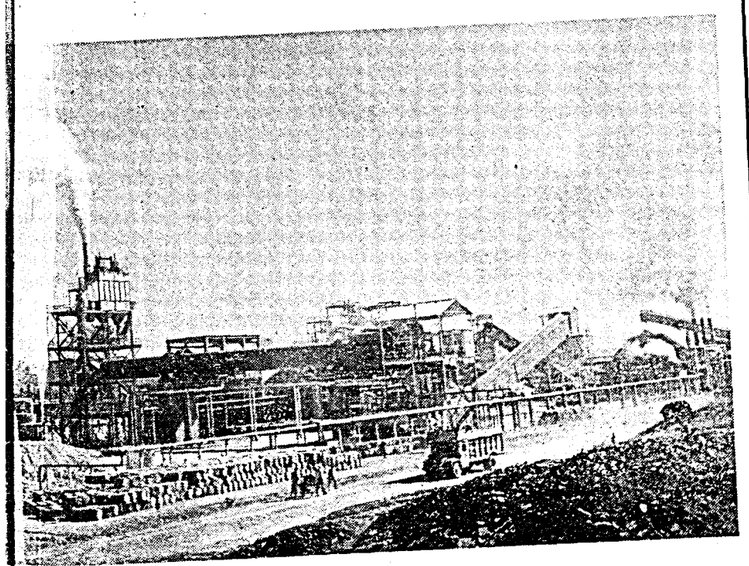
Since one aluminium plant has to be practically set up every year, Government is also encouraging Indian designing talent in this direction, so as to reduce dependence on foreign countries.

THREE TIMES MORE ALUMINIUM

BIG ROLE FOR LIGHT METAL IN 4th PLAN



Above : Aluminium ingots stacked ready for despatch, in the yard of the Hindustan Aluminium Corporation's factory at Renukoot near the Rihand Dam in U.P. Below : A general view of the works. Left : Closer view of the section housing digester vessels where crushed bauxite is processed.



A nation on the make needs aluminium as much as it needs steel.

Aluminium has a wide range of uses. It is needed in aircraft. It is needed in the power industry. And gradually it is taking over numerous structural functions that steel was fulfilling. It also takes on numerous duties of copper.

We think of steel as being a synonym for strength. But aluminium, one of the lightest of metals, can also, in some combinations, be as strong as steel.

Just four years ago we were producing a mere 18,000 tonnes of aluminium in our country. The production has more than trebled. By the end of the Third Plan it is expected to be around 68,000 tonnes.

When the Third Plan was drawn up a target of 87,500 tonnes (capacity) and 80,000 tonnes (production) had been fixed for aluminium. The Mid-term Appraisal indicated that because of the delays in the Koyna and other projects the production would be less.

Of all the non-ferrous metals, aluminium is the only one for which we have enough raw materials within our own country. Therefore the industry can progress as fast as we are able to instal the plants and find the electric power necessary to run it. Ample supplies of electricity are one of the greatest needs of aluminium-making. That is why aluminium plants are always located near major power projects.

The main plants today are all in the private sector. They are at Hirakud (20,000 tonnes), Renukoot near Rihand (20,000 tonnes), Asansol (7,500 tonnes), Alwaye (5,600 tonnes) and Mettur (10,000 tonnes).

The Rihand plant of Hindustan Aluminium is being expanded to 60,000 tonnes. A public sector plant

Yojana Bhavan Diary

The Planning Commission had a meeting on May 27 to discuss notes prepared by the Union Ministry of Food and Agriculture on(a) desert development board and (b) joint stock companies in farming.

The twelve study groups set up by the National Planning Council to consider in detail selected problems relating to the main sectors of development in the Fourth Plan met on May 28 and 29.

Major-General Harkirat Singh, formerly Engineer-in-Chief, Army Headquarters, joined as Adviser, Construction, on May 17.

Dr. V. Nath has been appointed as Chief, Construction, with effect from May 17.

Dr K. R. Nair, Director, Central Statistical Organisation, took part as India's alternate representative at the thirteenth session of the U.N. Satistical Commission held in New York from April 20 to May 7. He also visited U.K. and U.S.S.R. to make a study of their statistical systems.

Dr A. K. Chakravarty, Reader, I.S.I. Planning Unit, left for Turkey on May 25 as O.E.C.D. consultant there.

600 INDUSTRIES FOR SMALL-SCALE SECTOR

A comprehensive list of 600 industries which have further scope for development in the small-scale sector has been published.

The list has been compiled by the Central Small Industries Organisations in the Ministry of Industry and Supply.

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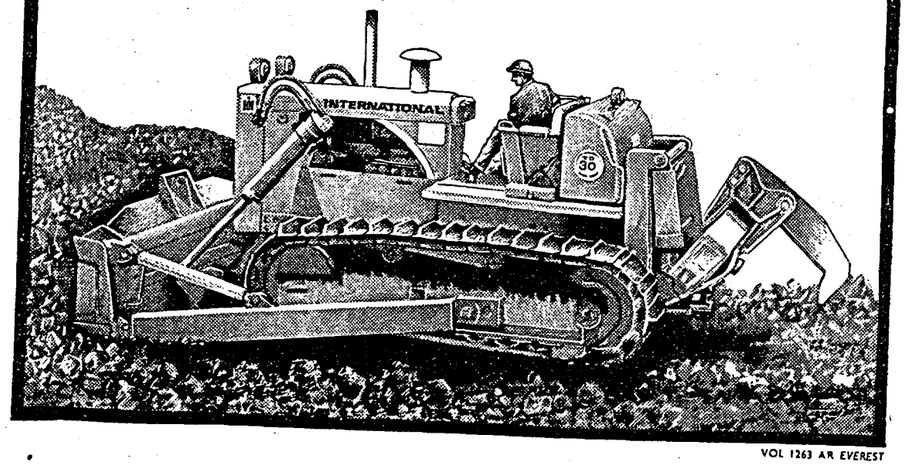
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VOL 1263 AR EVEREST

MORE ABOUT I.U.C.D.

TESTS IN INDIA SHOW WOMEN LIKE the LOOP

BY YOJANA
STAFF REPORTER

The last issue of Yojana *had an article on the Intra-Uterine Contraceptive Device (I.U.C.D. or loop, for short) which is going to be popularised in India on a large scale.*

The Government of India has suggested that those institutions which do IUCD insertions should be paid Rs. 5 per insertion, doctors Rs. 2 and dais *Re. 1. The Kerala Government has already agreed to implement this scheme.*

The Union Government has also sponsored a ten-week campaign from April 20 to popularise the contraceptive in the Hooghly district of West Bengal. Guidance rooms have been set up to explain to the people how the contraceptive is to be used. More than 2,000 insertions of the loop were done in the first three weeks of the Hooghly campaign. A full-scale "family planning week" will be observed in July, when special efforts will be made to tell the people about the loop.

It has also been decided to set up a factory in the public sector at Etawah in U.P. to manufacture 2 million loops a year.

Family planning programmes are conducted on the basis of an urban family planning units, each covering about 50,000 people, and rural block family planning units. It is estimated that in the first year about 500 to 1,000 loops can be fitted in each urban unit. With 5,000 such units spread all over the country, it should be possible to fit 25 million women with the loop in five years.

"THE IUCD is becoming popular in India and in most other developing countries. I believe its use is spreading fast in some of the Catholic countries like Chile in South America. That is to be noted, because, as you know, the Catholics are averse to any form of birth control," said Dr. P.K. Malkani, Professor of Gynaecology and Obstetrics, at the All-India Institute of Medical Sciences, New Delhi.

I had gone to find out her views, as a medical authority, on the Intra-Uterine Contraceptive Device. I noticed that at the family planning clinic of the Institute trying out the IUCD there were fifty or sixty women waiting for it including one who, from her dress, appeared to be newly married.

I asked Dr Malkani whether the size of the waiting group indicated the success of this latest contraceptive.

"Well," she began in a cautious tone of a scientist who does not want to make dogmatic assertions. "You know our Institute is mainly concerned with research. You might be surprised to know that in the last two years since the IUCD programme was sponsored by the Indian Council of Medical Research in August 1962, we have fitted at best 800 women with the IUCD. This figure is no indication of either the popularity or the unpopularity of the IUCD. The number of women we have experimented with is small because we carry on thorough investigations on every woman who has the IUCD to find out exactly how it prevents conception. So far we have not been able to have any definite clue."

"Would you then say that even without knowing how exactly it works, you regard the IUCD as the most effective birth control weapon?' I asked.

"So far, it is," Dr Malkani said. You could see in her manner a scientist's objectivity and readiness to set aside theories if facts contradicted them. "We are continuing our studies with it. Meanwhile, news of the loop has spread fast and it is proving popular with women."

"But I must sound a note of warning", she hastened to add: "The loop, even though it is the simplest mechanism, may create all sorts of complications if an ignorant or untrained person tries to insert it. Insertion should be done only by a registered medical practitioner trained in the method."

"Assuming that a well-qualified doctor does the work of insertion, does the IUCD never cause physiological trouble?" I asked, trying to draw out from Dr Malkani some idea of the results of the investigations carried out in the Institute.

"Well, in a few cases there have been some adverse reactions, such as somewhat excessive bleeding or pain in the abdomen or back. But they have been very few. In the large majority of cases—to be exact, in more than 94 per cent of the cases—there has been no ill-effect at all," she said.

"Is there any fear that the loop remaining inside for a long time will cause cancer?"—I was only echoing a question that I have heard being asked by many sceptics.

"So far no cancer has been reported, not anything that we know of." That was typical of a scientific investigator, who is never eager to make a final pronouncement.

"What is the response of village women to the loop?" I enquired.

"We have only recently extended our study to the villages. We have selected a few villages near Ballabhgarh outside Delhi. Since we started

the study only three months ago, I cannot tell you very much about it."

I persisted: "But the village women must have told you how they feel about the loop?"

"You know, these villagers, being near Delhi, are not new to the idea of contraceptives. We have found that, if properly explained, women in these villages accept the IUCD with readiness. In one or two villages we gave detailed information to the women about this new device. Then women from nearby villages began flocking to us, asking for more details and also wanting us to fit them with the IUCD. It's really catching up well."

Govt. Must Go Ahead

Dr Krishna Singh, a Delhi doctor with family planning practice, had a different story to tell about her experience with rural women and women of the working class. She said:

"There is still a great deal of psychological resistance among the village women and the labour class to contraceptives. Extensive educational work has to be put through in the villages to popularise the I.U.C.D. Film shows, group meetings, wall posters and all other publicity techniques should be put into operation to convert the women. Otherwise, you know, they will attribute to this contraceptive all kinds of illnesses they might suffer from. They will become the most vehement anti-propagandists of the loop."

Dr Krishna then narrated to me the work that she had done in the Andhra Vanita Mandali Family Planning and General Clinic of New Delhi for more than ten years. She herself has done more than a hundred IUCD insertions from April 1964 to March 1965, of which only ten had to be removed owing to various reasons like bleeding, pain, or desire for another child.

"Is the I.U.C.D. a foolproof device?"

"No; so far, there is no foolproof contraceptive. The only foolproof method, so far, for stopping pregnancies is sterilisation. But it is no *control*, as it stops pregnancy for all time. And it should be resorted to only when a pregnancy must be permanently avoided. The indications for such a step may be medical, eugenic or socio-economic. In general, a married couple should carefully weigh their family situation before one or the other is sterilised, since they won't be in a position to change their mind later. The couple should already have had the children they desire, and feel certain that later they are not likely to want more children. All children should be in good health and their survival apparently secure. As long as these conditions are not met, a couple must only practise contraception."

"Among the contraceptives" the doctor went on, "there is no doubt whatsoever that the loop is the simplest, safest and the cheapest* contraceptive, so far, for women. Of course, among men, the condom is the most popular, and among well-to-do women, who can afford sufficient privacy to keep those things, diaphragm, foam tablets and jelly are in use. But I must again say that the loop is the most efficacious contraceptive among them all, and specially so in Indian conditions of living."

Why is Lippes' Loop so called?

Lippes' Loop, the intra-uterine device which the Indian Council of Medical Research has recommended for use on a wide scale, is the one which Dr. Jack Lippes of the University of Buffalo tried out successfully in the University's School of Medicine in New York State.

"What have you to say about oral contraceptives?" I asked.

"Oh! They are terribly expensive and only the rich can afford them at present. Another point is that they have to be taken regularly for 20 days every month, one daily from the fourth day of menstruation to the 24th. If they are stopped even for a day, the chances of pregnancy are increased considerably. Moreover, medical science is not yet too sure of the damage that the pills may cause to the liver and kidney because, you know, oral contraceptives upset the hormone balance in the system. Research is still going on to find out the side effects. So it is better to go in for a cheaper and safer contraceptive like the loop."

"Apart from reliability, what other advantages does the loop have over others?"

"Mechanical devices like the sheath and the condom are much more expensive than the loop. Sometimes they even cause discomfort. In the overcrowded one-room homes of the poor people, privacy hardly exists, and it is hard, almost impossible, to adopt the precautions before every intercourse. In the case of the loop, once it is put inside, it can remain there, say, for four to five years or until another pregnancy is desired. For couples up to 30 years of age, loop is to be recommended freely. It enables them to space their children and to have regular marital relations without fear of pregnancy.

"Except some irregular bleeding or back pain, which can be remedied by a little treatment, there has been no bad effect in any case which I have handled. The loop, as you know, is made of polyethylene, and polethylene has been widely used in surgery. It is used inside the ear and also put inside the heart and has been definitely proved to be harmless inside the human body. But from sound medical sense I would say that the loop should not be put in any person having any organic disease or suspected cancer."

"Since the loop gets such high points, what do you think should the Government do to popularise it among the people?" I asked.

"The loop must be made available by the Government to all properly set-up clinics, both Government hospitals and private clinics. All clinics should co-operate with each other and women who are fitted with the device should be referred to the clinic nearest to their places of residence for further follow-up checking. Inserters must also be made freely available to all clinics. There is difficulty, at present, in handling a large number of cases in a single day. An inserter once used has to be sterilised, that is, kept in a solution for at least 24 hours and so a number of inserters have to be kept ready. If a suitable metal steriliser is devised, sterilisation becomes a quick process and a number of women can be treated in quick succession."

*7 Paise per loop.

Books

HAS LABOUR GOT ITS DUE SHARE?

Labour and Planning. Edited by Radhakamal Mukerjee. Allied Publishers. 260 pages. Rs. 22.

C. N. Chitta Ranjan

AWARENESS of the importance of strong, effective and responsible trade unions in our developing industrial economy is so widespread today, particularly among the leaders of the working class movement and among the more important political parties, that it seems hardly necessary to harp on it. Nevertheless, it is a fact that the labour potential of the nation has not been harnessed to the maximum possible extent in furtherance of the Five Year Plans. Productivity is far below reasonable levels, even making allowance for the Indian context. As labour, with the possible exception of a small section led by politicians of the lunatic fringe, has by and large been co-operative and willing to fulfil its responsibilities in the matter of increasing industrial and agricultural production, it appears necessary to find out why in many cases targets have not been achieved. Who is responsible for this state of affairs? Why is not the labour force not being kept happy and contented?

This volume of essays, compiled fittingly in honour of one who has spent the bulk of his life in the service of the working class and who has been recognised as one of the most distinguished labour leaders this country has produced, Mr. V. V. Giri, is mainly an attempt to answer this question and partly also an attempt to outline what labour can do in bringing about the success of our Plans. The first essay is an appreciation of Mr. Giri as student agitator, as labour leader and as administrator and statesman. The "Giri approach" of depending on collective bargaining rather than on compulsory adjudication, outlined in the first essay, sets the tone for the volume.

The keynote essays, however, are those by the compiler himself and by Dr. Gyan Chand. Dr. Mukerjee emphasises that the triple pillars of industrial socialism are (i) an integrated fair wage and bonus policy "springing from voluntary wage councils at different levels"; (ii) collective bargaining; and (iii) worker participation in management, passing over into profit-sharing. He points out, rightly, that the so-called "need-based" minimum wage conceived by the tripartite Indian Labour Conference eight years ago did not take into account real minimum human requirements; the norms were fixed "on a basis substantially lower than the current internationally accepted norms". That even these inadequate norms have not been respected by most employers is well-known.

The author points out that in fact, while the cost of living rose (till 1956) by more than four times (base 1939), the improvement in real wages was negligible (104). Paradoxically enough, both production and productivity showed a big improvement during the period (163 and 112 respectively). Even more important, "the rise in profits was phenomenal, about four times" (377). Discontent among workers is not be to wondered at in these circumstances. Not even a tiny fraction of the fruits of their labour was being passed on to them; in other words, they were called upon to sweat to fill the pockets of some individuals and keep them in luxurious comfort. With increasing consciousness of their collective strength, the working class cannot surely be expected not to resist this tendency.

Dr. Gyan Chand points out that there has not been a concerted and all-inclusive effort to streamline wage policy and make it uniform. "In matters of wage determination we have as yet no guiding general principles, and all the irrational diversities, anomalies and contradictions of even the existing wage structures of industrial labour remain unsolved." This is not to say that there have been no gains at all. "Labour has been able to make use of statutory gains to make advance towards a position in which its weakness....has been reduced." This in spite of the often contradictory and conflicting rulings given by courts in interpreting labour laws. But whatever has been gained is in keeping with the needs of a Welfare State rather than of a Socialist State which is the avowed goal in India. While Dr. Mukerjee calls for "a thorough institutional reorientation towards industrial socialism" as the only sensible way of ensuring the working class becoming the principal beneficiary of new industrial advance, Dr Gyan Chand goes farther and insists on the worker being made to understand his importance and the fact that he can, "by changing the very basis of the economy through his understanding and organized strength, release new productive forces which will make all the difference to our future."

Dr Mukerjee also refers, quite pertinently, to the anomaly of soft jobs yielding better salaries while those engaged in difficult and more important technical or manual jobs get lower wages. This results in a perversion of values, and deterioration in attitude to work.

In regard to worker participation in management, while Dr. Mukerjee emphasises that the success of any such programme depends "on the unity and efficiency of organised unionism," Dr. Gyan Chand finds fault with the approach to the subject of those whose task it is to try to make it a success. He says that "active association of labour with management has been introduced more as a concession to socialist tradition and as a frill of policy statement than as a principle of basic social change."

In a brief essay Mr. V. K.R. Menon indicates the responsibility of trade union leaders in educating the working class so that it can play its due role in socialist construction. Dr. Nabagopal Das lays down the general principles that should guide the programme of worker participation in management. Dr. Baljit Singh and Mr. Ranjan Kumar Som discuss the employment situation, the former dealing with unemployment and underemployment, and the latter with "intensity of employment." Dr. Baljit Singh points to the need for effective long-and short-term planning to reduce lack of job opportunities. Mr Som calls for "injection of investments in the rural-agricultural sector in the sphere of small-scale and household production" so that underemployment, seasonal and perennial, can be "mopped up." The first section of the volume concludes with Mr R. Venkataraman's brief survey of the growth of the trade union movement in India.

The second part, dealing mainly with planning, consists of a treatise on perspective planning by Professor P.C. Mahalanobis who sums up his argument neatly thus: "It is necessary to increase the supply of consumer goods. To do this it is necessary to expand continually the production of capital goods. Both would require an increasing supply of engineers and technicians." These developments would call for applied as well as basic research. All this had to be planned for 15, 20 or even 30 years if development was to be balanced. The other essays include one on problems of wages and wage fixation by Dr. P.S. Lokanathan and one on rural development and urbanisation by Professor V.K.R.V. Rao.

Social Education Aids

Simple Visual Aids for Social Education by S. L. Ahluwalia. Published by the National Council of Educational Research and Training, New Delhi. 23 pages. Re 0.81.

THE pamphlet enumerates various visual aids available for use by social educators. It gives special attention to the visual material that will enhance and ease the teaching situation at the village level and help Gram Sevaks and Sevikas. The author also discusses what is available in the various ministries by way of prepared material and their possible uses. He gives a bibliography for further reading.

The basic qualifications of these field workers leave one in doubt whether such a pamphlet will make them venture out into fabrication of additional material or only add to their diffidence and feed the habit of demanding that such visual aids be delivered at their door.

Even so, this is a useful pamphlet.

(Mrs) A. JACOB

PUBLICATIONS RECEIVED

Revenue Inspections at the District Level by A. Avasthi. 230 Pages. Rs. 7.50. The Indian Institute of Public Administration.

Financial Intermediaries in India by M.S. Joshi. 285 Pages. Rs. 15. Indian Banks —Their Portfolios, Profits and Policy by Donald D. Hester. 101 Pages. Rs. 5. University of Bombay, Bombay-1.



A Scheme for

PUSHING AHEAD ON AGRICULTURAL FRONT

S. S. TYAGI

Adviser, Co-operatives, Government of Ethiopia

THE Fourth Five Year Plan is now being prepared. The Draft Memorandum has been discussed by the public, and various aspects of the Plan are under scrutiny of experts, economists and social scientists. Going through these public discussions, one is inclined to agree that, as with the preceding efforts, the present Plan, too, is basically sound. One fervently hopes, however, that, unlike its precursors, it will have a better record to show as far as actual implementation is concerned.

If the primary virtue of planning is to ensure systematic, progressive and predictable trends in the various facets of development, one has cause to be sorely disappointed, at least with the performance in the agricultural sector, of past three Plans encompassing a decade and a half. This has affected our progress in the industrial field as well. Even if the targets in the industrial sector have been better attained, a balanced development can emerge only as a a result of corresponding achievements in the agricultural sector.

The deficiencies and short-falls of agro-industrial programmes are naturally retarding our progress in another important field, namely social development, which is only feebly making its way in India. In a predominantly rural and agricultural country like ours, the economic and social sinews can be built mainly through increased production on farms and in factories. It is in this light that the performance of the first three Plans, specially in the agricultural sector, has left traces of dismal failure.

In any appraisal of this old problem, it is difficult to avoid the obvious or to repeat some of the well-known prescriptions, but a refreshingly new viewpoint was put forward by Prime Minister Shastri in an address to the Kulabhaskar Ashram, Allahabad.

The Prime Minister suggested making intensive short-term efforts using existing indigenous skill and resources to increase agricultural production. This view has since secured a wide measure of support in knowledgeable circles. Drawing from this practical suggestion, the planners may like to think of a *short-term* Two Year Intensive Agricultural Development Plan, a *medium term* Five Year Agricultural Development Plan and a *long-term* Ten Year Agricultural Development Plan. The short-term should coincide with the first two years of the Fourth Plan, the medium-term with the five years of the Fourth Plan and the long-term with the ten years of the Fourth and Fifth Plans.

We have so many items included in the list of means and methods of agricultural development that neither the farmer nor the worker is in a position to decide clear-out priorities. The result is that what starts out as an excellent plan at the national and State levels, ends up in no more than a huge entangled mass of ideas by the time it reaches the farmer. For efficient translation into action, these items may, therefore, be classified into the short, medium and long-term categories corresponding to short, medium and long-term plans. Priorities may be changed according to the needs of the place and time.

There are many factors which can contribute positively to a quick increase in agricultural production. These include items such as minor irrigation, improvement of irrigation channels, education in better and economic use of water, green manuring and use of fertilisers and compost, supply of improved seeds and short-term credit, crop protection against pests and diseases, inoculation of animals against epidemics, development of fisheries and poultry, vegetable growing, mixed cropping, overlapping cropping and introducing production of *zaid* crops between Kharif and Rabi crops. These and the import of fertilisers should be included in the short-term plan.

All the items listed in the foregoing paragraph for the short-term plan are also relevant to the medium and even the long-term phase. However, additional efforts in the medium phase would include soil and water conservation, afforestation on panchayat lands for production of firewood to reduce the use of cowdung as fuel, cattle breeding, construction of irrigation projects, fertiliser production, installation of food processing and canning factories, co-operative farming on public lands, introduction of mechanised farming where appropriate, production of pedigree seeds, insecticides and pesticides and provision of warehousing facilities.

In addition to the items suggested above, the long-term plan would include such items as promotion of land reforms, introduction of co-operative farming on farmers' land, big soil conservation and irrigation projects, establishment of an extension service well trained to take the modern scientific developments to farmers' fields and installation of small-scale industries and factories for the processing of agricultural produce.

For any successful efforts in the field of agriculture, farmer-resistance to new ideas and to social change will have to be counteracted. Various efforts have already been made to provide useful experience in that direction. To ensure better results, it may be worth-while to establish young farmers' schools where the actual farmers between the ages of 20 and 35 may be trained for about a year in improved practical agriculture and farm mechanics.

After training, when these people return to their farms, they will carry with them new spirit and new ideas which their neighbours may accept more readily than if the same ideas were espoused by the extension workers.

It would also be necessary to arrange for more effective and comprehensive training of the rural extension workers and the agricultural technicians. Intensive training of this kind has to start in the short-term phase and continued throughout subsequent phases.

To maintain the tempo of increased production, as many positive incentives as possible, should be offered to the farmers to induce him to work hard and continue to grow more on his farm. Fixation of floor prices which has already been started in case of some important crops must be adopted as a permanent policy for all major crops. Going market prices should be made the basis for fixing procurement prices. This policy, if followed even for only a few years continuously, will bring an end to the malpractices of private trade which lures farmers by offering higher prices.

However, it will have to be ensured that the advantages gained by a farmer through such incentives are not taken away owing to the deeds of the procurement machinery, or nullified by undue increase in the prices of the commodities which the farmer buys for his farm and even for domestic requirements. Credit, marketing and supply co-operatives can play a crucial role in this direction.

In the context of intensive short-term efforts to increase agricultural production three schemes need special mention (1) land reforms, (2) consolidation of holdings, and (3) co-operative farming.

While one should unhesitatingly support the principle that the tiller of the soil should also be the owner of that soil, one must not fail to take note of the situation where this wholesome idea impinges on the farm production. There is a class of land-owners who engage in what may be described as "symbolic tilling" just enough to evade application of land-reform measures which may result in the extinction of their title on the land. It is also a well-known fact that in spite of the laws to discourage absentee land-ownership, the system of share cropping is in wide vogue. Agriculture thus suffers from the resultant ill effects of the two systems.

Under the present situation of food crisis, it may be worth-while to give priority to increased food production over land reforms, at least for the duration of the short and medium-term plans. It would mean legalising the system of share cropping and to some extent absentee land ownership. The programme of consolidation of holdings disturbs the continuity of farm operations normally for three years and in some cases even for longer periods. This measure, while very sound for long-termplanning, may be better deferred for the end term of the suggested ten-year agricultural development phase.

Another programme which can wait (strange as it may seem as coming from a co-operative adviser) is co-operative farming. The implementation of this programme has, so far, been attempted very half-heartedly. While policy statements have been very clear and concise, action to implement these policies by all concerned has been rather weak and ineffective. Farmers have not shown the desired enthusiasm to accept this idea because they are still not well informed about the working and benefits of the scheme.

On the other hand, anti-co-operative propaganda seems to have worked more effectively even to the extent of confusing the workers who now are in doubt whether the Govenment is sincere in its proclamations, and whether the farmer is willing to accept the scheme, and even whether the scheme can result in increased agricultural production. In view of these and other latent reservations, it may be advisable to limit our efforts only to the existing farms for the present.

Since production can never be treated as independent of supply, marketing, procurement and distribution, and also of the infusion of scientific know-how, it is essential to attend to these matters as the inescapable condition of the short-term development phase. These will have to be backed further by effective co-ordination between different departments and some reshuffling in the agricultural administration.

Of all the experiences which the three Plans have provided to the nation, there is none more pertinent than the one that a good paper plan is just not enough. What really counts is its effective implementation—even though the plan may be less ambitious than the ideal paper plan. Action, not words or plans, will, in the ultimate analysis, solve our food problem.



The Emperor of Ethiopia, on a visit to a co-operative, talking to Mr. Tyagi, the author of the article, who is Adviser on co-operatives to the Ethiopian Government.

Extension Work Has Suffered Under Panchayati Raj

"A district planning officer told me that the Collector-District Magistrate was his real boss and the slogan of regarding the people as his masters was political bunkum"

Urgent Remedy Necessary

B. N. SINGH

SIX years have passed since the first experiment in Panchayati Raj was inaugurated in Rajasthan in 1959. Mr. Nehru had hailed it at that time as the harbinger of a new age in public administration. It would be worth-while now to review how the extension services have fared under Panchayati Raj.

Panchayati Raj has been introduced in almost all the States of the Union except Kerala and Madhya Pradesh. The extent of devolution or decentralisation of power, however, varies from State to State. In some States the administrative organisations operating at the Vikas Kshetra, Prasar Khand or block level have been reorganised and placed under Panchayati Raj while in others they continue more or less in the same way as before. The initiative and authority exercised by the Pramukh of the Panchayat Samiti or Kshetra Samiti also vary from block to block and State to State.

The original intention of the formal introduction of Panchayati Raj was to secure the largest measure of people's participation in the planning and implementation of agricultural extension and rural welfare programmes, that is, in Community Development. The idea was to convert a Government plan with people's participation into a people's plan with Government's participation.

The role of the extension service in such a system would be to provide technical assistance and external resources to Panchayati Raj institutions so that they could perform their duties adequately. The Panchayati Raj enactments in various States were intended to provide for (and supervise the implementation of) programmes of agricultural production, co-operative organisation, animal husbandry development, spread of public health and education, and rural industrialisation. How far has this objective been achieved is a matter for objective consideration. From the way we look at it, the extension service is either the chief beneficiary or the most affected institution from this administrative innovation. The extent of this help or hindrance also varies.

The present article is based on general observation of the working of Panchayati Raj institutions in some States, notably Rajasthan and Uttar Pradesh.

THE first effect of the introduction of Panchayati Raj in these two States was the devolution of authority and power from the Block Development Officer to the Block Pramukh. This devolution has neither been smooth nor even. Wherever the people selected a Block Pramukh who had maturity of outlook, experience and a sense of dedication, there has been an acceleration of progress in the block. But such instances, if I may hazard a guess, are not more than 10 per cent of the total. More often the Block Pramukhs have lacked detachment. There have even been instances of their demanding the key of the jeep for an immediate political or personal trip of their constituency. In some blocks, there have been severe conflicts between the Block Pramukh and the Block Development Officer and other extension officers, and the latter category have had to be transferred to save face.

This kind of friction, however, has not occurred in more than 10 percent of the total number of blocks. Any generalisation about Panchayati Raj on the basis of these two extremes would be unfair. The vast majority of the extension workers as well as the Pramukhs fall into the large in-between category which can only be characterised as "apathetic". The Pramukh has a room in the block building and a chair and table which are occupied for a few hours once or twice a month. He and the Block Development Officer confer, and the Pramukh verbally delegates all authority and responsibility to the Block Development Officer. The Pramukhs are proud of their position but indifferent to their duties. A majority of the Block Development Officers, on the other hand, feel deprived of their authority and power and imagine that their initiative and co-ordinating responsibilities have passed on to the Block Pramukh.

However, as we just saw, the Pramukhs do not really interfere in extension work, and the B.D.Os' fears are unjustified. The Pramukhs are influential and busy persons, and their time is taken up in business or farming or politics. But because of the feeling of loss of power, the B.D.O.s tend to act as routine functionaries, with the result that a vacuum has developed in the sphere of local self-government at the block level.

There is another complicating factor in the situation. The State Governments have not completely abdicated their power in favour of the Pramukh of the Kshetra Samiti

or Panchayat Samiti. Instructions for the implementation of the various programmes continue to be received by the Block Development Officer or, in some cases, the different extension officers. These officers, in their turn, owe a double allegiance, to their departmental superiors and, in a formal way, to the Block Development Officer. Many letters are addressed to the Pramukh, but they are dealt with by the Block Development Officer as the executive of the Panchayat Samiti; and as he is a wholetime worker, *de facto* authority vests in him.

To add to the complications, officers of the Revenue Department are now the supervisory satraps of the blocks since blocks now are local self-government units in addition to being extension units. In States where the Block Development Officer was also Anchal Adhikari or revenue official, the confusion is worse.

The Block Development Officer is thus in a hard predicament, and his reaction to situations is either to play safe or to behave arbitrarily. This kind of attitude will not foster the desired democratic traditions or further the habits of team work and enthusiastic co-operation.

In States where a separate Panchayati Raj cadre has been set up, and the services of the extension officers and Village Level Workers are merged, the situation is somewhat different. While these workers do not enjoy the same level of security as Government servants in other departments and are sometimes subjected to political pressures, they are not pushed about in inter-departmental tussles. Still, they suffer from a hang-over of past administrative affiliation, and their loyalty to Community Development and Panchayati Raj is not undivided.

Indeed a common loyalty to the people has not developed among the officials. There is no realisation yet that the people are the ultimate masters of all employees, Governmental or non-Governmental. A District Planning Officer who is the Executive Officer of the Zila Parishad told me that the Collector-District Magistrate was his real boss and the slogan of regarding the people as his masters was political bunkum.

When the extension services were started, the supervisory officers were expected to help and not check. Their work was not to inspect reports and records but to use their larger influence or skill to persuade the people to cast aside their doubts and hesitations. The extension services have now become a routine affair, with innumerable statements, returns or reports to be submitted and justified.

ANOTHER anomaly hindering the functioning of Panchayati Raj is the so-called single-purpose approach. The Village Level Worker is expected to devote 100 per cent of his time to agriculture. But the budget of the block involves distribution of subsidies and grants for many other activities which also require a great deal of the V.L.Ws' time and attention. There are half a dozen subject-matter specialists (with a really low level of specialisation), and each of them must either demand V.L.Ws' time or sit idle filing a few statements to justify their existence. The activities of the National Extension Service have undergone such quick and slogan-oriented shifts that the workers have become bewildered. They are forced to do as ordered, rather than hold a firm faith or sense of mission of their own. Not all of them are reconciled to Panchayati Raj.

A block-level functionary of Panchayati Raj under the N.E.S. is the Panchayat Inspector, Assistant Development Officer (Panchayat) or Extension Officer, Panchayat. In many States the cadre of the Social Education Organiser has been merged with that of the Panchayats. The workers from the N.E.S., bred in the welfare approach, do not find it easy to perform the regulatory function of the Panchayats such as punishment of tax defaulters or encroachers on public land. They have also to call meetings of the Panchayat for determining the budget and taxation. These being unpopular moves, the Panchayat Officer either performs his duty on paper or incurs the displeasure of the people or his official superiors.

Thus, with the people's elected representatives not fully appreciative of their duties, and the paid workers not owing undivided allegiance to the cause of Panchayati Raj, the experiment on democratic decentralisation remains rather a *laissez faire* decontrol. The picture may not be so bleak in some States or some districts or some blocks, but by and large the observations made here are objective and true.

I am not a prophet of doom and I am sure that the situation will improve. I offer some constructive suggestions, therefore, to improve the health of Panchayati Raj in relation to the extension services. My suggestions are as follows:

1. Some minimum qualifications of education and social work should be prescribed for those who stand for election to the office of the Block Pramukh.
2. After selection, a Pramukh must undergo training for at least three months in agriculture, Community Development, Panchayati Raj and related subjects. Similar training should also be organised on a statutory basis for the vic-presidents and the Pradhans of the Panchayats.
3. The Block Pramukh should be required to function as a wholetime guide and decision-maker in consultation with the Kshetra/Block/Panchayat Samiti.
4. He may be paid a suitable monthly honorarium to enable him to devote himself to his immediate task.
5. The functions, duties and privileges of the Block Pramukh must be clearly defined by statute.
6. Employees under the extension services should enjoy the same security and avenues of promotion as others in government employment.
7. Meetings of the Kshetra Samiti/Panchayati Samiti should be more frequent.
8. In many States, the primary Panchayati Raj institutions have a paid secretary. He generally gets a starving wage lower than that of a class IV Government employee and has no security. Such a functionary must be properly trained, paid, motivated and controlled.

Dr. B. N. Singh is Professor of Extension in the U.P. Agricultural University.

Kerala Is Malaria-Free

KERALA leads the other States in completely eradicating malaria. Madras, Mysore and Bihar come next in the fight against the disease. The Director of the National Malaria Eradication Programme has said that 37 per cent of the country is now free from malaria.

In 1952 there were 75 million cases in India. In 1964 only 84,000 were found positive for malaria.



RECORD HARVEST IN COUNTRY—AND U.P.

Food production in 1964-65 has now been officially placed at 87.2 million tonnes. It was 79.8 million tonnes in the previous year.

Rice production in 1964-65 was 38.5 million tonnes.

Food production in U.P. this year has risen by 31 per cent over that of last year and by 7 per cent over the record production in 1960-61.

Three million tonnes of sugar had been produced this year up to May 7. This is only 0.5 million short of the Third Plan target.

SNIPPETS

To enable India to complete the mass vaccination compaign against smallpox by March, 1966, U.S.S.R. has agreed to give another free gift of 200 million doses of freeze-dried smallpox vaccine. India has already received from the Soviet Union free gifts of this vaccine equivalent to 450 million doses...Extensive deposits of bauxite have been found in the Palni Hills in Madras...A 2000-line automatic telephone exchange has been opened in Mangalore... Rs 30 lakh will be spent on the development of the Mysore zoo which at present has 1,300 animals, birds and reptiles...The third 15 MW unit of the Barauni thermal power station supplied by Yugoslavia is likely to be commissioned in August. Two more units of 45 MW each will be set up at the power station soon.

BRIGHT SPOT

MORE TOURISTS

The tourist trade showed an increase of 11.3 per cent in 1964. A total of 1,56,673 foreign tourists (excluding nationals of Pakistan) visited India in 1964. Besides, some 2,93,530 Pakistan nationals came to India for short visits of three months or less.

U.S. tourists were the largest in number (42,674) comprising 27 per cent of the total tourists. Tourists from U.K. were next with 23,328. The maximum number of arrivals were in November (17,655), and minimum in June (9,384).

More than two-thirds (1,01,624) came for pleasure, 28,344 for business. Nearly three-fourths of all tourists came by air.

Of the total tourists, 33.9 per cent disembarked at Bombay, 29.5 per cent at Delhi and 17.4 per cent at Calcutta, 7.3 per cent (11,433). at Madras.

Some 40.1 per cent of the tourists were aged between 31 to 50 years, 27.8 per cent over 50 years.

Of the total tourists, 62.3 per cent were men and 33.8 per cent were women.

MORE STATE COAL

Production in mines under the National Coal Development Corporation and 'off-take' from them have increased. NCDC coal production went up by one lakh tonnes in a month to 812,000 tonnes in March The off-take increased by about 97,000 tonnes, staving off the problem of stock accumulation at pitheads.

800 MILLION TONNES MORE OF IRON ORE

Recent investigations by the Indian Bureau of Mines have proved reserves totalling 800 million tonnes of iron ore in different parts of the country. These reserves in Kiriburu, Meghahatuburu, Daitari and Bailadilla have been assigned for exploration to the National Mineral Development Corporation or State Governments.

Deposits of copper amounting to 100 million tonnes have been proved in Dariba and Khetri

Benzene Plant At Koyali

The Gujarat petro-chemical complex, work on which will begin this year, is expected to be completed by the end of 1968.

Offers for technical and financial collaboration from a number of foreign firms are being studied.

A contract for the supply of equipment and know-how for building a benzene and toluene extraction unit at Koyali has been signed by the Oil and Natural Gas Commission with the Italian company of Snam. The plant will be commissioned in 1967.

Petro-chemical industries, including plastics, fertilisers, detergents, synthetic fibre and synthetic rubber will also be established in Assam, Bihar, Kerala, Madras and West Bengal. Rs 300 crore will be invested in these during the period 1967-71.

SULPHURIC ACID OUTPUT DOUBLED

Production of sulphuric acid in 1964 was 680,000 tonnes, compared to 353,943 tonnes in 1960—a near doubling in less than five years.

To reduce dependence on imported sulphur, about 100,000 tonnes of sulphuric acid will be produced from zinc smelters, refinery gases, pyrites ores, coke oven gases and smelted copper ore by-product.

Production of sulphuric acid in India is likely to reach one million tonnes per year by 1965-66.

AMUL STORY

(Continued from page 6)

"Just that the same farmers who keep buffaloes also grow limes. We found that the middlemen were offering too low a price to the growers—sometimes a mere two rupees a maund. We stepped in, fixed a steady price of Rs 4.50. We buy the limes, extract the juice which we sell to the soft drinks people and the fruit canners. Out of the skin, we extract the oil which we sell to makers of cosmetics. A second line of service to our members."

Yet another subsidiary line is the making of banana powder. Bananas are grown in Kaira, and banana powder has a demand in Europe.

But for a fountain, the Amul plant is without the ornamentation that is nowadays so fashionable with development projects. For a project of its size, the total area occupied by the Amul plant is surprisingly small.

"On that side of the fountain you see our new dairy, the Defence Dairy.

"Why do you call it so?"

"It was set up under funds offered to India by Denmark after the Chinese invasion as a part of its aid to India's defence."

"But the Emergency is only two and a half years old. You mean you built it within this short time?"

"Yes, in eleven months after the agreement was signed."

"WE DON'T MIX MILK WITH POLITICS"

ONE reason why the Kaira Milk Union is running so well is that it does not stray into fields not its own. It does not attempt to do too too much.

For example it doesn't own trucks. It is not in the transport business. Milk collection from the 425 villages is not done in its own lorries but lorries of transport contractors who are hired from year to year after inviting tenders.

Likewise, the Milk Union does not seek to become a credit or banking organisation. Payment to the branch societies are made through the District Central Co-operative Bank. If a member needs a loan, he gets it from the District Co-operative Bank with the milk society assuring recovery. Cattle insurance is done by the Union Insurance Co-operative Society, and the Milk Union helps indirectly.

If the Union hadn't been as wise as it has been in conserving its energies, how could it have carried on an annual business of Rs 6 crore with a share capital of only Rs 10 lakh?

Though the participation is indirect, there is no doubt that the farmers would not have got these benefits in the absence of the Milk Union.

Amul has indirectly contributed a great deal to the development of the region. Kaira has among the best roads of any district. They would not have been there but for Amul's milk collection work.

The primary societies, each of which makes about Rs 5,000 to Rs 10,000 a year as profit, sponsor and sustain numerous welfare organisations like charity funds and cattle relief funds. They also help to build schools, libraries, roads, dispensaries and water-troughs for cattle.

Before leaving Anand I asked an Amul man: "What is the real secret of your success?"

"That we don't mix milk with politics," he said. "We keep politics out from top to bottom. You know our own President is an active politician. But as far as Amul is concerned, he scrupulously follows a self-denying ordinance. We remain pure and simple a union of milk producers. It is the producers we serve, and through them the consumers in wider India."

QUOTATION BOX

Preoccupation with figures is not helpful.

—Mr Asoka Mehta

"We are diverting the bulk of the contaminated fish to Calcutta where there has been a sudden shortage following stoppage of supply from East Pakistan", said a fishmonger hopefully.

—Report in "The Hindustan Times"

On grounds of general principle I do not favour elderly persons being placed in jobs which should really be held by younger persons.

—Mr Sri Prakasa

This place smells of ugly Americans, quiet Englishmen and frustrated Indians.

—Mr Ramesh Thapar in "Capital View" in "The Economic Weekly"

Things have changed immeasurably more in India since I left seventeen years ago than they have in the same period in England.

—Lord Mountbatten

We cannot understand why, when milk supply to DMS subscribers is being reduced, the DMS continues to supply ice cream and yogurt to Parliamentarians.

—"Argus" in "The Hindustan Times"

A bandmaster (of Rohtak) said he had earned Rs 1000 by working for 10 marriage parties on that day.

—Report in "The Statesman"

It may, perhaps, be of satisfaction to reflect that *The Times* has been amazingly well rehoused for the cost of a couple of airlines (£2,060,000).

—The Times, London, in a feature on its new building

Assistant surgeons, who form the majority of the medical cadre, are, in Government parlance, "Class III non-gazetted subordinates", which means they are classed with dispensers, nurses, clerks and 'khalasis'. "This is something which no self-respecting doctor can stomach", said one of the doctors posted in Delhi.

—Report in "The Statesman"

How to explain Indian economic planning:

The young diplomat in the making must be clear in his mind that India is doing planning under the free enterprise system, that is, practising socialism within the framework of capitalism. This, he must explain, is the essence of dharma which is another word for unity in diversity.

—From "Question for IFS candidates" in "Shankar's Weekly"

Sunday strollers messed up the lawns with impunity. A woman washed her child's bottom in the stream. Some men were finding the call of nature irresistible. Transistor radios blared forth impolitely. As night fell the garden grew gaudy—a failure in taste.

—On the Brindavan Gardens in an article on Mysore in "The Times of India"

The Early Bird satellite came into play amid a plethora of wormy puns.

—From "New Statesman"

We are having 200,000 new Delhiwallahs each year, most of them migrants who stay back and procreate.

—Mr. V. Viswanathan, Chief Commissioner of Delhi

ONLY RS. 19 CRORE SPENT OUT OF ALLOTTED RS. 150 CRORE

Rural Works Programme Too Slow

BIG EFFORT NEEDED TO SOLVE JOB PROBLEM IN VILLAGES

Contributed

A MANPOWER plan is at the heart of any plan for the economic development of a nation. A well-designed manpower plan ensures the best utilisation of human resources and prevents wastage.

In India, which is predominantly rural, manpower planning involves an attack on the acute unemployment and underemployment prevalent in villages. Realising this, the National Development Council recommended, towards the end of 1960, a programme of utilisation of rural manpower in the country. A start was to be made on a programme involving an outlay of Rs 150 crore. It was expected that the gap between the jobs available and the jobs needed which has been widening over the years, would be closed, at least partially, in the rural areas during the Third Plan.

Rural manpower programmes are undertaken in those rural areas where unemployment and underemployment are specially serious and they are expected to harness the unutilised energies of rural manpower in such a way that during slack agricultural seasons they create additional employment opportunities, and enlarge productive assets capable of contributing to increased agricultural production.

The projects or schemes qualifying for selection under the programme have therefore to be (i) labour-intensive, (ii) capable of maximising the benefit to the rural people through the best use of local resources, (iii) conducive to promotion of integrated agricultural and economic development, (iv) involving short periods of gestation and (v) simple in design, structure and material saving.

Among categories of projects which would readily meet the prescribed criteria are minor irrigation, bunding, soil conservation, land reclamation, drainage projects, afforestation and village fuel plantations, construction and maintenance of rural market roads and village approach roads, brick-paved lanes, fishery tanks, public godowns, community centres, schools, village housing, programmes of rural health and sanitation and rural drinking water schemes.

Only 3.5 lakh Benefit

The programme was initiated with 31 pilot projects in 1960-1961. At the end of 1964 it was in operation in 778 blocks. The total number of blocks allotted up to March, 1965, was 995.

There is no expectation of any significant addition in the number of blocks under this programme in the last year of the Third Plan. The total outlay on the programme during the Third Plan is not likely to exceed Rs 19 crore as against the target of Rs 150 crore.

On the employment side, against a target of providing 100 days of wage-paid employment to 25 lakh persons by the end of the Third Plan, it is estimated that only 3.5 lakh persons will obtain employment. Thus the performance of the programme has been low as compared to targets, both in terms of employment and actual expenditure. It may be noted that the overall unemployment in the country has increased from 5.3 million at the end of the First Plan to 8 million at the end of the Second Plan. Unemployment is expected to increase further to about 12 miliion by the end of the Third Plan.

Shortcomings have been observed both in the matter of programming and planning of projects and in their execution. There has been inadequate emphasis on the management function with the result that the tempo of work has been slow and the creation of more employment opportunities is taking longer time than necessary. In the first series projects (1961-62) it happened that some areas were selected where the problems of unemployment was not acute. In the second series projects (1962-63), however, there was some improvement in this regard.

Local Apathy

Lack of inter-departmental coordination, lukewarm participation of local leadership, delay in the sanctioning and release of funds, and unawareness on the part of block and district officers about the true objectives of the programme, inadequate examination of the technical soundness of projects, were some of the other shortcomings.

Further, most of the panchayats were found to be not competent enough to undertake the responsibility of executing this programme. In many areas, panchayats are still weak. They are also greatly handicapped for lack of efficient secretaries and thus unable to use and maintain accounts of the huge funds earmarked for this programme. The proposal to eliminate contractors by organising labour co-operatives has not made much headway because of the hostility of contractors and lack of leadership among the agricultural labourers.

In areas where only soil conservation schemes were taken up under this programme, blocks and panchayats having no previous experience of such schemes were not able to execute the schemes properly. The soil conservation department also could not come to the aid of such blocks because of its preoccupations with its own expanded programmes.

There is great need to reduce the present gaps between the objectives and the actual performance. For this purpose, administrative methods and procedures have to be streamlined and the projects carefully planned and executed.

In a majority of cases, the sanction of funds was done during or near March, that is, at the fag end of the financial year. In such a case, the money allotted under the programme either remained unused or led to hasty measures for attaining the targets. At such short notice, employment opportunities could not be created to the desired extent. Panchayats might therefore be allotted funds for one or two years in advance. There would then be no delay in spending the amounts at the required time.

Minor Irrigation Popular

As regards people's contribution in the programme, there is a need to give greater incentives for people to come forward and work under this programme. The people's contribution will be forthcoming in greater quantity if it is possible to visualise certain schemes that will directly benefit the lands of a given number of adjoining families in a village.

Other suggestions are: Better training of Panchayat secretaries in account-keeping, and better guidance from block level officials to the panchayats through careful supervision.

The Rural Manpower Programme should be implemented as part of an integrated area development plan. A programme that has attracted the attention of the peasantry and in which the targets have been fulfilled to a great extent is the programme of construction of minor irrigation works. Therefore, it is appropriate that wherever feasible, such schemes should be taken up. Also, the organisation of labour co-operatives, on which so much emphasis is being laid by the Planning Commission should be taken up in right earnest. But most important of all, the programme should be able to persuade the leadership of a locality that it can provide real benefits to the people of the area.

With 20 to 21 million job opportunities expected to be provided under the Fourth Plan, unemployment is likely to increase to about 14 million at the end of the Fourth Plan.

To mitigate the worsening employment situation from Plan to Plan, thinking in the Government of India has veered round to have a plan of Rs 250 crore for the development of rural manpower or creation of 5 million additional jobs. This, however seems a rather low figure. An outlay of at least Rs 500 crore and provision of 10 million job opportunities under the programme would be more appropriate targets for the Fourth Plan. To have a Rs 500 crore outlay without generating inflationary tendencies, attention may be drawn to the 'Food for Development Programme' of the United Nations. The use of PL 480 foodgrains as payment of wages in kind might be helpful. There is also a need for giving training in new skills to workers employed under this programme so that they can be usefully employed in future. This would help indirectly in reducing dependence on agriculture.

Finally, it may be pointed out that sufficient and timely support may not be forthcoming for a programme of manpower development without a deep national interest in the problem. There is a great need, therefore, for creating greater public awareness of the fundamental role of manpower development as a part of overall economic development in the country.

SEEKING MORE LOCAL INITIATIVE

An inter-State Conference on the Utilisation of Rural Manpower was held in New Delhi from April 14 to 16, 1965. The Conference was attended, among others, by Mr. Asoka Mehta, Deputy Chairman, Planning Commission, Members of the Planning Commission, Central Ministers, representatives of State Governments and leading institutions engaged in economic and social research and a few individuals with special experience in rural development.

The main conclusions of the Conference were:

(i) The programme should form an integral part of the district and block plans.

(ii) While, in the main, the rural manpower programme would provide work in the slack agricultural seasons, local organisations should be free to determine the phasing of the works according to local conditions.

(iii) Special stress should be placed on improving the skills of rural youth and training facilities provided for craftsmen such as blacksmiths, carpenters, masons and bricklayers and general mechanics. These training facilities should be provided through rural training institutes sponsored by the Union Ministry of Labour & Employment.

(iv) The programme should be undertaken to the utmost extent possible at the initiative of the blocks and village panchayats. They should be adequately assisted with technical staff to carry out the works and should have the necessary financial and administrative powers

(v) Local communities should be associated with the selection and execution of schemes, responsibility of maintenance of works, provision of land, and creation of community assets.

(vi) Universities, research institutions and colleges should be associated with the study of manpower and employment problems in rural areas and with evaluation of the working of the programme.

SHAMBU by Malinda Topa



SMALL RATION

How much space do our newspapers devote to reporting and writing on development?

A research worker in the Press Institute of India recently examined one month's issues of six daily newspapers. He gave the widest interpretation to "coverage"; that is, he included reports of speeches at inauguration ceremonies of projects and accounts of conferences and even ministerial replies to Parliament questions.

And then he found that on an average our newspapers give something like 3 per cent of the total space to development.

Because of this finding, one might ask with a little less hesitation: "Does our press care enough about development?"

Mr K. Rangaswamy, one of the senior newspapermen of New Delhi, has recently observed:

"We get so many items from the Planning Commission almost daily that it is impossible to asses their real significance. Any material coming from the Planning Commission must have a purpose and direction. The context in which the material is put out should be so explained as to enable the general public to appreciate how and in what manner the Plan is being revised or modified."

These remarks are from an article in the silver jubilee souvenir volume of the Press Association of the capital. Mr Rangaswamy is very right. Government publicity must really *inform* and not merely state.

In the same article Mr Rangaswamy says: "It is astonishing that many of the items released by the (Press Information) Bureau appear in important newspapers as "From Our Special Correspondent" and even introductory paragraphs written by the Information Officers are not rewritten."

This seems to be a perfect balance in laziness. On the one side there are information men who do not inform; on the other there are special correspondents who do not specialise.

An official of the Press Information Bureau, not stationed in Delhi but in a State capital, was telling us some time ago how, even when reporters were present at a function and supposedly covered it, they wouldn't write their reports but insist on his issuing his release so that they could bodily use it.

Spoon-fed journalism, however, is not peculiar to our country. Some people in the profession are worrying about its increasing vogue in America and Britain.

College Values

"Our own students and teachers put up much of the equipment and saved at least Rs. 35,000," said Dr Maganbhai Patel, head of the Krishi-Go-vidya Mahavidyalaya at Anand in Gujarat, speaking about the dairying department of his centre. He acknowledged of course the help received from engineers of the even more famous Anand institution, the milk plant, but his face filled with pride when he talked about the achievement of his people.

Few heads of educational organisations mention such things to visitors. More often, when asked whether they have any speciality, they say: "Fifty per cent of our staff have foreign degrees," or "We have received a grant of five lakhs from the Ford Foundation," or "We have built quarters for all our professors, and even for a third of our lecturers."

Foreign degrees are important; grants are important; houses for teachers are important. But if students are not the uppermost thought in men who deal with education why should students be blamed for not taking studies seriously?

Collector's Items

Found in the Ahmedabad telephone directory:

DIRECTOR OF EDUCATION
New Mental Hospital Asarwa-11.

* * *

Sign in a restaurant in Nadiad, Gujarat:

NOKARO SAATHE TAKRAR KARAVI NAHI

(Which means: Don't quarrel with employees.)



IGNORAMAN
Wants to Know

Why some
Anti-Vice-Chancellors
are still called
Pro-Vice-Chancellors

G. O. M. Durgapur

The largest number of centenarians is said to be found around the Caspian Sea. No wonder, for that is where the original home of man is supposed to have been !

We have our centenarians too, although we don't know how many of them were discovered by the 1961 census. Figures of age in rural India are hard to establish. The claims of the literate classes, however, are easy to verify, because of the practice of having horoscopes cast.

The latest issue of "Durgapur Steel Tidings", house organ of the steel works, has published the story and picture of Mr Satish Chandra Mukherjee, the leading grandad of the steel city.

Mr Mukherjee was born in 1856. Of his seven children, the eldest, a daughter is, 85. The youngest, Nanda Lal, works in the coke oven department of Durgapur.

The secret of Satish Babu's long life is said to be milk. According to his son, Satish Babu used to drink ten seers of milk a day up to his 55th year. Now, because of his age, he takes only a seer.

Satish Babu came to Durgapur three years ago. When he was told that the factory was built mainly because of the leadership of B.C. Roy and Nehru, he asked "Is Motilal still alive?"

Regd. No. D-876



EIGHTY-YEAR-OLD

PRIEST RUNS India's

Neatest Post Office

SERVING man is a way to serve God. Many have heard this said, but Reverend Brother K.V. Peter, octogenarian Jesuit, has said it with deeds for 51 years in his long life. What is spectacular about his achievement is that over half a century ago he decided to be a postmaster in his tiny hamlet of Michelias (also known as Shembaganur) which nestles at a height of 1900 metres above sea-level on the picturesque Kodai Hills in Madras State. Here, adjoining a private philosophical institute (the Sacred Heart College) is a small "extra-departmental" sub-post office run by Brother Peter. The "extra-departmental" character of this office has enabled him to stay at the same place for 51 years.

Yet Brother Peter has known no boredom. He has beaten the monotony of the unchanging postal routine in a special way. He took to gardening long ago and the surroundings of his tiny post-office have been transformed into a smiling terraced garden. Not satisfied with decorating the exterior of the post-office, he has adorned its interior walls with graphic tabulation of all the post-office accounts. A superfluity, you would say. Perhaps; but a superfluity that has earned for this tiny post-office the distinction of being "the best maintained in India". This compliment was given by no less a person than the Director-General of the P&T Department. Visiting dignitaries, Ministers and Governors have all had nothing but praise for this post-office.

However, what sustains the veteran through his hours of work are not words of praise, and certainly not his meagre salary but his firm belief that in despatching the mail of his brethren he is serving God.

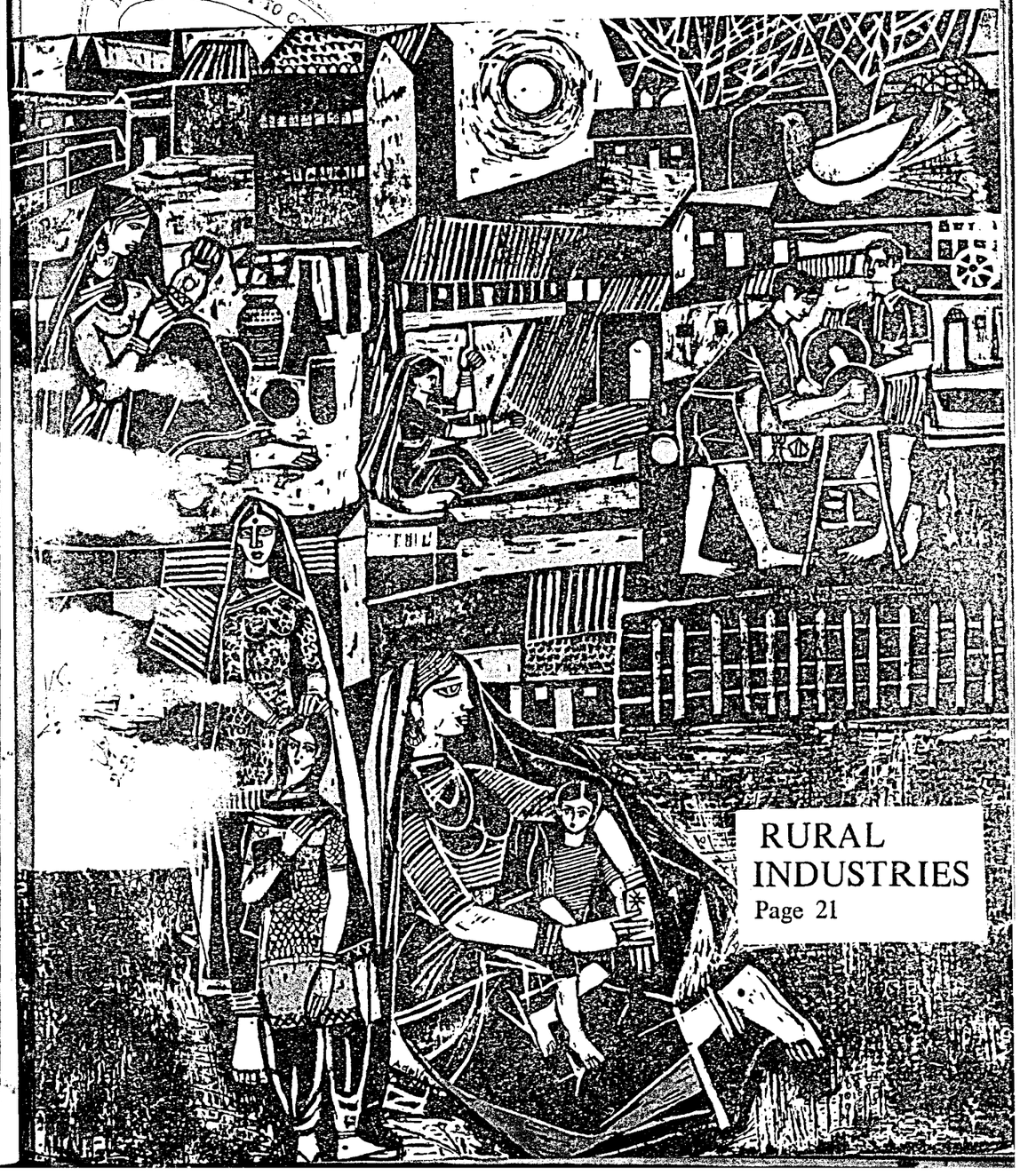
I. J. DESAI

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YOJANA

NINTH YEAR
12
JUNE 20, 1965
25 PAISE

DEPUTY SECRETARY TO GOVT.



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ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

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Letters

Marketing Punjab's Products

THE industrial development of the Punjab is hampered by a serious shortage of minerals in the State. Yet the growth of cottage and small-scale industries during the last fifteen years has been phenomenal.

The value of machine tools and agricultural implements manufactured in the State in 1960-61 amounts to Rs 7.6 crore. Batala alone accounts for more than 50 per cent of the total production of machine tools in the private sector in the country. Ludhiana and Amritsar, the centres of hosiery industry, lead the whole of India in the production of woollen goods estimated to be worth five crore rupees. In the bicycle industry, the Punjab produces about 5⅛ lakh bicycles. The percentage increase in respect of some other industries from 1950-51 to 1960-61 is given below :

Paper—194.8; sugar—941.2; cement—182.0; hosiery—104; brassware—246.0; cycles—1628.0; sewing machines—342.2; textiles 175.5!

During the Third Plan emphasis has been laid on the expansion of farm and forest-based industries, engineering industries producing intermediate products, and also on the increased production of consumer goods. The State Government has decided to launch undertakings in the production of pig iron, steel castings, seamless tubes, steel forgings, machine tools, and heavy electricals. All these will make for a strong base for the further growth of small-scale industries in the State.

Even though small-scale industries have developed remarkably, they find it difficult to market their products. The State Government has started a quality marketing centre which lays emphasis on improving the quality of the products and on standardising them. Combined with it, the State Government should also purchase at least 30 per cent of its requirements from the small-scale industries.

Another difficulty which these industries suffer from is lack of financial help. Of course the Punjab Finance Corporation grants them credit. But, I feel that the conditions for giving loans should be further liberalised.

Moga (Punjab) Prof. H.R. JAIN

AN ARTICLE WELCOMED

YOUR article on satellite communication in the June 6 issue is interesting and timely. *Yojana* can be immensely more useful if it enlightens its readers through such popular-style articles on some of the latest scientific and technological advances that open out new horizons and stir man's imagination.

The latest feat of man's walking in space has aroused in my mind several questions. How did Edward White, the American astronaut step out into space and walk 25 feet at the end of a gold-plated cord and then safely return to his spacecraft? What is the mechanism by which he pushed himself out? Another question is, how do the astronauts feel, eat and sleep in conditions of weightlessness inside the spacecraft.

Perhaps *Yojana* could try to answer these points.

Allahabad K.R. BASU

'STORY' IS NO STORY

I was amused to find that you call my article on Brother Peter's Post Office that appeared in the June 6 issue a 'story'. No, it is not a story, but reality. If you come South, you will see it for yourself.

Shembag, Madura I.J. DESAI

Method in Madness

THE Congress Working Committee's resolution on the language policy seems to be an attempt to find a method in madness. Can the language problem be solved by implementing the three-language formula compulsorily in all the schools and colleges in the country and by making all the fourteen languages the media of U.P.S.C. examinations ?

Lucknow C.S. Gupta

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EDUCATION FOR GROWTH

As May glides into June the season of examination results arrives. To millions of parents and students it brings inevitable excitement. To those boys and girls whose excellence has been proved a new chapter of hope commences; for others less fortunate it brings doubts and fears. Will they be admitted to diploma or degree courses of their choice? Universities and education departments, too, share this anxiety and they try to do their best to accommodate students. With the commencement of the academic season these anxieties fade away to return again in June next. So from one year to another we move on, with more students, more colleges and more graduates.

What is special this year, however, is the oppressive feeling of doubt generated by the recent language controversy. Those who look at education in the larger perspective of the country's social and spiritual needs have been further distressed by reports of student indiscipline, of the low standards of teaching and text-books and the inadequacy of technical colleges and training facilities. Many have asked, and in spite of what is being done, will perhaps continue to ask: What is the future of education in India? Are we going to revitalise our educational system and make it a powerful instrument of national growth?

For a country so vast and varied as India, with its many languages, tremendous disparities in the educational and social levels of the people and with unrestricted freedom for all to express their views, it is natural that evolution of a national policy of education should take time. Perhaps we have taken a little too long to do this, but the end of uncertainties and doubts seems now to be in sight. The decisions of the recent Conference of State Ministers of Education at Srinagar seem to give us this hope.

The most encouraging aspect of this conference is its decision to leave it to the Union Government to effect qualitative improvement in all sectors of education, to have text-books prepared on a national basis and to increase the stress on science education at all levels. Dr. V.K.R.V. Rao explained, in no uncertain terms, what the Planning Commission's objectives would be in formulating the Fourth Five Year Plan. Education at all levels would receive developmental bias, and to the millions of boys in the villages who will eventually settle down as farmers, education would become more purposive. A large number of junior agricultural schools and polytechnics would be opened in the villages and instruction would be given in the regional languages.

Student indiscipline, the State Ministers agreed, had become a menace. They agreed on a seven-point programme for tackling this problem which in essence provides for elimination of student dissatisfaction through better utilisation of students' leisure.

So self-critical and impatient are we with our shortcomings that we always tend to underrate our achievements. In spite of the controversies on language, script, text-books, teachers and so on, our advance in the fields of general and technical education has been very impressive in the last 15 years. Total enrolment of students of all categories has increased nearly three times from 240 to 680 lakhs; students in universities and colleges have increased from 7 lakhs to 19 lakhs. In the last five years alone admissions into diploma and degree courses in technical colleges has increased from 39,620 to 77,900. Whether we view it in terms of outlay (Rs 560 crore) or physical targets the progress in the Third Plan has been quite satisfactory.

Qualitative improvement in equipment and instruction and, no less important, better trained and better paid teachers is a pre-condition if education is to be an investment in man. There are firm indications that the Fourth Plan will give concrete shape to these objectives and make education what we have always wanted it to be—an instrument of national growth and the foundation of culture.

BAMBOO AND BULBULS IN VASAD

Yojana Staff Report

Sketch

by

R. SARANGAN



BULBULS have always sung in Vasad, but bamboos are new to the place. Not that they were unknown. The huts there have had bamboo roofs; the bullock-carts have had bamboo sides; and each house has had bamboo baskets to store grain.

But bamboo was being brought from afar. Now Vasad has begun growing its own bamboo, and in twenty years' time it may be able to raise all the bamboo it needs.

Like bamboo, other plants have newly come to Vasad—eucalyptus, teak, *siris*, and even poplar from distant Italy.

The introduction of all these plants is the handiwork of the Soil Conservation Centre at Vasad. The village is one of the hundreds that are situated in the ravines along the Mahi river.

Like the Yamuna and the Chambal the river Mahi cuts deeply into the alluvial soil along its course. The ravines of the Chambal are well-known—should we say notorious?—as much for the land that has been lost to cultivation as for the bandits they harbour. The Mahi ravines may not be so deep, but they too, until a few years ago, were the haunt of people who took the law into their own hands. The place has produced reckless fighters and Mahiswis (people of the Mahi) were in great demand for recruitment to the Mughal armies. This martial tradition was transformed into the spirit of non-violent resistance by Gandhiji and Sardar Patel. The first Satyagraha launched by Gandhiji in India was on behalf of the farmers of Kaira district.

IN Gujarat the ravines made by the Mahi (the river rises in Rajasthan and flows into the oil-rich gulf of Cambay after a course of 560 kilometres) and the companion rivers, Sabarmati and Banas, have been called *kotars*. There are *kotars* also along the more famous Narmada and Tapi. In fact the area lost to *kotars* is as large as a million acres.

A start was made to reclaim *kotars* even when the region formed a part of the old Bombay State. The new Gujarat State has redoubled its efforts to reclaim the land through modern soil conservation methods for the purpose of growing more crops and raising forests.

Kotar reclamation is one of the two major projects of the type that Gujarat has undertaken. The other is the project to reclaim the coastal saline lands specially in the Rann of Kutch.

HOW is a ravine formed? First of all by the action of water on soft soils. The river itself, as we saw, cuts into the alluvial soils, which do not hold together. Rain water makes furrows in the land and carries away valuable top layers. And men and animals aid the process. By cutting down trees and forests and by letting cattle graze the grass indiscriminately, we ruin the vegetation cover of the soil, which then becomes a helpless victim to erosion. In the last century, ravines are supposed to have spread at an alarming rate.

But this desolate march *can* be checked. And checked by simple means.

An interesting visual lesson of how it can be done is provided by the Soil Conservation Research and Demonstration Centre at Vasad. The Centre is run by the Union Food and Agriculture Ministry, but its work and results help the State Government and the farming families of Gujarat.

The first thing that the Centre has demonstrated is that closure leads to rapid revegetation. "Put a fence and see the forests grow." The truth of this can be seen at the 345-acre farm belonging to the Centre. The fences have kept away cattle, and within eight years, so-called barren lands can now boast of an impenetrable growth.

The second step is contour and peripheral bunding. Bunds are built along the edges of the table lands, and these check the flow of rain-water and help the land to absorb more of the moisture. Further ravine formation is prevented, and the bare brown landscape begins to wear a coat of green.

The third device is bench farming. Ravines are of three kinds: shallow ones, medium ones and very deep ones. In the deep ravines, the sides are almost vertical; any new vegetation can be introduced only at the narrow bottom. In shallow and medium ravines, where the sloping is less steep, narrow strips of land—no wider than benches—are formed in terrace fashion, one below the other. Several kinds of crops are raised on the bench terraces—all those that are prevalent in the region.

Water flows from the broad shallow ravines into the medium ravines and finally into the deep gullies. At the place of transition from shallow to medium, a 'check dam' is built which is partly of earth and partly of masonry. Similarly, another check dam is built where the ravine graduates from medium to deep stage. The end of the gully is plugged. The dams act as a water-catcher and a brake on the speed of flow. Soil conservation involves water conservation also. Since the moisture content of the soil increases, trees can be planted at the floor of the ravine, while the bench terraces can be put to agricultural use. The dams cost 800 to 1000 rupees.

The engineering that is involved would suggest that the very first stage in reclamation is a thorough survey and classification of the area.

Where the land is level, soil conservation projects can be undertaken with manual labour. But ravine reclamation is too hard for manual work. Much of it would require the use of bulldozers. The cost, according to Dr. S.D. Bakshi, a Kharagpur engineer who has been trained in Italy and has been working at Vasad, comes to Rs. 1700 a hectare. This is beyond the means of most farmers, particularly the small farmers of the area. Added to it, the full benefit of reclamation cannot be obtained all at once. It takes fifteen to twenty years. The deeper of the Mahi ravines, at any rate, are suited more for afforestation than for agriculture.

But the experimental farm at Vasad, which consists of all three kinds of ravines, reveals the full range of possibilities of soil conservation and reclamation. It grows tobacco, *bajri* and pulses on the bench terraces. (Anything that can be grown normally on the level lands of the region can be grown on a bench terrace.) On the bed of the shallow ravine, limes are grown. In the medium ravines, the sides are planted with quick-growing trees like eucalyptus and *babul*, and the bed with neem, *bor*, *pongamia*, *sisam*, and silk cotton. In the really deep ravines the bed is planted with bamboo and the steep sides with the hardy agave (*sisal*). The tobacco, bamboo and other products of the Centre are already bringing in about Rs. 40,000 a year.

"Closing" the ravines, that is, preventing cattle-grazing, is not always popular with the people of the locality, since the region is a milk-producing area. But it is possible to convince the farmers that by co-operating with the soil conservation programme, they will be gainers. To carry home the lessons, the Vasad centre conducts demonstrations on farmers' fields. The Centre also has two demonstration projects at Vehra and Bhetasi.

Preventing cattle grazing in ravines helps rapid re-vegetation and eventually benefits dairy farmers.



PLACE OF SOCIAL LEGISLATION IN DEVELOPING COUNTRIES

The Duty of Inducing Change

J. P. BHATTACHARJEE

DEVELOPMENT is a process of mobilising and utilising the human, natural and material resources of a country (along with resources received from abroad) for achieving the economic and social goals of the nation. It involves efforts and sacrifice and departure from traditional attitudes and behaviour on the part of individuals and groups.

The institutional and organisational requirements of a developing society are not often met by the existing economic and social structure. In fact, the economic and social relations in a pre-industrial society often act as a drag on the course of growth.

The new pressures do not, however, start operating effectively or strongly until the Government goes through an initial process of transformation in its philosophy and goals. Economic history abounds with instances of stagnation in pre-industrial societies because of either foreign domination or an unbridged gulf separating the State from the society of which the individuals are members. Transition to a stage of growth and development is generally accompanied by a change in the role of the State from one of restriction-preservation to that of positive and dynamic leadership and participation in social and economic activities. In fact, the process of development is always symbolised by the emergence of a development-conscious State and Government.

Where this emergence is synchronised with an upsurge of enthusiasm for change among the major social groups, the task of the State becomes easier. Social legislation does not have to move far ahead of the people. It serves mainly to codify changes that have already been accepted. Where, however, this does not happen, social legislation gains in importance as an instrument of change, often moving far ahead of the current levels of thinking and acceptance of the people. Indeed, the latter is more often the case in developing countries where legislation is needed not only to accommodate and induce development but also to "modernise" the traditional society by codifying the personal laws and extending the scope of civil legislation.

It is under situations and conditions of the latter type that social legislation raises issues far beyond the immediately related fields of justice and jurisprudence, and, as such, may be treated as a category apart from civil legislation in the traditional sense. The compulsive logic of economic development leads to the use of legislation as an instrument of social change. The drive for such legislation usually comes from the enlightened elite often long before the opinions and sentiments of the dominant sections of the public have turned in this direction.

An economist believing in free enterprise of the modern brand would probably include these among the prerequisites of a developing economy; mobility of land, labour, capital and other means of production, freedom of the individual in matters of economic choice, rationality in their behaviour, competition among the units engaged in production and trade, and an exchange economy operating on the basis of a free market mechanism and a pricing system reflecting the choices of consumers and producers.

Role of State in Modernisation

An advocate of the so-called mixed economy would in all likelihood accept some of the preconditions like mobility of factors, rationality of economic behaviour, market mechanism and pricing system; but he would make the ones relating to the freedom of choice, action, production and exchange subject to an overriding social constraint, namely the interests, needs and goals of society. In his argument, the possibility of divergence and conflict between the individual and society in matters economic and developmental is given a far greater recognition and the need for State action correspondingly envisaged on a larger scale.

The "free-enterprise" economist's philosophy and approach are known to be antagonistic to State interference and intervention. But even their model of economic development assumes a basic minimum level of "modernisation" and rationalisation of the economic structure and relations, to be secured with the help of outside agencies—in most cases the Government.

Any social scientist will find the nature and scope of such modernisation far-reaching. This will be apparent even from an illustrative listing of some of the areas of change such as: (*a*) removal of monopoly elements from the ownership structure of land, capital and even labour resources; (*b*) redefinition of individual rights and obligations regarding membership and transfer of property, employment of labour and payment of wages and remuneration so as to induce and promote optimality in their allocation and efficiency in their use; (*c*) removal of social and other restrictions on the mobility and free choice of individuals; (*d*) imposition of discipline and control on the financial institutions and guiding their activities along sound monetary-fiscal lines; (*e*) some control over foreign exchange; (*f*) encouraging, educating and assisting the weaker elements in the social and economic structure to develop initiative and compete in production and trade; (*g*) removal of social and physical restraints impeding the efficiency and integration of the marketing structure and the pricing mechanism; (*h*) extension of the money-based system of exchange often by putting limits on use of kind payments and barter; and (*i*) measures to induce changes in the behaviour of individuals regarding saving, hoarding and conspicuous consumption.

New Concepts of Justice

Even this illustrative list looks formidable. The magnitude of the transformation that it postulates will, of course, depend on the characteristics of the society one is dealing with.

In the first place, the changes impinge on some of the fundamental rights of individuals, specially of those belonging to the traditional propertied classes or groups. The rights more likely to be affected are those relating to the absoluteness of the ownership and tenancy of land, the hiring of labour and payment of wages to them, and the freedom to engage in practices like usury, forced labour etc.

Secondly, a new concept of justice based on socio-economic efficiency and development is injected into the traditional values. In its simplest and extreme form, the new argument holds that whatever is good for economic growth and development and contributes to efficiency is good for the people and the nation.

Thirdly, elements of the social structure and aspects of the traditional institutions that cannot fit into this system or do not change in this direction are not considered sacrosanct or worthy of preservation, whatever may be their basis in culture or religion.

Fourthly, status and emotionality are given a lower place to achievement and rationality in social and economic relations.

Finally, freedom and equality are recognised among the important goals of society.

An advocate of planning for a mixed economy will add to these quite a few areas of individual action and institutional functioning where the social goals of development will have to be enforced by the State, thereby curbing the absolute nature of the citizens' right to liberty and freedom.

By and large, one may say that the critical areas of impact of modernisation on a traditional society are likely to be land tenure and tenancy, money-lending and usury, trading practices and traditions, the terms and conditions for the employment of labour, their freedom to bargain and enter into contract, the laws of inheritance, use and maintenance of productive resources and assets, the position of women and children in society, the social customs and practices bearing on saving, hoarding and wasteful consumption on occasions like birth, wedding and funeral, sending children to school, environmental sanitation, health and housing.

Strategy of Social Change

Granting the need and desirability of such changes in the social structure, how does one proceed to think about the possible instruments to be used? Broadly speaking, there are six types of instrument—(*a*) the constitution of the country, (*b*) civil legislation, (*c*) social legislation (to the extent it is not covered under civil laws), (*d*) ordinances and resolutions and executive orders of the Government, (*e*) education, persuasion and extension efforts of the Government and (*f*) activities of non-governmental agencies and groups.

These are not alternative instruments, and there is a place probably for each one of them in any strategy. The problem of choice here is one of deciding how effective each is for bringing about particular types of change.

The Constitution of a country and its people is a sacred instrument which, among other things, defines the rights and duties of the citizens, the obligations of the people and Government. If the transformation of a traditional society is to take place through the established processes of law and Government, the provisions of the Constitution set a limit to the nature and extent of modification of fundamental and other rights that are possible not only within its existing frame but also within the permissible range of its amendment.

In India, the Constitution has been used as the instrument of change in a number of difficult aspects of social organisation and structure. Land reforms, compensation for acquisition of property by the Government, right to justice, removal of social disabilities of the weaker sections, right to work, equality of economic opportunity, compulsory education, local government are some of the areas where the Constitution of India has laid down the basic policy of the nation or given a clear directive to the government for taking action.

Since the constitutional provisions are in the nature of guarantees, permissions and directives, the enforcement of the substance of these depends on follow-up legislation or the judicial process. The Constitution is the most appropriate instrument for initiating changes impinging on the rights and duties of the vested interests, or on the accepted weaknesses of the social and economic structure.

One thing, however, is clear. If the Constitution of a country places insuperable difficulties in the way of the Government, the economic units and the social institutions even in their attempts to create the infra-structure of development, there is every justification for its amendment.

Religious Sanction v. Civil Law

The body of civil laws in conjunction with the personal laws and the religious codes give the framework within which the social and economic relations of the people are carried on. One of the special features of many underdeveloped societies is the relatively larger sphere or domain in which civil laws yield place to religious and personal laws. Property rights, inheritance, agriculture and economic pursuits, and even ideas about education, health and social welfare derive themselves either from religious codes or from customs and practices that have acquired near religious sanction. These have tended to determine the status, role and functions of individuals, sexes and castes or classes, creating rigidities and condemning departures and changes. While the values and ethics emphasised in the religions are all for the good of the people, in the practice of these over

the centuries there has not often been reformist attempts to adapt them for the future.

The hard core of the problem of social change arises from this. How much civil legislation can be enacted and after enactment effectively implemented is hard for any one to guess. From the experience of India, I can say that while this method has been used to codify reforms in a number of areas such as succession among Hindus, marriage, untouchability, forced labour, land tenure and tenancy, and money-lending, we are far yet from the position where we can claim that the more difficult of these reforms have been fully and effectively implemented. The gap is noticeable particularly in respect of laws aiming to improve social customs and practices.

Since some of the more difficult areas of social change have already been referred to under civil legislation, the areas remaining to be discussed relate to social services like education, health and housing and social welfare services for the weak, vulnerable and handicapped sections of the population. In many of these areas, there has developed a "world ethos" which is permeating the traditional societies too. The concept of a Welfare State took a long time to get established in the West. In the mid-twentieth century, however, it is no longer an issue for debate; and the underdeveloped countries find themselves in the ambivalent position of having to adopt it before growing into it.

Some of the areas of social services and welfare that are more or less universally accepted are: (*a*) free, compulsory education of children at least up to the primary level; (*b*) provision of special benefits for the education of weaker sections; (*c*) control of epidemics and communicable diseases; (*d*) protection and insurance of the health and safety of labourers in factories, mines, etc.; (*e*) banning of immoral traffic in women; (*f*) protection and care of children; (*g*) control of delinquency, vagrancy, begging, etc; (*h*) protection of tribal and weaker sections from exploitation; (*i*) welfare of the handicapped; (*j*) welfare of the aged and the infirm; and (*k*) social defence.

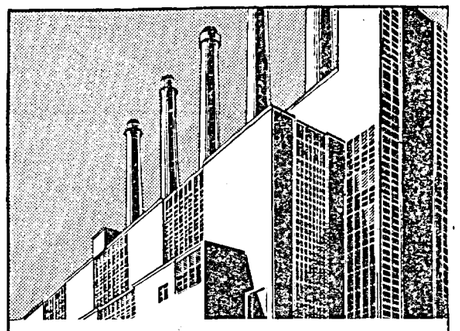
In areas such as these, seldom would one see questions raised about the desirability of State and social action. The issues are more likely to be: how much can be done and how soon.

Enforcement and Communication

Two instruments other than legislation are: (1) persuasion, education and extension and (2) activities of non-Government organisations. Through them opinion is created, attitude modified, acceptance (or rejection) of legal provisions furthered and change initiated. These have a very important role to play in the successful enforcement of legislation for social change.

These two channels, however, are weak and relatively undeveloped in the developing countries. Education and extension are activities that need to be developed vastly to further the process of development. In this task the Government agencies can only succeed partially. Social engineering of the highest calibre is required in encouraging and motivating the voluntary organisations, associate agencies, political groups and others to

(*Continued on page 28*)



a dream comes true at

DHUVARAN

Where the River Mahi flows into the gulf of Cambay, there stands Gujarat's brand-new DhuvaranThermal Station—the State's power status symbol!

Built at a cost of Rs. 30 crores, the Dhuvaran Project is at present capable of delivering 254 mW of power—its ultimate generating capacity being 588 mW—assuring a perennial flow of power to the State for its farms and factories.

In the realisation of the Dhuvaran dream, Alind has had a modest, if significant, part to play with its contribution of about 800 miles of ALIND "PANTHER" ACSR to the transmission network.



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Interview

with Dr. P. K. KYMAL

Technical Adviser on Subsidiary Foods, Government of India

THE OTHER FOODS THAT WE CAN EAT

ROSSCOTE KRISHNA PILLAI

ALL of us need food and we relish our meal when it is tasty. But we do not tear apart the meal to see what proportions of carbohydrates, proteins and fats it contains and what it does when it goes into our system. Even though people generally do not bother about the chemistry and nutrition of their food, it has been acknowledged that nothing affects a man's well-being more than the food he eats or fails to eat.

Nearly half the world's population suffers from varying degrees of malnutrition. It is now universally recognised that an average man's diet in most of the underdeveloped countries is far below the desired protein content which is approximately 1 gram per kilogram of body weight per day. The common man's diet in India is no exception.

Cereals which form the staple diet of Indians do not have enough protein content. One way of supplementing the nutritive value of this food is to take a variety of subsidiary foods. The Government of India have made a beginning in developing and popularising the consumption of a variety of nutritious and wholesome food-stuffs covered by the general name "subsidiary foods" which are within the means of most people with small incomes.

"Foods which are generally called *subsidiary* are not really subsidiary. They deserve an equal, if not a more important, place in the diet", said Dr P.K. Kymal, the Central Government's Technical Adviser on Subsidiary Foods, when I asked him what is meant by subsidiary foods.

"You know, the bulk of energy and protein requirements of an average Indian is obtained from cereals and pulses. What we call *subsidiary foods* are the non-cereal items of energy-giving protein. They are rich, protective food-stuffs.

FOOD IS WASTED

When we remove edible skin of vegetables and discard their leafy tops;

When we throw away water in which rice and vegetables have been cooked;

When rice is excessively polished and washed;

When food is cooked in open utensils;

When we prepare more food than we require and

When we allow depredations of rodents and insects.

There are two major groups of subsidiary foods. One group consists of roots and tubers, which are energy-giving and are a source of carbohydrates. Leafy and other vegetables, groundnuts, fruits which are rich in proteins, minerals and other accessory factors belong to the other group".

"We must diversify our diet" Dr Kymal went on. "We are over-indulgent in cereals. They supply calories, no doubt, but if the body is deficient in proteins and vitamins, a number of diseases will result. Only the intake of subsidiary foods will prevent this".

"*Is the idea of subsidiary foods new in India ? Didn't we have them before ?*"

"That's a nice question. From the time of Vatsyayana we have been aware of a number of subsidiary foods. The famous ayurvedic preceptor Charaka said 19 centuries ago that a proper diet should include grain, greengram, *amla* fruit, milk, butter, meat, honey and so on, besides milk and its products, fish, vegetables and tubers. But in those days every village was a self-sufficient unit. The people could use fresh food of their choice. Now, food habits have changed. Overpopulation, urbanisation, and industrialisation have affected the pattern of food consumption. We have given up our old practices even as we have discarded Sanskrit".

"*What is the position now in regard to these subsidiary foods ?*"

"The present situation is that we are largely dependent on rice and wheat. But the production of these grains cannot keep in step with the growth of population in our country. There are limits to intensive production also. But this need not frighten us. Papaya, bananas, vegetables, potatoes, sweet potatoes, tapioca and other tubers are all high-yielding plants. They cannot replace cereals, but they can certainly supplement them. We have plenty of water resources. We can

develop our fisheries, rear ducks in lakes and ponds and obtain algae and yeast from sea-weeds".

"But how can we make people take to these subsidiary foods ?"

"Yes, people are very touchy about their food. We shall have to educate them. The barriers of illiteracy, tradition, customs, habits and fads would have to be surmounted. A real breakthrough is possible only when our food and nutrition campaign involves the production, processing, distribution, and marketing of such foods.

"We have a fleet of mobile Food and Nutrition Extension units which are deployed in the country to gather data on food consumption and nutritional diseases. These surveys, made continuously on scientifically sampled populations, provide accurate estimates of what the people are eating, how much, and what they really lack. After assessing the food habits of the people, our mobile units demonstrate to the people how they can really start relishing non-traditional foods when they are properly prepared."

"But there are many, as in Kerala, who take tubers and roots ?"

"Yes", he agreed. "Tapioca when taken with fish is highly nutritious. The poor people of Kerala have taken to these without knowing their scientific value. What we have to do is to impress on others, through demonstrations and other methods, the value of subsidiary foods.

"We are now having an Applied Nutrition Project run by the Ministry of Community Development and Co-operation with the help of UNICEF and FAO. Information is disseminated to people by the State Governments. Mobile exhibitions are being organised in weekly markets and fairs. Permanent exhibitions would be set up in four regions. Annapoorna type low-cost nutritious food canteens are going to be opened in many places".

"Have you also developed a low cost diet for the poor people ?"

"The Nutrition Research Laboratory at Hyderabad has worked out the recipes for a low cost balanced diet. Our own Institute of Catering Technology and Applied Nutrition at Bombay has also worked out a low cost balanced diet".

"But a large majority of the people cannot get the required quantities of protective foods like milk, fish, eggs and meat. How can we solve this problem ?"

"A cheap and highly nutritious food within the reach of the common man has been developed by the Central Food Technological Research Institute, Mysore. You know that we produce in India about 5 million tonnes of groundnuts a year. The cake remaining after expulsion of oil is sold as cattle feed and fertiliser. This can be processed and made fit for human consumption.

"Already two units each of 3,000 tonnes annual capacity have been set up at Bombay and Coimbatore to salvage edible groundnut flour. This flour is used with wheat flour and tapioca flour to make synthetic rice. A multipurpose food has been evolved with groundnut flour in combination with 25 per cent Bengal gram flour enriched with vitamins. Several delicious recipes, butter and nutro biscuits can be prepared using groundnut flour. We are planning to set up a unit for making weaning food from groundnut flour".

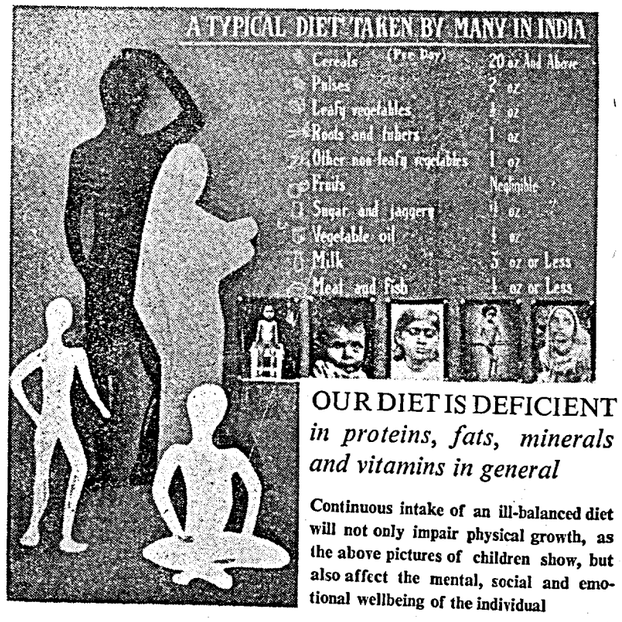
"Apart from the production of such new food-stuffs what are the other functions of your Subsidiary Foods Division ?"

"While intensifying programmes for production and popularising subsidiary foods it is equally important that a systematic development of conservation and maximum effective utilisation of available foods has to be made. One of our functions is the application of science and technology to food. Most of the food produced is perishable and seasonal. They have to be protected from pests and transported often over great distances. We have initiated programmes for the promotion of food preservation in markets as well as homes.

"Dr Kymal, what are the scientific methods of conserving food ?"

"Wax emulsion is one method, that is, by dipping fruits like bananas in wax, they can be kept for a longer time. Cold storage and sun drying are other methods. We have improved scientific techniques of

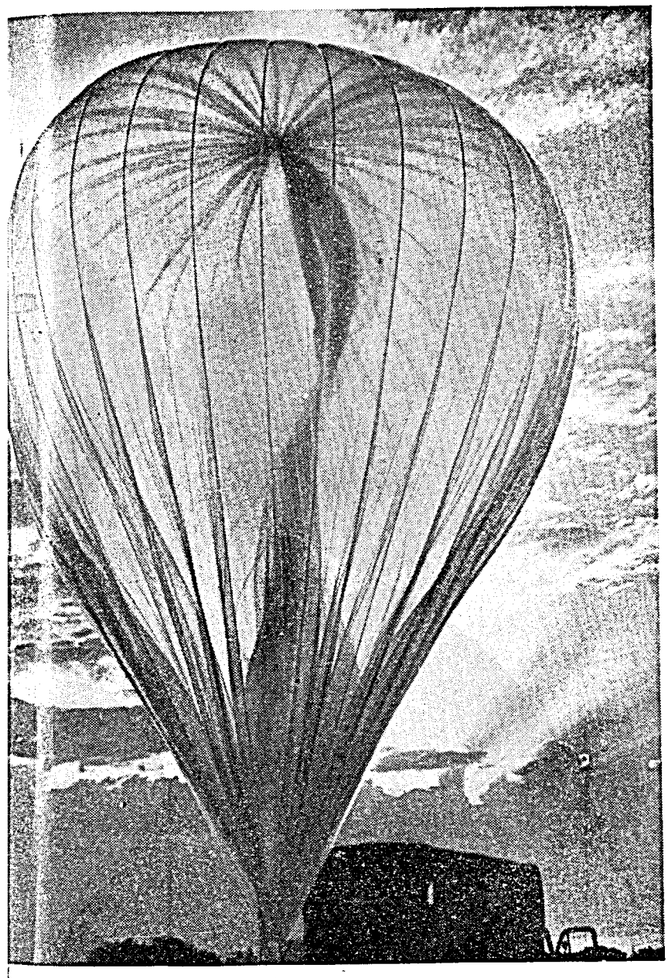
(Continued on page 27)



OUR DIET IS DEFICIENT
in proteins, fats, minerals and vitamins in general

Continuous intake of an ill-balanced diet will not only impair physical growth, as the above pictures of children show, but also affect the mental, social and emotional wellbeing of the individual

COSMIC STUDIES IN INDIA



A balloon, ready to pick up its payload and start on its upward journey to a height of over 33,000 meters.

FEATURE: USIS

Tata Institute Makes Headway

SCIENCE and engineering are growing at such a fast rate that within twenty years the quantity of knowledge is expected to be twice what it is. This advance is not the exclusive achievement of any single nation. Scientists of many countries have contributed to its success.

In India, at the forefront of this movement is the Tata Institute of Fundamental Research. Under the direction of Dr. H.J. Bhabha, the physicist, this institution has won an enviable reputation for India in the world of science.

The Institute, often described as "the cradle of India's atomic energy programme", was started in a modest way in 1945 as a joint endeavour of the Dorabji Tata Trust and the Government of Bombay. It has now developed into one of the largest research centres in Asia.

Among the various research programmes carried on at the Institute during the last 20 years, two are of particular interest: the cosmic ray research programme and the computer technology.

The cosmic ray programme is probably the best known internationally. Fifty researchers, sometimes in collaboration with foreign scientists, are studying the nature and origin of cosmic rays and other associated phenomena.

The findings of the Institute's experiments have been made available to other groups working on similar problems.

Within the last four years the Institute has claimed the attention of the world's scientist community by participating in two international endeavours. The first was in 1961, when the Institute, in collaboration with the U.S. Air Force Laboratory, conducted a series of balloon flights

in Hyderabad. These probes aimed at acquiring better knowledge of the earth's gaseous envelope, its vapour content at different altitudes, the concentration of dust particles in the atmosphere, and the patterns of winds moving from the equator.

The Equatorial Expedition

The Institute also participated in a series of investigations in March and April this year. With American and British scientists, its researchers conducted 16 balloon experiments at Hyderabad's Osmania University grounds to study the nature of cosmic radiation, primary particles and nuclear collisions. The experiments, termed the Equatorial Expedition, were part of the worldwide scientific activity now under way—the International Years of the Quiet Sun (IQSY).

Bertram Stiller of the U.S. Naval Research Laboratories, who was the scientific co-ordinator of the expedition, said: "The research that the Tata Institute has done in the past 15 years has received world-wide recognition as being first-rate and the results are used all over the world."

The expedition has resulted in the start of a new project for the Indian Meteorological Department. "In launching the balloons with their cargo of instrumentation," according to Robert Kubara of the U. S. National Centre for Atmospheric Research, who was the project manager, "the upper atmosphere winds were of tremendous importance. Because of a lack of these data in India, we had a special radio-direction-finding unit brought here to help solve this problem."



Above : Researchers tracking the balloon through theodolite from the tracking station. Below : Scientists at the Tata Institute working on a modern computer system

Work on Computer Technology

The second field where the Institute's work has been of a pioneering nature is computer technology. The Institute began working on a pilot machine in 1954 and built its first computer, called the TIFRAC, in 1959. This helped the solution of problems not only at the Institute, but also at the Atomic Energy Establishment; the Indian Institute of Science, Bangalore; the Physical Research Laboratory in Ahmedabad, and many other organisations.

Last year, the Institute received one of the world's most modern computer systems from the United States. Known as the CDC 3600, it can do 600,000 additions or subtractions and 200,000 multiplications or divisions per second on 15 digit numbers of "words". The $2 million computer was financed through a non-project loan from the United States Agency for International Development.



LOOKING FOR OIL

Commencing from this issue YOJANA will bring to its readers a new feature entitled IN THE NEWS. Its aim is to present, in popular language, relevant background information on select technical subjects of current importance to India's development plans.

THE saying goes, "only a drill can tell" where oil will be. The Government has decided to undertake drilling in the Port Canning area, 40 miles south of Calcutta after a suitable anticlinal structure has been discovered by seismic survey which is being conducted since the last few months. Drilling operations are likely to begin in September/October this year.

In 1953 the Indo-Stanvac Petroleum Project launched by the Central Government in co-operation with an American Oil Company, carried on test drilling with ten drills in selected spots over an area of 10,000 square miles in Port Canning. Gas was struck at a depth of 13,000 feet, but no oil was found. The project was abandoned in 1960.

Later, experts felt that the last word had not been said about the existence of oil or gas in the Port Canning region on the findings obtained with ten drills.

Drilling is a very expensive process. So the Government must have had sufficient clues before they go in for such an operation which involves time, money and labour. What could be these clues and how are they discovered?

Oil Lies Hidden

Oil and gas are found trapped among formations of porous rocks which are closed in by walls of non-porous ones. There are three main types of oil traps—structural, stratigraphic and combination traps.

Structural traps have resulted from deformation of rocks. These include anticlinal and fault traps and salt domes. Upward folds of rocks which look like arches or domes are called *anticlines*. Rock-beds are often dislocated when a porous layer is cut off by a non-porous layer. This gives rise to a *fault trap*. A *salt dome* is formed when salt is forced to flow under very high pressure from deep-seated beds through the upper layers. It seals porous formations and creates conditions in which oil can accumulate.

When a layer of rock dies out and reappears elsewhere as a different type of rock, a change occurs in the porosity of the same layer. The more porous section becomes a *stratigraphic trap*.

IN THE NEWS

When the two types described are found in peculiar combinations, it is called a "*combination*" *trap*.

Seeing Through Rock and Sand

The first stage of oil exploration consists in making a quick ground survey. To begin with, aerial photographs are taken of the selected area and these are studied for anticlines, faults, cap rocks and so on. Then geological ground parties are sent out to make accurate maps locating structures which are considered suitable for the trapping and accumulation of oil or gas. Samples are taken of the more important rock formations, sometimes by drilling shallow or deep wells in the rocks. These are powdered and scrutinised under a microscope by scientists who have a thorough knowledge of fossils of animals and plants. From this study it is possible to get a clue to the period in which a particular rock was formed and to see if it is an oil-bearing rock.

Where the rocks are not exposed and the structures are concealed by thick sand or water, the oil scientist uses geophysical methods which help in the selection of sites for drilling. There are three such methods—magnetic, gravimetric and seismic.

By measuring the magnetic intensity at a spot and comparing it with that of other spots, a rough idea of the structure underneath the surface is obtained. A magnetometer fitted to an aeroplane's tail and towed behind records the magnetic intensity continuously. The instrument can also be towed behind a ship or boat for observations over water-covered areas.

Least expensive is the gravimetric method. Using a gravimeter, the force of gravity on the surface of any spot is measured. This gives an indication of the density of rocks lying underneath and the depth at which they are situated.

Artificial Earthquake

A seismic survey is the most effective geophysical method in use now for examining the earth's structure. The seismograph used in this survey indicates the velocity of earthquake waves.

A geophysicist creates an artificial earthquake by boring a hole, generally 20 to 100 feet in the ground and blasting off dynamite inside the hole. The waves set off by the explosion strike successive rock formations at different depths and are reflected and refracted back to the surface. They are recorded electronically as waves on a chart in a recording instrument. From a measurement of the velocity of these waves in different rocks, a geophysicist can visualise their types. From the time gap between the blast and the reception of vibration, the depths of different layers of rocks reflecting the shock of the blast are calculated.

When these surveys indicate conditions and structures suitable to the accumulation of oil in quantity, the drill is used to test finally the presence or absence of oil large enough for commercial exploitation.

'Wildcat' Wells

To begin with, a number of small-diameter holes which sometimes go more than 2,000 feet deep may be drilled with light portable rigs to check details of geological structure. Then the location is determined for the first deep test well, or as it is called in industrial parlance, a "Wildcat' well.

If the 'Wildcat' finds oil in appreciable quantities, a number of 'appraisal' wells are drilled to find out as far as possible the limits of the oil bearing structure. The information thus obtained is used to decide the initial production plan for the new-found oil field.

WHY TIMBLO IRMAOS LIMITADA CHOSE
CATERPILLAR
AT THEIR PALE MINES

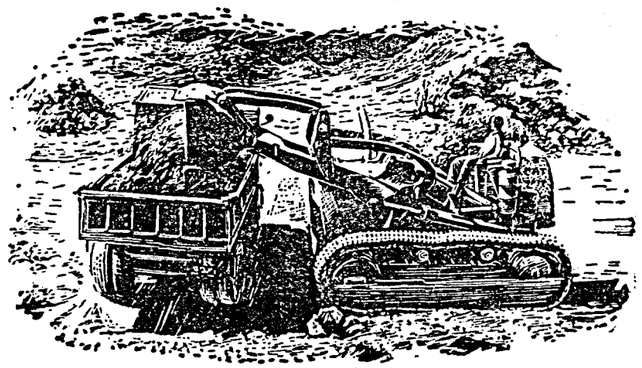
'We are thoroughly convinced', comments Mr. R. L. Naik, Mines Manager, 'of the versatility and absolutely satisfied with the performance of our 'CAT' Power Shift Traxcavators which have greatly boosted up our production'. Mr. S. P. D'Silva, Mechanical Supervisor, comments, 'With introduction of pedal steering, operator feels more comfortable and machine manoeuvring time is reduced. Further it loads 3 trucks extra with a total of 15 cu. yds. during a 60 minute operation. Nothing can match 977H for its fast cycles and high production in its size range. Dealer's after-sale-service is second to none'.

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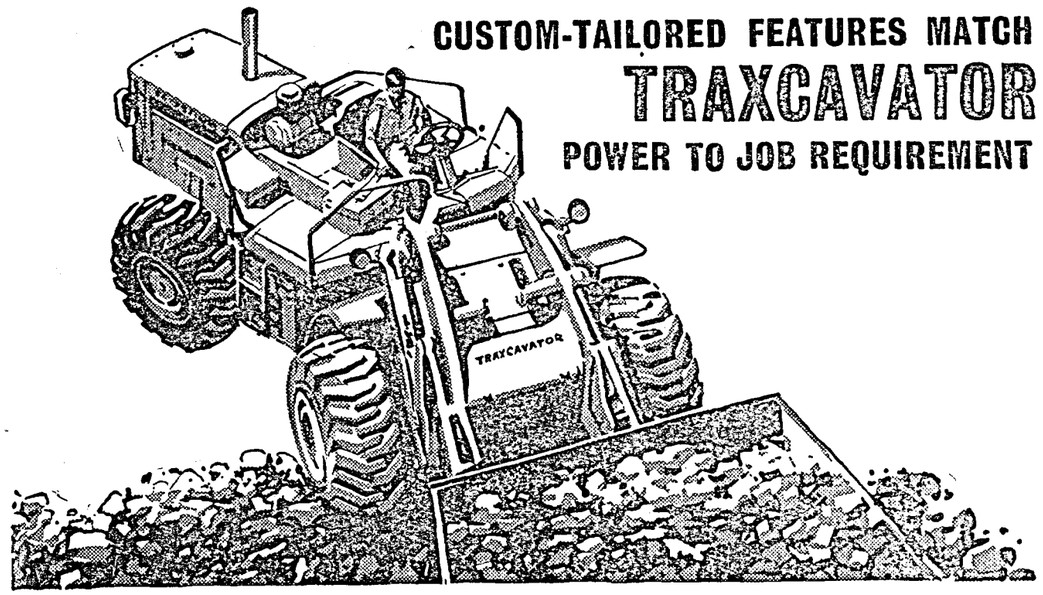


TW/G/258

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955H	From 1¾ cu. yd. to 2⅜ cu. yd.	966B	From 2¾ cu. yd. to 5 cu. yd.
951	1½ cu. yd.	950	From 2¼ cu. yd. to 4 cu. yd.
933F	From 1¼ cu. yd. to 1½ cu. yd.	944A	From 1¾ cu. yd. to 4 cu. yd.
		922B	From 1 cu yd. to 3 cu. yd.



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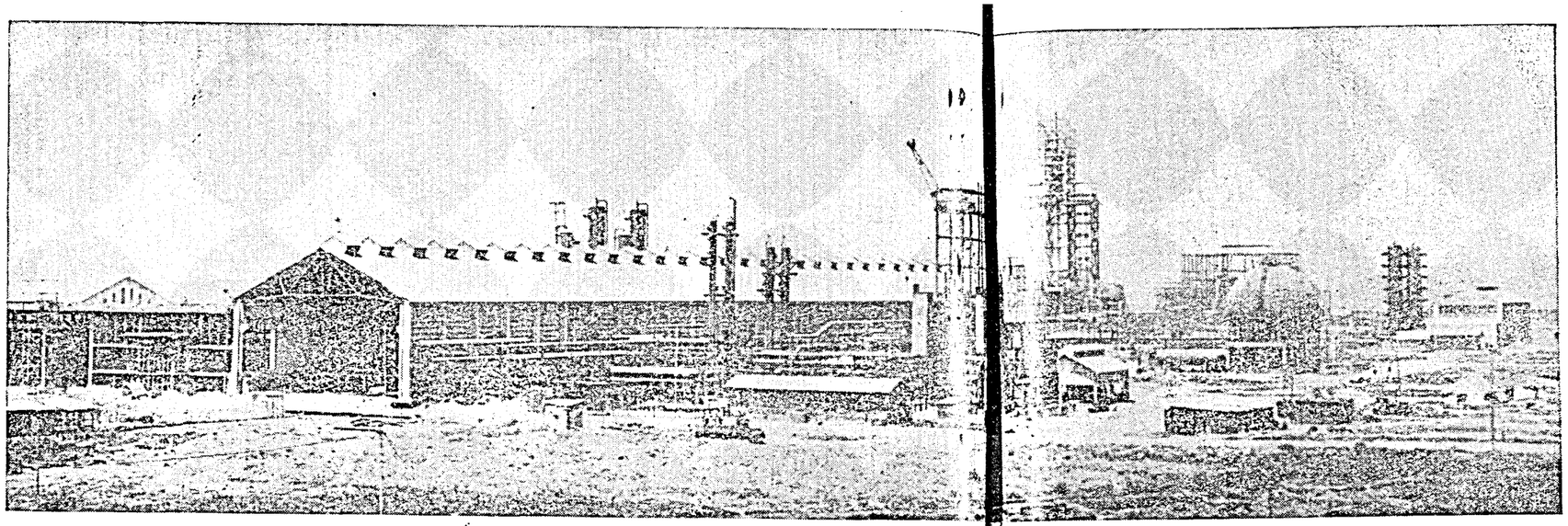
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A General View of the Trombay Fertiliser Factory

INDIA'S LARGEST FERTILISER UNIT

THE Atomic Energy Establishment and the oil refineries in Trombay, Bombay, will soon have a companion working along with them.

A fertiliser factory of the Fertiliser Corporation of India has reached the final phase of construction and will go into production in the next few months. It will be India's largest fertiliser unit.

The factory is being built at a cost of Rs. 33.5 crore with help from the United States.

It will produce 330,000 tonnes of nitrophosphate and 99,000 tonnes of urea per year which in terms of nitrogen and phosphate will amount to 90,000 tonnes and 45,000 tonnes respectively.

Nitrophosphate is a complex fertiliser containing 12.9 per cent nitrogen and 12.9 per cent phosphate. Urea is a concentrated type of nitrogenous fertiliser containing 46 per cent nitrogen.

The raw materials for the fertiliser factory will be naphtha and refinery gas from the Burmah-Shell and Esso refineries right in Trombay.

The main production units of the factory are:

1. Ammonia Plant (350 tonnes of liquid anhydrous ammonia per day);
2. Urea Plant (300 tonnes of prilled urea per day);
3. Nitric-Acid Plant (320 tonnes per day);
4. Sulphuric Acid Plant (200 tonnes per day) and
5. Nitrophosphate Plant (1100 tonnes per day).

The factory stands on 537 acres of land and the township occupies another 288 acres.

Since a tonne of nitrogen generally helps 10 tonnes more of grain to be grown, the increase in agricultural output as a result of using Trombay fertiliser is likely to be 1,350,000 tonnes.

The foreign exchange cost of the factory, as said earlier, is being met by the United States through a loan of 30 million dollars (Rs. 14.3 crore) from the U.S. Agency for International Development. The U.S. has given another loan of 28 million dollars (Rs. 13.3 crore) from the P.L. 480 rupee equivalent funds.

Adjoining the Fertiliser plant will be a plant making methanol, a key chemical in the manufacture of plastics, drugs, resins, synthetic fibres and dyestuffs.

This plant will make use of gases produced in the course of fertiliser manufacture. The Fertiliser Corporation itself has built this plant. The U.S. has given it a loan of 7.8 million dollars (Rs. 3.7 crore).

MOTHER WOULD NOT LET HER SON WORK

S. N. Sharma

WHILE holding a selection of ticket collectors, goods clerks and booking clerks for the Northern Railway at Bareilly, two features that sharply came to notice were:

1. about fifty per cent of the candidates interviewed were still students of intermediate or graduate classes;
2. the fathers of a large number of candidates were illiterate or semi-literate.

The economic struggle that is being faced by the young generation is so acute that they cannot wait till they finish education. Job hunting now starts at an earlier stage than before.

The fact that the fathers of a number of candidates were semi-literate shows the progress taking place in labour and agricultural classes. In 90 per cent of the cases, the candidates replied that their mothers were illiterate and could not sign their names. But the sisters of the candidates had had some education.

In one case, a candidate stated that his father had died and he was being supported by his widowed mother who earned Rs. 45 per month in the village by doing farm labour. The candidate had passed Intermediate and was doing nothing. When asked why he did not help his aged mother, even while he searched for a regular job, the candidate replied that his mother objected to an educated son doing manual labour. She was sure that her son would get a "decent" job some day. The hope of the mother was not unfounded.

Of the remaining 50 per cent who were not students, about half were doing something or the other, though they were very much underemployed. Those living in towns either undertook tuition or helped their fathers in running some petty business. The candidates coming from rural areas helped their fathers in agriculture. Some of the candidates, whose fathers plied minor trades like tailoring, shoe-making, and shop-keeping, said it was uneconomical to remain in business as the unit was very small and the employment of additional hands would not increase income proportionately. Further, they were neither interested nor proficient in the art. Some of them considered their trade to be a symbol of inferiority.

A candidate who had passed intermediate said he was a rickshaw puller. He was rather apologetic about it. On asking how he felt when he came across his former class fellows, he replied that to avoid embarrassment he plied his trade during the night.

About 30 per cent of the candidates interviewed were married. They said that their families asked for and accepted small dowries. Of the remaining 70 per cent who were unmarried, none admitted that he would marry of his own choice.

Scheduled caste candidates did not know how the term "Scheduled Caste" came into vogue. Of the graduates and post-graduates in arts, none seemed to have heard of the *Encyclopaedia of Social Sciences* or the *Encyclopaedia Britannica.*

To Readers

The editorial "Word from the Hill-Top" in our last issue spoke of the Indian Everest expedition having touched the 1963 American team's record of sending three parties up the summit.

We might be permitted to explain to readers that the editorial was written *before* it was announced on May 29 that a fourth party, consisting of Capt. H.S. Ahluwalia, Mr H. C.S. Rawat and Mr Phu Dorji had also climbed the summit. Printing of the pages had been completed before the reference could be corrected in view of later news.

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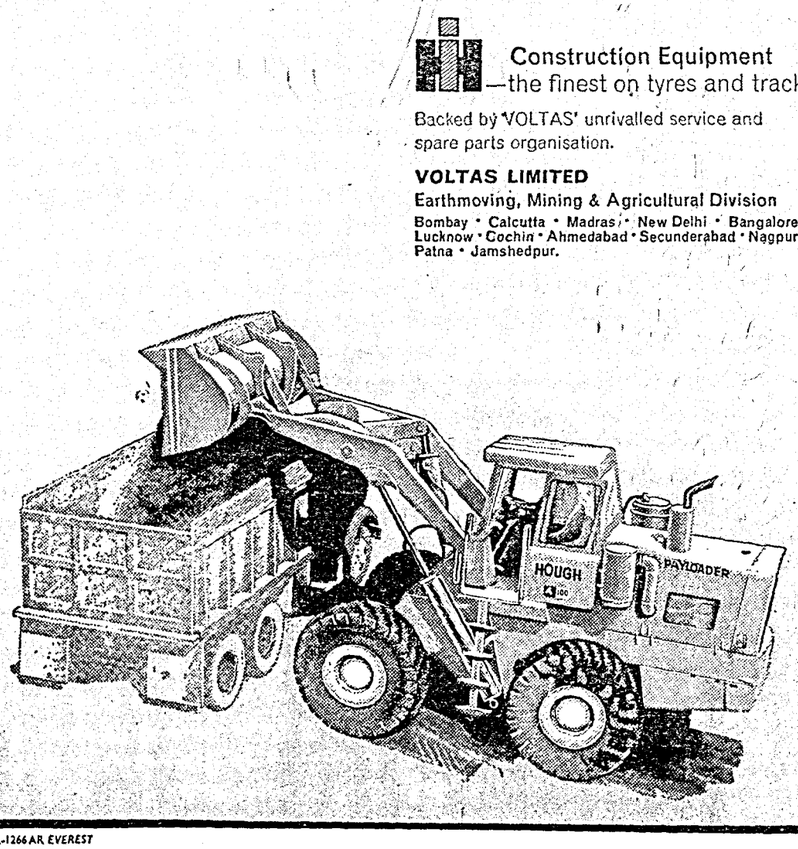
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VOL-1266AR EVEREST

DELHI VIEW

ONE of the worst disasters in the world occurred in a colliery near Dhanbad last month. Nearly three hundred people lost their lives.

The bigger the disaster the more horror we feel. But the real thing is not what *we* feel but what the victims and their dependants go through.

The cause of the explosions that killed the three hundred is not yet known. It is to be established by a court of inquiry. But even if it is fixed, it will not in any way alter the enormity of what has already happened. It might only prevent repetition of such occurrences in the future.

Compared to the magnitude of the disaster, the way it was reported was unimaginative and callous. Here was a calamity, but the newspapers of Delhi carried no account of the overpowering grief of the people who lost their dear ones. There was none of that compassionate reporting, that identification with human tragedy, which enables man to conquer grief through sympathy.

Some years ago, there was a similar tragedy in Belgium. The country proclaimed national mourning, and the event moved the rest of Europe also to tears. Radio, television and the press, as the conscience of the community, did a great reporting job. The suffering families received individual letters of consolation and offers of help.

But five days after the disaster in the Dhori colliery near Dhanbad, the newspapers of New Delhi had not carried a single human story or even a photograph. Only *The Hindu*, Madras, had some pictures (and probably the Calcutta papers). And radio appeared largely unconcerned.

More space was given to the mine management's statements and to dignitaries' messages of grief than to describing the ordeal of the people of the area. To have to read or hear about hundred-rupee doles was demeaning. To speak about it was the the ultimate example of woodenness.

Newspapers of June 2 said:

"The Minister said the Mines Department had started distribution of Rs. 40,000 from the Labour Minister's Welfare Fund and Coal Mine Workers' Welfare Fund at the rate of Rs. 200 for each worker's family from today.

"The Bihar Government has sanctioned Rs. 1 lakh. Another Rs. 40,000 from Prime Minister's Relief Fund would also be paid to the bereaved families shortly.

"A report from Dhanbad said that with the recovery of 252 bodies, the rescue operations had been stopped since last night and rescue teams sent back to their respective stations."

The substance of the first two paragraphs also figured in the radio news bulletins.

40,000, 200, 1 lakh,' another 40,000. How callous it all reads! As though these are big sums in the context. One ought rather to be ashamed of speaking about them. If these financial trivialities had formed part of longer despatches bringing out the massiveness of the agony of widowed women and orphaned children, it would not have mattered. But no.

What has happened to our sensitiveness? How can we become a welfare state if we do not begin to value human life more, if we cannot share our neighbour's anguish?

EQUALLY crude and case-hardened was the announcement, both on radio and in the newspapers, that Nawang Gombu and Ang Kami, the Everest heroes, have been given 'four advance increments.'

What a thing to say in connection with a history-making achievement!

WORDS FROM UZBEKISTAN

BETWEEN Soviet Russia and India are many silken bonds of friendship. One at least of these is Tashkent, the capital of Uzbekistan which our Prime Minister visited last month in the course of his State visit to Soviet Russia. It was from Uzbekistan that the great scholar Abu Reihan Mohammed Ibu Abmed Al Biruni (973-1048) came to India and wrote a book on this country. From Samarkand came the famous chronicler Abdurazak to whom we owe much of our knowledge of the conditions in Vijayanagar in the 15th century. The greatest Uzbek, however, who left permanent imprint on this country was Babar, the founder of the great Moghul empire.

With Babar's great qualities of heart and mind every school boy is familiar. What, however, many may not know is the memorable admonition he gave to his son, Humayun, on how to write. In one of his letters to Humayun in Kabul Babar says: "Apart from the fact that your writing can only be deciphered with difficulty, your style is quite obscure. Whoever saw a muamma (a riddle or a charade) in prose? Your spelling is not bad, yet not quite correct,..your letter may indeed be read if it is gone over several times, but in consequence of the far-fetched words you have employed, the meaning is by no means intelligible...the absence of clarity in your style is the result of your affectation. For the future you should write unaffectedly, with clearness, using plain words, which would cost less trouble both to the writer and reader."

The usefulness of this advice, coming from a great Uzbek, has not diminished with the passage of four centuries. There is a strong case for displaying it prominently in all places where ideas are articulated.



IGNORAMAN
Wants to Know

What does a
Progressive Farmer mean?
One who progresses
beyond farming?

Books

Community Development Through Democracy

Community Development, Panchayati Raj and Sahakari Samaj. Rajeshwar Dayal. Metropolitan Book Co., 220 pages. Rs. 10

B. Rudramoorthy

MR S.K. Dey, Union Minister for Community Development and Co-operation, is credited with the statement that if he were asked to start the Community Development programme again in this country, he would start with Panchayati Raj. But it is clear that this intense realisation for the need to spread and strengthen the political democracy to our villages has come about as a result of our experience gained in Community Development.

Whatever may be our failings in Community Development, it cannot be disputed that Panchayati Raj is the greatest gift that Community Development has made to this country. For, Community Development and Panchayati Raj have brought democracy to the common man, and thereby have given meaning to our Constitution.

Mere political democracy in a developing country, without a content and programme to help the people to lead prosperous and happier lives, would lead to trouble. It is this content and programme which Community Development (with the rest of planning) has tried to develop from the beginning. In this task, Community Development has emphasised and stood for educating the people, organising them for community action, and streamlining the development administration. Extension education and community organisation have become important ingredients in this endeavour. Programmes to raise the levels of income of the rural people and the communities have received priority. Stress has also been laid on helping the people to associate themselves in co-operatives.

The three pillars of democracy namely political democracy or Panchayati Raj, economic democracy or Sahakari Samaj, and social democracy or Community Development, form the main theme of this book. In three distinct chapters, the author has discussed the various aspects of these movements.

The chapter on 'Community Development' deals with the evolution of the concept and definition of the term, the objectives, scope and historical evolution of the movement in India, the nature of its administration and the extent of people's participation. The chapter also appraises some recent experiments such as the Package Programme and the Applied Nutrition Programme.

The author makes out a strong case for Community Development. In spite of the failings which he discusses in detail, he is "firmly of the view that our example of the working of this programme has been heartening and not at all disheartening." Again, he says, "It is really a difficult task to mobilise the energies lying idle in the countryside for fighting the enemy on the frontiers but thanks to this programme (Village Volunteer Force and Defence Labour Bank) we have succeeded in this herculean task." In the same chapter he asserts that "there is no doubt that the programme has functioned more as one for the development of the individuals and not of the community", and that "the programme has roused the hunger of the people for better conditions of living without enabling them to shoulder their own responsibility in the matter." He also maintains that these amenities have been provided "without the necessary competence on the part of the village people."

Both the compliment and the criticism are relevant to Community Development as it obtains in India. In fact it is these weaknesses which have shaped Community Development as it is now being implemented with the greatest emphasis on agricultural production.

The author has adduced facts pertaining to various aspects of Community Development. Some of the more intensive programmes such as the Package Programme, the Applied Nutrition Programme, the Rural Works Programme and the Gram Ekai Scheme have also been described. It is felt that the recent steps taken to emphasise increasing agricultural production as the most dominant responsibility of Community Development should have been discussed, as the entire machinery of Community Development is now being geared to this task.

The reader would also have liked a brief review of the field experiences discussed, particularly in respect of programme operation oriented to educate the people. The gap between precept and practice in Community Development is posing a challenge to both the leadership and the administration. Community Development in principle is an ideal movement for socio-economic transformation of rural people. But in practice, particularly in developing democratic countries, the problems are many and challenging.

In the chapter on Panchayati Raj, the author discusses the recommendation of the Balwantrai Mehta Team, the progress of Panchayati Raj in the States and the evolution of village agricultural plan, besides assessing the merits of and arguments against Panchayati Raj, and the role of officials and non-officials and of party politics and Panchayati Raj. A brief review of problems faced in the implementation of Panchayati Raj, particularly on the field, would have made the chapter more useful to readers who may still have some misgivings about its feasibility in our country at the present moment. "Panchayati Raj institutions can effectively help us to fight the battle on our farms," the author says. But how exactly the Panchayati Raj institutions which might be still having teething troubles owing to inadequate resources, and now getting caught in politics through elections and their after-effects, can promote higher production of food grains is the major challenge now. Many efforts are already afoot, but Panchayati Raj institutions need to be strengthened and enabled to work in such a way as to enjoy the confidence of the villagers.

The chapter under Sahakari Samaj occupies the major part of the book, and rightly so. Raising the level of income of villagers is very urgent and provides the base for the social change planned. Economic democracy through Sahakari Samaj is the goal. The chapter outlines the definition and characteristics of co-operation, and traces the growth of co-operative movement in India, enumerating the progress made in rural credit, co-operative marketing, co-operative processing and co-operative farming. Non-agricultural credit co-operatives, consumers' co-operatives etc., are also given due attention. The chapter also examines the relationship between co-operation and Community Development. One is however inclined to feel that instead of only a very brief reference to the role of co-operative unions, the author should have discussed this aspect in more detail since this is one of the major steps being taken to de-officialise the co-operative movement in the country.

There is a useful appendix on the Village Volunteer Force scheme. A bibliography and an index are included at the end. A classified bibliography would have been more useful.

Although literature on Community Development, Panchayati Raj and Sahakari Samaj has been considerable, this book is certainly a welcome addition to the list, for it provides within the compass of 215 pages a comprehensive picture of the three most important movements designed to establish and strengthen democracy in this country.

Profuse quotations from the vast literature already available on these subjects are a distinctive feature of this book. Useful and relevant tables enrich the descriptive value.

Universities, training institutions (particularly those connected with Community Development, Panchayati Raj and Sahakari Samaj) and development blocks will find it useful. Translation of such books into the regional languages, for the benefit of non-official leaders at the village, block and district levels, needs urgent consideration in view of paucity of such books in the mother-tongues.

FOREIGN AID AND INDIA

Foreign Aid to India. Sudhakanta Mishra. Tirabhukti Publications, Allahabad. 72+X pages. Rs. 5.

M. V. Narwani

THE book has four chapters. The first deals with the characteristics of an underdeveloped economy and the second with problems of capital formation and the need for external assistance required for development. The chapter headings prompt the readers to approach the text with great expectations, which only end in disappointment. The treatment of the subject is elementary and the discussion of concepts vague and confused. Indiscriminate listing of quotations from eminent writers does not add up to a development of the theme. The analysis of the impact of foreign aid on the growth of underdeveloped economy is also poor.

Chapter 3 gives an account of external assistance received by India. The information given is mainly for the period ending 1963, though, in a few cases, later data are also incorporated. While discussing the problem of external aid, it is now-a-days customary to examine the terms and conditions on which the aid is given and the repayment liabilities which it involves. But Dr Mishra does not seem to give due importance to this problem. One would have liked him to analyse the various types of aid, such as loans and grants, tied and untied loans and aid for maintenance imports and for imports of capital goods.

The last chapter dealing with the working of international organisations and their main defects also does not come up to the mark.

The book has too many printing mistakes.

TIRUCHI'S BOILER PLANT

Bharat Heavy Electricals Boiler Plant Inauguration Souvenir. 127 +x pages.

THE starting of production in May at the High Pressure Boiler Plant at Tiruchi marked a major step forward in the manufacture of heavy electric machinery in this country.

The Souvenir issued to mark the inauguration of the plant is a welcome publication. It contains a number of very useful articles written by technical experts, and administrators associated with the Project. The Souvenir does succeed in conveying to the reader an idea of the great initiative, planning and executive ability that have gone into the completion of the project. It is well illustrated with photographs and drawings.

Greater care could have been taken by the producers of the Souvenir to eliminate the printing mistakes in which it abounds.

PUBLICATIONS RECEIVED

Resources, Development Regions And Division of India. 173 pages. A Review of Important Activities And Studies 1964-65. 49 Pages. Planning Commission, New Delhi.

Report on Literacy Among Industrial Workers. 56 pages. Committee on Plan Projects.

Caste In Changing India by A.P. Barnabas & Subhash C. Mehta. 84 pages. Rs. 4. The Indian Institute of Public Administration.

Learn Tamil the Easy Way by Sowmya. 70 pages. Rs. 1.50. Vel Puthaga Nilayam, Madras.

State Transport Review. Annual 1964. Published by the Maharashtra State Road Transport Corporation, Bombay. 178 pages

Circulation Problems in Indian Newspaper by T.N.M. Lingam. Published by The Press Institute of India, Delhi. 38 Pages. Rs 2.50.

Preparing Graphic Aids by S. L. Ahluwalia. 28 pages Rs. 1.15. Our Plans and Plan Projects by D. P. Nayar. 80 pages. Rs. 1.30. Both Published by the National Council of Educational Research and Training, New Delhi.

Urban-Rural Differences in Southern Asia. Published by UNESCO Research Centre on Social and Economic Development in Southern Asia, Delhi. 117 pages.

DAM ACROSS RAMGANGA



Earthmoving machines at the dam site

WORK on building Asia's highest earth dam is going apace in the Ramganga river site in Uttar Pradesh. The project includes the construction of an earth and rock fill dam 412 feet high across Ramganga which is one of the major tributaries of the Ganga.

Agriculture and industries in Uttar Pradesh will be the twin beneficiaries of this huge project. When completed in 1972, it will release water for irrigating nearly 17 lakh acres of additional land in the State. About 1,65,000 kilowatts of electricity will be generated at the dam site, 2 miles upstream of Kalagarh in Garhwal district. Some of the villages in western Uttar Pradesh which are experiencing extreme power shortage will get electricity for the first time. The main works of the project are of such large magnitude that the State is executing them through its own staff and equipment.

With the arrival of four massive earthmoving machines weighing 70 tons each at the project site shortly, construction of the dam will be pushed ahead. These rubber-tyred bulldozers will be powered by 700 H.P. engines. The machines which will be supplied by Voltas Limited are of the International Hough Model. Called D-500 type paydozers, they are the largest machines of their type and will be the first of their kind to be used in this country. When driven over the earth-filled dam they will shatter clods of earth, making the construction work much easier.

Already a large amount of preliminary work has been completed at the project site. An all-weather heavy duty bridge was constructed across the river near Sherkot during the Second Plan. Another bridge at the project site is in hand. A colony for housing about 8,000 workers has been completed. Machine tools for heavy vehicle repairs have been installed. Work on one of the two diversion canals has already started and the other will be constructed shortly.

The 30-square mile Ramganga reservoir that will be formed as a result of the construction of the dam will be a big tourist attraction. A part of the artificial lake will be situated within the famous Corbett National Park. Visitors to the place will be able to cruise in the lake and see wild life in its natural environments at close quarters.

It is also proposed to grow fish in the big Ramganga lake. This is expected to add considerably to the revenue of the State.

The whole Ramganga project, estimated to cost about Rs 68 crore, is planned to supply water and electricity from October 1972.

QUOTATION BOX

Light classical music is her weakness, her favourites are Mozart, Chopin and Beethoven.

—From "Femina"

I remember, when I was in the United States, my little daughter came home from school one day and solemnly announced, "Daddy, I am going to be brave like George Washington."

My instinctive response was : "Nonsense. You are going to be brave like Shivaji"

—From the Bombay newsletter in "The Illustrated Weekly"

Mr T. T. Krishnamachari said to me recently that should he be given a dying wish, he would ask that his spirit is permitted to hover over New Delhi for two years.

—The Editor of "The Hindustan Times"

Do not shout unless you must, as shouting leads to pandemonium. Leave the shouting to the leader in control of the operations, who himself must keep a *cool* head.

—From an office circular on "What to do in case of fire".

Russians unable to communicate with Indian visitors in any other way express their sentiment by bursting into Mr Kapoor's famous film song: "Awaara Hun."

—Mr Inder Malhotra in "The Statesman"

The English intellectual has the air of constantly talking to himself; the French writer has the air of constantly addressing a public meeting.

—Mr Dom Moraes in "The Times of India"

It appears processions cannot bring about any relief: the Delhi citizen has to stew in his stink.

—The Hindustan Times on the Delhi water crisis

Conversion to the metric system will require a cricket pitch of 20.516778 metres.

—Letter to the Editor, "The Times" London,

A spoilt child is not sad; he is bored, like a king. Or like a dog.

—Mr Jean-Paul Sartre

In the present state of permissive morals and confused manners, what outrages "public decency"? Not, apparently a bare-breasted girl. Not, at least, in California, which in recent months has witnessed the emergence of the bare-breasted waitress.

—Time Magazine

The recent change (in the style of writing of *Ananda Bazar Patrika* and *Jugantar*) has to be explained first, especially for the benefit of those many so unfortunate as not to be acquainted with Bengali language.

—From "A Calcutta Diary" in "The Economic Weekly"

Girls have a peculiar psychology, as discovered by the Punjab University authorities over the years. They cannot live either alone or together.

—The Tribune

Well Begun, But Half Done

Rural Industries Programme Must Guard Against Such Verdict

K. SESHADRI

MOST of us know the distinction between small-scale industry and cottage or home industry. Small industries take full advantage of modern techniques and tools, while cottage industries, for the revival of which Gandhiji and the Sarvodaya leaders have striven so hard, are mainly a programme for improving the countryside.

We in India are trying to make the two kinds of industries complementary to each other. To a non-Indian it might seem incongruous and profitless to seek to preserve a form of industry which seems obsolete and inefficient in terms of productivity. Mr Jayaprakash Narayan, a leader of the Sarvodaya Movement, has himself clarified that the Movement does not believe in the preservation of cottage industries for the sake of preservation. He has said: "I should like, first, to make it clear that it is not my concern at all to preserve traditional modes of production. For my purpose the debate between the modern and traditional modes of production is irrelevant... In other words, a new machine technology as well as a new socio-economic technology would have to be created." ('*Swaraj For The People*', pp 22, 23)

The Third Plan spoke of bringing into existence a co-operative agro-industrial economy. Agro-industrial development, according to Mr Jayaprakash Narayan, "refers to industries concerned with the processing of agricultural products. It makes for an organic blending of agriculture and industry. An agro-industrial community would, for example, not only process wheat and paddy, fruit and vegetables, sugarcane and cotton, but also manufacture radios, cycle-parts, small machines, electrical goods etc., that might be needed in the region."

The building up of an agro-industrial society calls for much more than this. In the urban areas, a great deal of encouragement is being given to small-scale industries. The State Governments and semi-governmental bodies provide facilities like power transport, raw materials, training, help in marketing and so on. But a wide gap separates our towns and villages, the educated and the uneducated, the rich and the poor, our professions and our practices, our agriculture and our industries. Unless this gap is narrowed down, our professions of democracy and socialism will have little meaning. We are here concerned with bridging the gulf between city life and country life, and bringing about a harmony between agriculture and industry.

Agriculture in a monsoon country like ours does not absorb all people in fruitful employment throughout the year. During the slack period, which may range from four months to eight months, many village folk either have no work or are underemployed. Most of the landless labourers, who can earn their wage only during seasons of harvesting, planting or transplanting, sit idle, or migrate to urban areas in search of temporary jobs on construction sites or in domestic work. This floating population creates various problems to authorities in urban areas. If this has to be avoided, people in the countryside must be contained in their villages. This can be done only if they have adequate economic incentives and recreational opportunities to make them stay on.

Not only unskilled people, but even skilled artisans often join the rush to cities. If re-trained properly, and if provided with the necessary tools, they would become economically more productive. They could be used to manufacture many utility goods needed in the local markets.

Local Capital and Local Initiative

It is generally true that the rich peasants in the villages are not industry-minded. The extra profit they get by selling their produce to the highest bidding middleman, is often invested in the purchase of commodities which they hoard or is lent at an extortionate rate of interest to poor peasants. Equally often it is spent on litigation or buying gold. When the little capital available in villages is not invested in small-scale industries, the Government would have to step in, either directly or indirectly, to finance ventures for which local support is often lacking.

To create greater employment in the rural sector, to integrate the industrial sector with the agricultural and to raise the standards of the weaker sections of the community, programmes of industrialisation have to be drawn up in keeping with the different conditions in different areas.

The Rural Industries Planning Committee of the Planning Commission has recommended the establishment of Rural Industries Projects in every State. As a pilot scheme 42 such projects have been taken up for the whole country and the State Governments have been consulted on the question of locating these projects. An essential feature of this scheme is that common facility centres are set up at places where there is a concentration of artisans and craftsmen, and training is given to them in the use of newer tools and techniques.

The main objectives of this programme are: to raise the level of earn-

HEAVY STRUCTURALS AT NAINI

Naini near Allahabad will soon have in the public sector a Rs 5-crore project to manufacture heavy structurals and other equipment like building, tower and bridge structurals, penstocks and storage tanks.

Messrs Voest of Austria will collaborate by investing 49 per cent shares. 51 per cent will be held by the Central Government.

The project with an annual capacity is expected to start production by the middle of 1967.

Copper With French Help

The National Mineral Development Corporation has signed an interim agreement with a French Consortium to develop the Khetri Copper Project in Rajasthan. The French Consortium will supply the entire plant and equipment to produce 21,000 tonnes of electrolytic copper per year from the Khetri ore.

IRON ORE EXPORT TO JAPAN

The Minerals and Metals Trading Corporation has concluded a three-year contract to sell 8.5 million tonnes of iron ore to Japan.

Pending the supply of two million tons of ore per year the Corporation will sell, up to March next, 610,000 tonnes of Kiriburu iron ore to steel mills in Japan.

Apart from iron ore, 400,000 tons of manganese ore containing iron will be exported to Japan by the Corporation.

RECORD GRAIN CLEARANCE

A new record was set up in May in the clearance of imported food grains at various ports in the country. Nearly one million tonnes was cleared as against 8 lakhs in April.

About 110 ships carrying food grains arrived in May and were unloaded. The performance in the ports of Bombay, Calcutta, Kandla has been much better than at any time in the past.



ENGINEER'S FEAT

But for the imaginative boldness of an Indian Engineer Mr N.S. Girimaji, Rourkela Steel expansion programme would have fallen at least three months behind schedule.

In the programme to expand the plant's capacity to 1.8 million tonnes, the ingot yard had to be shifted to accommodate the new stripper bay. For this a 130-ton crane would have been dismantled with considerable loss of time and money. But Mr Girimaji, the Divisional Engineer of the H.S.L. Construction Department suggested an ingenious method for moving the entire crane without dismantling. It was shifted within 12 days.

$ 84 Million Loan for Power Projects

The World Bank has approved two loans totalling 84 million dollars to India for expanding power generation and transmission facilities.

Of this, 70 million dollars will be used to import equipment and materials for constructing 8,000 miles of high voltage lines and 300 sub-stations. The remainder will be used to double the capacity of Kothagudam power station in Andhra Pradesh to 240,000 kilowatt.

ALIGARH LOCKS FOR CZECHOSLOVAKIA

Czechoslovakia has placed orders for Aligarh locks worth Rs 20 lakhs. This is said to be the biggest order received so far from a single foreign buyer for Indian locks.

Heavy Water To Belgium

India will lease to Belgium 1[illegible] tonnes of heavy water produced at the Nangal plant. It will be used in the BR 3 Vulcan reactor located at Mol for peaceful uses of atomic energy.

This is the first time that such an advanced technological product will be supplied to western Europe from an underdeveloped country.

Apart from U.S.A., Soviet Union and Norway India is the only country which produces heavy water in large quantities. The Nangal plant has a capacity to produce about 14 tonnes a year.

The Department of Atomic Energy is now designing a plant with an annual capacity of 200 tonnes.

MANUFACTURE OF ACTIVATED CARBON

The Regional Research Laboratory at Hyderabad has started large scale production of activated carbon capacity of two tonnes.

This venture will help to stop the import of Rs 20 lakh worth of this material.

New Kunda Power Unit Started

The second unit of the third stage power house at Kunda in Madras has been started. This will generate 60 MW of electricity.

SNIPPETS

The survey of the 30-mile railway line from Dehra Dun to the Yamuna hydel project at Dhak Pattar has been completed. The Rs 4 crore railway will link various towns and villages in the western Doon valley..... Fifteen poultry farms for the production of high-protein food will be set up in two years. The main poultry farm with 30,000 hens will be at Babugarh in U.P. FAO will also help in setting up a farm to train 200 young farmers every year at Visakhapatnam in Andhra Pradesh. It will also have a milk processing plant.

Spreading Improved Seed

U.P. Experience shows where Remedies are needed

THE importance of pedigree seed is well established in the animal world. A good farmer asks for a Hariyana bull or a Murrah buffalo.

In plant life, too, the farmer recognises this point—but only in regard to some crops. The Coimbatore sugarcane variety, for instance, brought about a revolution in the yield of cane some 35 years ago. Hybrid maize has now begun to be taken note of.

But the difference between the special and the ordinary has not fixed itself on the farmers' minds in various other crops. It might be said, however, that the advantage in the yield per acre of new varieties over old ones is often counterbalanced by other conditions affecting production. That is one reason why new varieties of many crops have not easily caught the imagination of the people.

There is yet another difficulty. A new variety ceases to maintain its level of production after six or eight years. When it gets 'acclimatised' it loses its superiority over other varieties. It takes three or four years for a variety to be evolved and multiplied in enough quantity so that it can be released to growers for use. It will be able to maintain its edge only for three to four years after that. Nucleus seed cannot be produced on a mass scale and after multiplication for three or four years, its quantity is not large enough to replace all the seed of any crop in the State. Therefore it should generally be so planned that a fifth to a fourth of the area under a particular crop is supplied with new seed every year so that in four or five years the whole seed is replaced. This needs an agency which can effectively cover a fifth to a fourth of the area under a crop every year. Also it needs seed farms big enough to produce foundation seed which can meet the requirements of the area. In crops which have a heavy seed rate, larger areas will be needed as compared to crops with a small seed rate.

These seed farms in their turn will need the nucleus seed which has to be produced in a research farm and the area of the farm should also have some relation to the requirement of the nucleus seed for the foundation seed farm.

THAKUR PHOOL SINGH

A few years ago the Government of India adopted a scheme on these lines. The plan was to provide every block with a seed farm of say 25 acres. Now a 25-acre farm, if it grows wheat, will produce about 750 maunds, at 30 maunds per acre of wheat, which in its turn will serve as seed only for 750 acres of land. In the case of paddy, it will grow 750 maunds of paddy and will supply enough seed for 3,000 acres of land if the paddy is transplanted. Thus a 25-acre farm may be big enough for paddy but not for wheat.

Another important factor in improved seed multiplication is that the flow of the seed from above should be uninterrupted right up to the farmer's field and at no stage between the nucleus seed farm and the farmer's field should the seed be repeated. It has already been stated that in the cultivators' fields the seed may be repeated three or four times.

Some varieties are suitable for irrigated fields and others for rainfed areas. The suitability would also vary according to the geographical conditions of different zones.

Thus in areas where the seasons are short, short-duration varieties will be needed as against those areas where the seasons are long, for example the eastern districts of Uttar Pradesh. In short, the area of the seed farm would depend on the crops that are to be grown, and it will not do to evolve nucleus seed of only one kind. Nucleus seed suitable for different zones and different climatic and soil-water conditions will have to be evolved and multiplied separately.

Under the old scheme of the Government of India, most of the capital expenditure came from the Centre, with the States meeting generally the recurring expenditure.

Purity of seed has an importance of its own. In the scheme for improved seeds, purity does not mean freedom from dirt, or defects, but that all the seed should be of one variety. The reason is not difficult to find; different varieties have a different period of maturity and if a field is grown with improved seeds of different varieties mixed together, some plants will mature early and others will take longer to mature.

The result is that if one has to wait for all the plants to mature, those that have ripened early will have shed heavily by that time. The mixture of different varieties will thus affect the yield per acre.

Each variety, again, may have its own requirements. Some varieties grow in dry conditions and others need more irrigation. It is therefore desirable to see that the seed of each variety is grown in isolation from other varieties. But such meticulous care can be expected from a cultivator only if a particular variety has a fair margin of yield over another. The area under different crops in Uttar Pradesh in 1963-64 was as follows: paddy 107 lakh acres, *jowar* 21.91 lakh acres, *bajra*, 24.93 lakh acres, maize 27 lakh acres, *wandwa* 4.27 lakh acres, *sawan* 4.20 lakh acres, *kodon* 8.79 lakh acres, wheat 96.76 lakh acres, barley 38.96 lakh

acres, gram 64.12 lakh acres, peas 27.03 lakh acres, *arhar* 15.65 acres, *masur* 4.67 lakh acres, cotton 2 lakh acres, and sugarcane 32 lakh acres.

Neglect of Cereal Seeds

The provision made in the State Government's budget for research for the different crops shows that more attention is given to cash crops than to cereals. While there is a separate research section for paddy, all the *rabi* crops covering an area of 2.27 crore acres have been clubbed together. Naturally wheat, barley, and potato, the most important of the crops, monopolised the whole attention to the exclusion of other *rabi* cereals. Among the *kharif* crops, research on 23 crops including paddy, maize, oilseeds, pulses, millets and smaller millets were clubbed together. Cotton, fibre and tobacco had a separate section for each, but not maize, vegetable, wheat and pulses.

In short, sugarcane, cotton, tobacco, fibres and potato are receiving the major part of attention; among the cereals, those that get some attention are paddy, wheat and maize. The other food crops are totally neglected. Research, in fact, is confined to selection and hardly any attention is paid to the evolution of new varieties. Further, the bias is in favour of the irrigated varieties. Rain-fed varieties, which cover about 75 per cent of the area, are being neglected.

A look at the agricultural programmes of the State during the Third Plan will show that the biggest allotment is for land development and development for commercial crops. Seed farms and research schemes together claim a sum which is only a third of the allotment for development of commercial crops. The different heads are as follows:

	Third Plan Provision (Rs. lakh)
Seed farms	196.558
Fertilisers and manures	137.520
Development of commercial crops (including cane development)	1016.567
Marketing and statistics	300.371
Education and training	333.120
Research schemes	162.984
Land development	1122.012
Total:	3269.132

As for the results achieved as a result of research, it is difficult to point to any outstanding achievement which may have immediately caught the imagination of the cultivator and revolutionised production as happened in the case of sugarcane in the early 1930s.

There are 876 blocks in U.P., while the number of seed farms started under the scheme is only 154. Even the minimum requirement of a seed farm of 25 acres per block was achieved to only 20 per cent.

The area covered by different crops and the production in 1963-64 of the seed multiplication farms were:

	Acres	*Produce (Quintals)*
Paddy	2915	21,029
Jowar	373	
Bajra	171	2,746
Maize	241	
Rabi:		
Wheat	6579	26,167
Barley	1483	
Gram	2056	10,470
Peas	1692	

The seed rate per acre of various crops are: paddy 40 seers if broadcast and 10 seers if transplanted, *jowar* 4-8 seers, *bajra* 2-3 seers, maize 6-8 seers, wheat 30-50 seers, barley 40-45 seers, gram 30-35 seers, and peas 20-30 seers.

The seed produce in 1963-64 thus hardly sufficed for 50,000 acres under paddy if the seed was sown broadcast, or 2 lakh acres if the seed was transplanted, as against the State's total paddy area of about a crore acres. In the case of wheat the seed was enough for 25,000 acres as against the total area of about 96 lakh acres under wheat.

Very much more seed was distributed than was grown, the difference having been made up through purchase within the State or from the neighbouring States. Some 6.56 lakh maunds and 4.57 lakh maunds were purchased in 1958-59 and 1959-60. This procedure is repugnant to the whole scheme.

Under the original seed saturation scheme, each block was to have three seed stores—one owned by the



Scientists can produce new varieties in their research centres, but their actual use in the field on a wide scale is primarily a matter of administrative organisation.

Agriculture Department and two by the Co-operative Department. Actually 876 Agriculture Department seed stores and 1591 Co-operative seed stores have so far been opened. About half of the co-operative seed stores and many of the Agriculture Department ones are located in rented buildings, and they are not protected against rats and dampness.

Under the revised scheme the idea of opening one seed farm for each seed store has been given up and the Agriculture Department seed store issues foundation-seed to Gram and Khand-beej Sahayak at an average rate of 100 maunds to each Khand-beej Sahayak and 200 maunds to each Gram-beej Sahayak. The farmer co-operatives sell their produce from the foundation seed to co-operative stores. Thus one year has to elapse before the seed is released to the growers. Moreover the co-operative seed stores have a fourth of their seed from the Khand-beej Sahayak and three fourths from

realisation from the growers on Sawai-basis for the seed issued to them.

The co-operative seed store issues seed to the members of the co-operative society. The total amount of seed issued from the co-operative seed store in a year varies with the prices of the particular food grain.

When prices of the food grains are low, the demand for the co-operative seed declines, leaving a large surplus to be otherwise disposed of by the Department. On the other hand, in a year when the prices of a particular food grain are high, the demand on the seed store also goes up. In 1964-5 the stock of *rabi* crop with the co-operative seed store was: wheat 53,940 tons, gram 9,531 tons. barley 4,431 tons and peas 5,237 tons.

Two things are obvious: (1) The co-operative seed store do not supply the seed of all the crops grown by the cultivator; and (2) the availability of seed of crops other than wheat is less than that of wheat. In the case of wheat also, as against the total seed requirement of 3.6 lakh tons, only half a lakh tons were available. At this rate it will take seven years to replace the whole seed in the case of wheat. The position is still worse with other crops.

Large sums are being spent on improved seed in Uttar Pradesh, but the advantages seem to be negligible.

RURAL INDUSTRIES

From page 21

ing of the artisans, to give subsidiary occupation to peasants during the slack period, to put raw materials to industrial use, to develop pastoral industries, to encourage local entrepreneurship, to supply machinery on hire purchase and loan basis, and to set up procurement and marketing depots.

Scientific approach, a basic Requirement

If schemes of rural industrialisation are to succeed, a basic requirement is the existence of an awareness among the people in the villages that their economic activities like agriculture, animal husbandry and the like have to be organised on scientific lines and that the welfare of the community is not possible until the weaker sections are given a fuller share in all activities and the fruits thereof. It is well known that the Indian villager does not take to modern methods of agriculture and animal husbandry. Traditional artisans have to be educated in the use of better and more efficient tools.

It is not easy to introduce new technology in a country where old tradition has deep roots. It has been noticed at training centres of small-scale industries programme that even after getting training in new techniques artisans drift back to their old ways.

Importance of Electricity in Villages

Lenin once said: Workers' Councils plus Electricity is equal to Communism. In our national context we could say: Agro-industrial schemes plus Electricity is equal to Democratic Socialism.

This is only to stress the importance of electricity in industrialisation, which Dr M. Visvesvaraya stressed many years ago. Equally important for rural industrialisation is an efficient network of roads connecting producing centres with markets. If marketing fails, production is automatically hit hard. The setting up of procurement and marketing co-operatives is therefore another essential step in rural development.

A vital factor which will determine the success of our rural industrialisation programme is the attitude of Administration. It must become less cumbersome in working and more personal and informal in its approach to people. A study published by the Union Ministry of Commerce and Industry said some years ago:

"To begin with, there does not yet exist the simple fact of positive, personal contact between the small industrialists and the agents of government. Positive contacts, such as the supply of cheap electric power, have been impersonal and not always free from, if not the taint, the suspicion of favouritism... The Chopur small industrialists, and least of all the craftsmen, have not yet known government as either an impartial benefactor or an 'interested friend'. ("*Small Industry in a North Indian Town*").

"Well begun, half done" is the verdict on most of our schemes at present. Inaugurations take place with prominent dignitaries attending and making speeches. In many cases, after a few days, the schemes wither away. There have been several such instances at least in Andhra Pradesh. Three rural industrial centres were started in 1962 but not much progress has been registered. It has been observed that artisans go to them only to receive their stipends. They do not seem to utilise their knowledge to do anything productive. Local entrepreneurship is shy. In certain industries, like dyeing and tannery, caste system comes in the way of expansion.

But the rural industrial schemes must be made to succeed, for, on their success depends the modernisation of India.

SHAMBU by Malinda Topa



REVIEW OF PLANNING COMMISSION STUDIES

Report Abridged by

M. C. JAIN

In April 1965, a report entitled 'A Review of the Important Activities and Studies (1964-65)' prepared by the Planning Commission was placed on the table of both the Houses of Parliament. It is a pioneer report which gives a general account of the important activities and studies undertaken by the Planning Commission and the organisations and committees under its general guidance during the year 1964-65. Besides describing the various important activities and studies undertaken during the year under review it also focuses attention upon the preparatory work relating to the formulation of the Fourth-Five Year Plan and a long-term plan for economic development.

Formulation of the Fourth Plan

Studies relating to the preparation of the Fourth Plan were started as early as 1962 and these have been vigorously pursued since the publication of the Mid-term Appraisal of the Third Plan. A number of working groups were set up to undertake expertised studies of various aspects of the Fourth Plan and to examine the progress made during the Third Plan period in their respective fields of study. Besides assessing the possible achievements during the remaining period of the Third Plan, the Working Groups were also directed to formulate proposals for the Fourth Plan with a longer perspective and prepare a detailed list of supplies and services that would be needed for its implementation. Almost simultaneously (September 1963) the State Governments were also requested to set up their own working groups to study the needs and resources in their spheres of activity, such as agriculture, irrigation, health, housing, welfare of backward classes, etc.

The Perspective Planning Division of the Planning Commission prepared a paper on "Perspective of Development: 1961-67—Implications of Planning for a Minimum Level of Living." It was followed by a paper "Notes on Perspective of Development—India 1960-61 to 1975-76". A Paper entitled "Macro-Economic Hypothesis for the Fourth Plan" was also prepared by the Economic Division. These papers attempted to give a tentative framework of the Fourth Five Year Plan.

The strategy and the objectives of the Fourth Plan were discussed at various meetings of the Planning Commission between July 1963 and April 1964. In August 1964 four groups consisting of Members of Parliament were constituted to consider the paper prepared by the technical divisions of the Commission and the reports of the Working Groups. The reports were also examined by the technical divisions in consultation with the Ministries. In the light of the above discussions and studies the Draft Memorandum on the Fourth Plan was prepared by the Planning Commission for consideration by the National Development Council which examined it in October 1964.

The National Development Council set up Committees on: agriculture and irrigation; industry, power and transport; social services; resources; and development of hill areas to advise the council on policy issues. The Memorandum along with the recommendations of N.D.C. were discussed and approved in the Parliament. The State Governments were requested to prepare their own Memoranda on the Fourth Plan by January 1, 1965. It is expected that by July 1965, the Planning Commission will be able to place the Draft Outline of the Fourth Plan before the National Development Council.

The Preliminary Memoranda of State Governments and Union Territories are also under examination of the Planning Commission now and will be discussed with the heads of States later on. It is expected that by October 1965 the States would be able to finalise their Memoranda which will be submitted for the approval of the National Development Council some time in November 1965. After incorporating the recommendations of the N.D.C. the States/Union Territories will finalise their Plans for incorporation in the final report of the Fourth Five Year Plan to be published in February 1966.

Even as this work is going on, the Planning Commission is taking steps to prepare a perspective long-term Plan for the Indian economy.

Annual Plans

The Annual Plans of the Central Ministries and States are an integral part of the Five Year Plans. An important feature of the Annual Plan for 1965-66 has been that the States were required not only to furnish their proposals for the year but also to review the likely achievements during the Plan period and to highlight the points useful from the point of formulation and implementation of the Fourth Plan. Another important feature has been that the State's resources have been estimated in advance of the annual plan discussions to give a realistic base for the annual plan outlay. While formulating the annual plans more time has also been given to technical groups for fuller examination of the problems. The States were also requested to take special note of the possibility of maximisation of investment returns, economising on construction costs, intensification of drive for agricultural production and avoidance of deficits both on revenue and capital account.

National Planning Council

In view of the increase in the activities of the Planning Commission the need was felt for assistance of specialists which could be available to the Commission on a more or less regular basis. That is how the National Planning Council came to be constituted with the Deputy Chairman of the Planning Commission as its head. The Council consists of all the whole time members of the Planning Commission and 17 non-official members who have distinguished themselves in various technical fields.

A Joint Technical Group for Transport Planning was set up by the Planning Commission to carry out the programme of transport studies. Its main object is to provide ideas for a perspective development of transport requirements over a period of 10 or 15 years. A number of studies have been undertaken by the Group with this end in view.

Village and Small Industries

In April 1962, a Rural Industries Planning Committee was constituted with the Deputy Chairman of the Planning Commission as its head. This Committee is helped by a Standing Committee which has been set up to provide continuous guidance in the preparation of programmes of rural industries by the Rural Industries Planning Committee. The Standing Committee has chalked out a scheme for Intensive Development of Village and Small Industries in Rural Areas.

Public Co-operation

There are two categories of public co-operation schemes: (*i*) schemes concerning co-operation in specific Plan programme and (*ii*) measures to strengthen voluntary organisations *i. e.*, research, Lok Karya Khetra and certain special programmes such as planning forums.

Lok Karya Khetras are constituted for stimulating voluntary participation in local development by the people. A grant-in-aid of Rs 5,000 is given by Planning Commission for every Karya Khetra. At present 400 rural and 50 urban Karya Khetras are working.

The Planning Commission sanctions loan assistance to Construction Service of Voluntary Organisations and Labour Construction co-operatives for purchasing tools and implements and for financing construction works. The service has made possible better work by workers and reduced the cost of building materials by encouraging the setting up of brick kilns and quarries.

Programme Evaluation Organisation

The contribution of PEO lies in the fact that it has made problem-oriented enquiries and has provided evaluation methods and techniques. During the past year PEO has made studies on the levels of consumption, living and employment, use of improved methods in agriculture, utilisation of co-operative loans, evaluation of the Rural Works Programme and problems bearing on the extension of primary education.

Committee on Plan Projects

During the year four study teams (Building Projects, Irrigation, Agriculture and Industry & Mining) and two panels (Water Utilisation & Education) were at work and completed their studies.

Research Programme Committee

Since its inception (1953) the R.P.C. has sponsored 200 research projects and has given Rs. one crore as grants-in-aid. The amount spent during the Third Plan is estimated at Rs 45 lakh. The list of research topics for the Fourth Plan is being finalised.

The Committee on Natural Resources

The Committee on Natural Resources is assisted by four Technical Committees on Land, Water, Minerals and Energy. These Committees have taken up important studies in their respective fields like reclamation of waste lands including saline, alkaline and water-logged lands soils, their classification, occurrence and properties, unit field of rice in relation to fertiliser, investigation of copper, lead, zinc and antimony bearing regions of India etc.

The Report attempts to keep the Members of Parliament and the general public posted with the working of the Planning Commission and allied organisations. The Report is of considerable significance since it comes on the eve of the formulation of the Fourth Plan and contains valuable information regard ing the steps being taken in that direction.

(*Continued from page 8*) **SUBSIDIARY FOODS**

dehydration and drying under controlled temperature and humidity conditions. They take much less time than traditional methods".

"Then there is the canning method for fruits. Pickles and *chutneys* are also a form of subsidiary food.

"With a view to popularising these methods we have started four Community Canning and Preservation centres at New Delhi, Bombay, Calcutta and Madras. They have a systematic programme to demonstrate these methods to housewives in these places. The success of these centres has encouraged us to start about fifty such centres in various parts of the country.

"Our mobile vans go to inaccessible areas of fruit cultivation and collect surplus fruits. We make juice out of them and sell on a no-profit-no-loss basis.

"We also administer the Fruit Products Order by which manufacture of fruit products is licensed by us. We lay down specifications and control their quality. Similarly we manage the Cold Storage Order of 1965 by which we keep a watch over the cold storage industry. Cold storage and accelerated freeze drying are important for fruit preservation.

"Then, we have a programme for popularisation of parboiling of rice which retains vitamins and minerals even during milling, washing and cooking. Modern milling equipment like rubber shellers reduce breakage of rice. With these methods we can save 8 to 10 per cent of milled rice which would otherwise go to waste. We are testing this on six rice mills. If the results are encouraging, we will have more such mills. If all the rice that is produced here is parboiled and milled like this we will have an additional 5 lakh tons of rice."

"*Don't these colleges of Catering Technology and Applied Nutrition come under your Division ?*"

"Yes. We have four of these colleges now. Apart from these we have 12 Food Polytechnics which are really food craft centres. Catering technology, as you know, has assumed great importance because of rapid industrialisation and urbanisation. The idea is to train a large number of people who will enable the country to serve hygienically prepared nutritious foods to people of all walks of life. By adopting proper culinary methods, loss of nutrients in foods is avoided."

"You will be glad to know." said Dr Kymal smiling, "that the Bombay Institute of Catering Technology will shortly bring out a 1,000-page book on typical Indian recipes."

Farmers of Sidhaon have made it

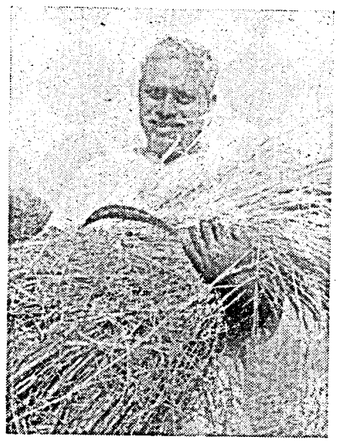
Two years of package programme have changed the face of a village in Bihar. Yields of paddy, the mainstay of the village, have gone up by more than three times from 5 quintals to 17 quintals per acre. From this increased yield the village has made a profit of Rs. 50,000. Thus the pock-marks of poverty on its face are vanishing fast.

Shreenarain Singh

This village Sidhaon in Champaran district has a population of 600. A majority of them belong to a semi-tribal community called Tharus. Farming is their main occupation. More than 700 acres out of 827 acres, the total area of the village, are cultivated, and 70 per cent of this is under paddy. The Triveni canal provides irrigation. But with all these there was only one crop, and the yield was very low. The poor villagers could not do better with their primitive methods of farming.

In April 1963, the Intensive Agricultural District Programme was introduced in Champaran. The first aim of the programme was to bring about double-cropping.

The villagers were told about this programme through group discussions and personal contacts. The village co-operative society was activated and given the agency for fertilisers. The farmers who, had to walk



A Sidhaon farmer beams after the 'package' harvest

15 kilometres to buy fertilisers, could now get them on credit from their own co-operative. Production plans were prepared for villagers who agreed to adopt package practices.

Within the short span of two years the Package Programme has made a deep impact on this little, out-of-the way village on the Indo-Nepalese borders. Some 1,500 quintals more of paddy were produced this year and this bumper harvest is a result of the Package Programme.

Convinced by the results, a large number of farmers are enthusiastically taking to new practices; more green manure and fertilisers are being used; plant protection measures are being adopted to an increasing degree; modern implements are becoming popular; co-operative credit is utilised on a larger scale.

YOJANA BHAVAN DIARY

ON June 10 the Planning Commission started a series of discussions on the Fourth Plan with the State Chief Ministers.

The Deputy Chairman of the Planning Commission Mr Asoka Mehta met newsmen on June 9.

Mr Tarlok Singh who had been on leave abroad has resumed office on June 8.

Mr M.V. Desai, Director of News Services, All India Radio has taken over as Adviser (Plan Information and Publicity) with effect from June 11.

The Programme Evaluation Organisation of the Planning Commission has submitted its report on 'current evaluation' of the operational aspects of the Applied Nutrition Programme to the Ministry of Community Development and Co-operation.

Social Legislation *(From Page 6)*

participate in a joint task and enabling them to function harmoniously.

Community development, extension service, voluntary and associate organisations and the local statutory bodies are some of the agencies that we have been working within India for the last thirteen years or so. And our experience confirms the belief that these are in many ways more important agencies for strengthening the process of development than mere legislation or finance.

Another point I may add here is that many of the activities in the direction of social change (*e.g.* health and education) have a large element of productive investment and should not be looked on merely as welfare schemes to be given a low priority.

The test of all social legislation is in the end its enforcement. Extension and education are methods that help in the enforcement of social laws as much as of all forms of developmental activities. Voluntary organisations of the people are channels that need to be developed for improving communications between the people and the Government.

In spite of all these, however, there will be aspects of change in social and individual behaviour where fundamental rights and values will come in for conflict. This is nearly always symbolised in matters like land reform. But there are probably few changes or reforms that satisfy *fully all sections* of the people and are acceptable to each of them. In such situations, it is the criterion of ultimate social value that has to be gone by. Once the goals are good and the means are sound as well as constitutional, there need be no undue fear of restriction of civil rights that the affected sections may complain of. How far government can go in such situations is essentially a task of leadership and statesmanship. No government can obviously go beyond the point where it does not have the support of the majority of the people. In the last analysis, laws are laws as long as the Government can enact and enforce them and the people will not revolt against them.

(From an address to the International Conference on Management in a Developing Economy, Teheran)

WE YOU ASK US TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

TRAINING TEACHERS FOR POLYTECHNICS

R.N. Malagi, Dharwar (Mysore)

1. In order to get a teacher's post in the Government polytechnics speedily, please let me know what a Civil Engineering Diploma-holder should do?

2. Some Civil Engineering Diploma-holders desire to get themselves trained for getting teacher's posts in the Government polytechnics. Are there any Government teachers' training centres? If so, please let me know whether any stipends or financial aid is given to them by the Government to enable them to study?

3. Some Civil Engineering Diploma-holders are anxious to appear for B.E. (Civil), or its equivalent examination other than A.M.I.E., studying at home. Kindly enlighten me whether external B.E. Degree facility is extended by any University or a Government-recognised examining body?

ANSWERS: 1. Recruitment of teachers to Government polytechnics is made by the State Government, either through the State Public Service Commission or other appropriate agencies, in accordance with the procedure laid down for recruitment to public service under the State Government. *Ad hoc* appointments of teachers could be made by the Directorate of Technical Education, purely on a temporary basis.

2. At present, there are no technical teachers' training centres for polytechnics. It is, however, proposed to set up four regional centres for this purpose at Guindy-Adyar (Madras), Bhopal (Madhya Pradesh), Chandigarh (Punjab) and Jadavpur (West Bengal). The scheme for the regional centres envisages the award of suitable stipends to the trainees. Some of the State Governments would start similar centres during the Fourth Plan.

3. There are no facilities at present for taking external B.E. degrees by studying at home. It is, however, proposed to introduce correspondence courses in engineering and technology during the Fourth Plan.

PROGRESS OF INTENSIVE FARMING

R.S. Puri, Kasauli.

How much of the country has the Intensive Agricultural Areas Programme covered so far? Is there any scheme to improve its working ?

ANSWER : The Intensive Agricultural Areas Programme initiated in 1964-65 has covered in one year about 1,200 Community Development Blocks in 148 districts.

Dr M.S. Randhawa, Director General, Intensive Agricultural Areas, Union Ministry of Food and Agriculture has suggested several measures for the better working of the programme. The main suggestions are that—

(*a*) A comprehensive programme for laying out Area-wide composite demonstrations involving the full "Package of Practices" in compact blocks of 40 to 50 acres or more should be organised; arrangements for the Agricultural Extension Officers to follow up and supervise these demonstrations should be made.

(*b*) The "Package of Practices" should be widely publisised using films, slides, teaching charts and hoardings and other information media.

(*c*) Fertilisers should be moved to the distribution centres before the beginning of the crop season. Programmes for using compost, green manure and local manurial resources and urban waste, sewage and sullage should be intensified.

(*d*) For making larger quantities of seeds of guaranteed purity, seed villages should be established.

(*e*) Short-and medium-term requirements of credit should be met. Where co-operatives are weak, *Taccavi* should be given.

Teaching, Research and Teachers

V.S. Vaidyanathan, Kumbakonam.

1. What are the steps taken to improve the quality of teaching and research in the field of higher education ?

2. How many university teachers in this country receive U.G.C. pay scales ? Does the U.G.C. in any way help the colleges to raise the pay scales of these teachers ?

ANSWERS : 1. Development of Centres of Advanced Study, appointment of review committees, summer schools and seminars and examination reform are the major schemes undertaken for the purpose.

During the Third Plan period 26 university departments were selected for development as Centres of Advanced Study.

The review committees recommend model syllabi for under-graduate and post-graduate studies and make useful suggestions.

In 1963-64, 22 seminars, 7 refresher courses and 20 summer schools were organised with assistance from the University Grants Commission.

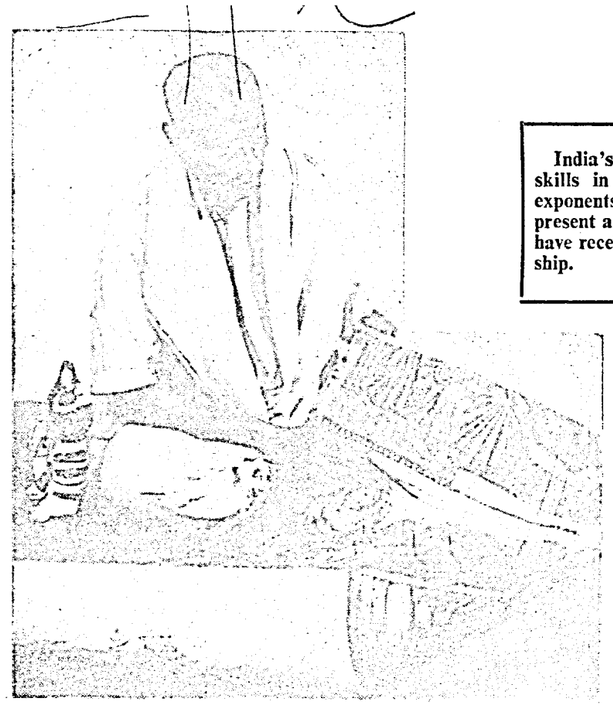
2. According to the U.G.C. report for 1963-64 about 4,000 university teachers had received enhanced pay scales by 1963-64 during the Third Plan period. The Commission shared 80 per cent of the additional expenditure required for the introduction of the revised pay scales of teachers in 39 universities.

Fifty per cent of the additional expenditure on the revised pay scales in affiliated men's colleges and 75 per cent in women's colleges was also contributed by the ,Commission. About 14,000 teachers working in 461 colleges affiliated to 23 universities had received the benefit by 1963-64.

Regd. No. D-876

YOJANA

NINTH YEAR
14
JULY 18, 1965



RAJANIKANTA CHITRAKAR

India's ancient and almost half-forgotten skills in craftsmanship are now finding new exponents and patrons. Yojana is happy to present a short series of profiles of artists who have received the highest award for craftsmanship.

USHA CHETTUR



THE Chitrakars of West Bengal cherish among them one of the leading master craftsmen of this country, 73-year-old Rajanikanta. He is the outstanding exponent of the famous Kalighat school of painting. His slender and aged fingers can still finish a perfect figure in a few minutes. His fine artistry and unbounded imagination mould a myriad toys from clay. No wonder that Rajanikanta was among the first to be given the national awards for master craftsmen.

Rajanikanta was born in 1892 at Akabapur in the Midnapur district. He went to Kalighat at the age of eight to work with his father, the late Uma Charan Chitrakar. Inspired by the exquisite artistry of the Kalighat artists around him, he soon became proficient in handling the traditional tools of the art. The simple fluidity of lines and form peculiar to the Kalighat school of painting appealed to him. He wielded the bamboo-stick brush with the feel of a superb painter.

Image-making and clay-modelling came to him naturally. It is difficult, say the sceptics, for an artist to be true to more than a single art. But Rajanikanta has attained heights of excellence in all the three arts which attracted him.

He now proudly shows his fellow craftsmen the "tamra-patra" which he received from the President of India. Greatly concerned at the vanishing glories of his artist-community he has founded the Bangiya Jatiya Chitrakara Sabha to impress on its members that craftsmanship does not in any way lack prestige or distinction in a modern society. As the President of the unpretentious organisation, he is striving hard to instil in his fellow craftsmen a pride in their craft.

When he heard of the Calcutta branch of the All India Handicrafts Board, he walked into their office with hesitant steps seeking guidance and help. To his great delight he found that the Board was deeply interested in him and his community's problems. The experts of the Board visited the community's centres of work and promised them training and marketing facilities. This help and the national recognition that has come to Rajanikanta have convinced him that in his struggle to save the Kalighat school of painting and to mould master craftsmen from the Chitrakars, he is not alone.

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57 LAKH HOUSES IN FOURTH PLAN
"PEOPLE'S WORK AREAS" EXPAND
ATOM FINDS FAULTS

25 PAISE

ABOUT YOJANA

YOJANA seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

The Advisory Board of the journal consists of the Minister of Information and Broadcasting, Minister of Community Development and Co-operation, Minister for Agriculture, Mr T. N. Singh, Mr Shriman Narayan, Mr Akshaykumar Jain, the Secretary, Ministry of Information and Broadcasting, and the Secretary, Planning Commission.

Although published on behalf of the Planning Commission by the Ministry of Information and Broadcasting, *Yojana* is not restricted to expressing the official point of view.

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Cover, on houses, is by JIVAN ADALJA

OVER TO YOU

EARNING A PENCIL

I have come to India, and the Yojana Bhavan, in order to study some aspects of the Indian manpower situation at close range. I have been alternately impressed with the innate qualities of Indian workers and shocked by the great misuse, and disuse, of these qualities. One incident that occurred recently is a classic in office comedy, and indeed would have been quite funny if similar occurrences were not so common here.

A peon entered the room of a colleague with a handful of pencils, and a large, official register. My colleague was offered a pencil, his standard three-month allotment, and was required to sign a receipt for this 15 P item in the register. On closer examination, I found page after page of the register to be covered with similar scribbled receipts for "1 pencil".

I am intrigued as to the eventual use to which this register will be put. Is it intended to do a statistical analysis of "The Utilisation of Pencils in the Planning Commission, 1965-67" with classifications by division, sex, age, and job title of the workers? (If so, I understand that different quality pencils are supplied to different grades; the wearing capacity of the different types must certainly be taken into account.)

Perhaps it is intended to present an award to the individuals or divisions which show the greatest economy in pencil utilisation? A public presentation of such an award would be a great incentive to the other workers in the Commission to reduce their consumption of pencils. There is only one slight danger in such a scheme; since the only output of the Planning Commission is the written word, a striving towards the ultimate in pencil conservation might result in a drastic reduction of Planning Commission output.

New Delhi ROBERT W. MOSS

NEXT FORTNIGHT

THE URANIUM MILL AT JADUGUDA

HAS PANCHAYATI RAJ HURT EXTENSION SERVICES?

POTATO RESEARCH —Staff Report

Necessary

I am a student of M.A. (class economics). I have necessary your publication 'YOJANA' Monthly Magazine. Pl. let me send one copy as specimen. Thank you.

Mandala ***

(*The letter above has been published with no corrections, specially for English enthusiasts. The name of the writer has been withheld for obvious reasons—Editor*)

Heavy Structurals

The Triveni Structurals has been registered to establish and run the heavy structurals project at Naini near Allahabad.

The project hopes to make 25,000 tonnes of structures for buildings, towers, bridges, pressure vessels, etc. It will be built with the help of an Austrian firm at Rs 5 crore.

'OPERATION HARDROCK'

The United States of America has announced a loan of 3.5 million dollars to meet the foreign exchange required for an extensive survey of non-ferrous minerals in India. The project is called "Operation Hardrock".

YOJANA

Vol. IX No. 14 Fortnightly Journal Published on behalf of the Planning Commission Asadha 27, 1887

EXCHANGE AND THE PLAN

THE import policy announced at the beginning of the month points up the acute straits we are in in regard to foreign exchange. It has also occasioned a good deal of public concern and comment. Some of this comment is impassioned and constructive; some of it is openly motivated by political rather than national interest.

The strongest of economies sometimes run into ways-and-means problems. The United States was recently worried that the outgo had been more than the inflow. Britain at the time of the Suez crisis had a payments crisis and was helped out by the International Monetary Fund.

For immediate problems the Government will no doubt find some immediate remedies. But it is only fair to state clearly that ours is not a mere short-term problem. It has to be equally clearly understood that a lasting solution of our foreign exchange problem has to be sought over the long term, through well-thought-out and well-enforced policies.

We are in the position of a man who builds a big house, and in the process of construction runs into cash difficulties. The advice to give him is not to abandon his effort or to revise his plans and build a little house on the large foundations. He must hold fast to his determination, and seek to complete some portions of the building and put them to productive use, while going ahead with the rest of the project.

The analogy need not be pressed further. But the essence of it might be summed up in these words: that the true solution to our foreign exchange crisis is in more development and increased production, and not in holding back development.

Agricultural production must go up to produce more of the exportable commodities and, what is even more necessary, to do away with the dependence on foreign food. All the food that we get from abroad is not PL 480 food from the United States; some of it we buy the hard way. And even on the PL 480 food that we get we have to pay shipping and handling charges in foreign currency. This is a great and urgent area in which saving of exchange can and must be made.

But higher agricultural production and productivity depend on inputs from industry. To grow more grain, jute, cotton and plantation products, we need more fertilisers and pesticides and pumps and other implements. Industrial production in these sectors has to go up.

Industrial production has to go up in other sectors too. Steel and machinery, for instance. We are now importing large quantities of them. If we stop their imports, we save exchange, certainly but we shall bring the economy to a halt. What we must aim at is to make more steel at home so that imports may be stopped as soon as possible—and we might even exploit our advantages and *export* steel and machinery.

Higher steel production—and higher production elsewhere—depends on *imports* of machinery and materials. To slash imports in these essential fields is to cripple the economy. If anything, the need for imports will grow. But there is a case for examining the pattern of these imports and reorganise it in such a way that our self-reliance and ability to pay are built up.

This examination of the content of imports with a view to making fuller use of capacities and building up long-term capabilities is necessary and, doubtless, being done. Investment and import policies must both be guided by the consideration: Can we make within the country and with the equipment already established, things the import of which we can stop? This is referred to as import substitution; it is more, for it will bring about a basic structural change in the economy. Import substitution should not be regarded as being unrelated to export promotion. They are part of one basic process. The same decisions that would result in saving imports could result in enlarging exports; in the process they would have increased domestic product and added to the strength of the economy. Higher production of farm products and of steel will do this, for example. The battle for exports will be won not just through exporting a larger volume of the traditional export commodities. The world market for these has been unfavourable for years. We must so draft our policies as to alter the structure of exports.

By giving up our objectives we are not going to be blessed with a glut of foreign exchange. Merely by going on as we have done, too, we shall not be solving the problem. We need to learn from experience and seek out and stress the long-term policies which alone will yield a lasting solution. And we must remind ourselves constantly that our aim is to do without net inflow of foreign capital and equipment by the seventies.

57 Lakh Houses in Fourth Plan

BUT NOT ENOUGH, NOT ENOUGH

Central Board Promised: Start in Prefabrication

YOJANA REPORT

"HOUSING IS A basic necessity of the people and it must be provided," said the Prime Minister a few weeks ago while inaugurating a new "bhavan" in Delhi.

By drawing attention to what can be regarded as a self-evident truth the Prime Minister was reminding administrators that governmental programmes should keep social needs and social purposes uppermost in their thoughts.

The basic needs of human existence are food, cloth, work and a home to live in, with medical care and education following closely behind. Yet there is no nation which is wholly satisfied with the stock of houses it has—not even the small and highly prosperous countries like Sweden and Switzerland.

Among the larger countries, the United States of America needs to overhaul a fourth of its housing. The Soviet Union, after many years of self-denial in the effort to build a strong economy, has only recently launched a national house-building campaign (see article on page 7) so that at the end of the current 20-year plan, that is 66 years after the Revolution, it will assure adequate minimum housing for all.

In our country where we cannot yet assure a job or a minimum availability of food for everyone, adequate housing can come only years later. But that does not mean that the problem can be neglected: indeed it is not being neglected.

While Government is building houses for the poorer people in increasing numbers, the bulk of homes are still privately built in our country. This will be so for years to come. Building a house, like buying a piece of land (and one might even say, like marrying), is a big personal urge.

In the five years of the Third Plan, between 1961 and 1966, it is expected that something like Rs 1,565 crore will have been spent on building houses—Rs 460 crore by the Government and the rest by individuals.

During the Fourth Plan period (1966-1971), the investment in house-building is expected to be Rs 2,460 crore—more than a tenth of the total outlay on the Plan. Something like 57 lakh houses will be built from this money (of which Rs 1,010 crore will come from public funds).

★

FIFTY-SEVEN LAKH houses—this sounds impressive.

But like most other impressive figures, this is only a drop in the Indian bucket.

The strange thing is that the housing shortage will be *greater* after these houses are built than before!

The reason is simple: the huge rate at which our population keeps growing. Families grow at a greater rate than buildings to contain them.

The Census of 1961 for the first time gathered together the relevant figures on the housing situation in the country. These figures show that in 1961, out of 845 lakh households in the country, 53 lakh had **no separate house at all to live in.** The total number of dwelling houses was 792 lakh. Of them 185 lakh were **pucca** houses. The shortage of housing, on the assumption that all the 845 lakh households had to have a **pucca** house, was thus 660 lakh.

Approximately 42 lakh houses will have been added in the Third Plan,—but at the same time the increase in the number of households will be something like 105 lakh. As in the case of employment, the faster we seek to go, the farther behind we seem to fall, for the reason that population moves even faster.

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IT IS A SITUATION with which Government is not happy. But can it, all at once, build seven and a half crore houses ? What about the materials for construction? And the men? And the investment ?

The housing policy of Government consists of two elements: one, to set apart increasingly larger sums from public funds to build houses for those sections of the people who are in the greatest need of housing; and, two, to encourage people who are able to do so, to build houses for themselves.

Who are the needy sections ?

In towns and cities, the industrial workers, the very low income group people, the slum-dwellers, and sweepers and scavengers. In mines and plantations, again the workers. In villages, the landless labourers and Harijans and other backward classes.

Further, as a model employer, the Government has to provide houses for its own employees. The Railways, the Posts and Telegraphs, the Transport Ministry have all their own housing programmes. New projects, often built in remote places, have to build houses first, to attract workers. In addition, there is a separate Housing Ministry at the Centre not only to build houses for government servants at large but to allot funds for house-building through the State Governments, industrial establishments, co-operatives, etc., under eight social housing schemes. These schemes, with the year in which they were started, are :

1.	Subsidised Industrial Housing Scheme	1952
2.	Low Income Group Housing Scheme	1954
3.	Plantation Labour Housing Scheme	1956
4.	Slum Clearance & Improvement Scheme	1956
5.	Village Housing Projects Scheme	1957
6.	Middle Income Group Housing Scheme	1959
7.	Land Acquisition and Development Scheme	1959
8.	Rental Housing Scheme for State Government Employees	1959

Under the first scheme, the Union Government gives to State Governments, or State Housing Boards, or municipalities, *all the funds* if they undertake to build houses for industrial workers. Half the money is given as outright subsidy and the other half as loan. If employers come forward to build houses for workers in their factories, the Union Government gives 50 per cent as loan and 25 per cent as subsidy.

The scheme has not made as much headway as hoped for at the start. In the first twelve years after the inception of the scheme in 1952, only 171,700 houses were sanctioned; of these, the number in the employers' sector was only 32,474.

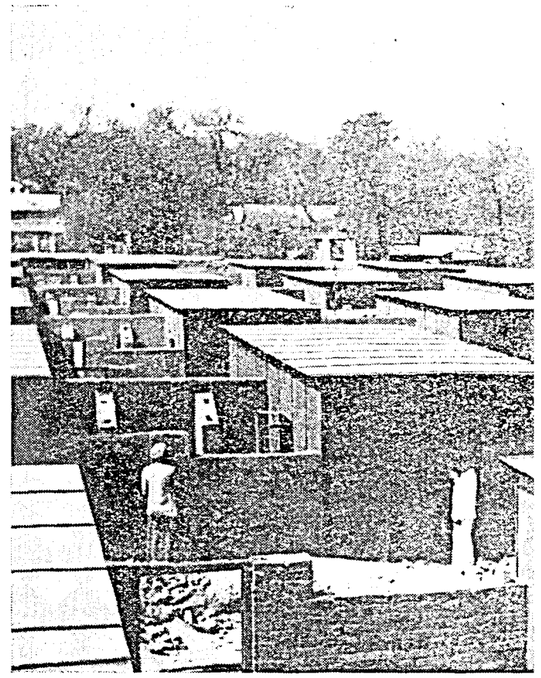
To induce more industrial establishments to come forward to build houses, the scheme has been liberalised in the last two years. The period for repayment of loan has been extended from 15 to 25 years. Also, employers can draw funds even before construction begins. It has been recommended to Government by a conference of Housing Ministers which met in Chandigarh in December 1964 that as a further incentive to employers, Government may (as in its pattern of aid to State Governments and Housing Boards) meet the *whole* cost, 75 per cent as loan and 25 per cent as subsidy; and if even then employers are not forthcoming, make it legally obligatory for employers to house a certain proportion of their employees.

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LET US LOOK at another scheme a little closely, namely the Slum Clearance and Improvement Scheme, in order to know the kind of problems that have to be faced and solved.

Even the advanced countries have slums—but they had more of them when they were industrialising themselves than now. In our country, because of the all-too-fast and unplanned growth of cities, it can be said that *the majority of the urban population lives in slum conditions.*

Slum clearance means that slum-dwellers must be provided fit houses either on the same site or elsewhere. They cannot pay higher rents. And the men who own the shanties and the plots of land they live in are not far too keen to let Government acquire the land.



"Swedish huts" set up in Delhi from prefab parts

The Union Government meets three-fourths of the cost of the new houses (37½ per cent as loan and 37½ per cent as subsidy). The rest has to come as subsidy from the concerned State Government. But so halting is the progress of the scheme that throughout the country only 85,441 tenements had been taken up in the eight years between 1956 and 1964.

The main obstacles are the galloping increase in the value of land in urban areas, and the difficulties, legal and other, in acquiring the slum areas.

To deal with these difficulties, a law has been enacted by Parliament but it extends only to the Union Territories. Under this Act, Government can acquire slum areas at a much lower rate of compensation than would be payable under the Land Acquisition Act. Also, Government can direct the owner of a slum area to improve it in accordance with plans given to him.

The State Governments have been urged to adopt similar legislation.

★

IN THE LAST FEW years, just as we see stylish new houses come up in cities (even as slums are growing), so, too, new tiled or cement-topped houses are to be seen in villages. But, in general, housing in villages is getting worse, not better.

A Village Housing Scheme has been in existence since 1957 but at best it hopes to touch only 5,000 out of the 567,000 villages in the country. In the Third Plan the aim was to build 127,000 village houses accord-

ing to new plans, but only 15,800 had been built until November 1964.

Under the scheme, two-thirds of the cost of a house (up to Rs 2,000) will be given as a loan to the builder of a house. The poorer villagers cannot afford to apply for this loan; the better-off find it insufficient.

Another aim of the scheme is to provide house sites for landless labourers. But this also has not made much progress, because, to provide sites for the landless labourers, land has first got to be acquired. And property-owners are not ready to part with their holdings.

The Chandigarh conference of State Housing Ministers suggested that the State Government should make more active efforts to give house sites to landless labourers by acquiring land near the village *abadi*; and that loan levels to intending house-builders in villages be raised to 80 per cent of the cost of a house, up to a maximum of Rs 3,000 (instead of 66 2/3 per cent and Rs 2,000).

The feeling within the Social Welfare Division of the Planning Commission, which is concerned with the slow progress of schemes for housing Harijans and landless labourers in villages, is that the problem of Harijans should not be dealt with separately from the rest of the community. There should be an integrated approach to rural housing, and funds available for housing Harijans and other backward and weak sections and those earmarked for general rural housing should be pooled at the State level. At least Rs 100 crore should be available for this integrated scheme in the Fourth Plan.

Besides the Chandigarh conference of State Ministers, the National Development Council's Committee on Social Services has also considered housing policy in general, with special reference to the programme for the Fourth Plan.

A view expressed by both the conference and the committee was that the State Governments tended to place housing too low on their list of priorities and that this must change.

The specific suggestions made were that every State must have a Housing Board and that all house-building agencies in a State (now distributed among different departments) must be brought together under one Housing Minister.

It was also felt that there should be a Housing Board at the Centre; and the Housing Ministry is indeed hoping to announce soon the setting up of such a Central Housing Board.

★

THAT THE STATES have tended not to think too highly of housing is seen by the fact that they often divert housing funds to other purposes. When the Emergency was declared, one activity to be hit almost immediately was housing. Cement shortage made its own contribution to this situation.

As a consequence, even the inadequate allocation of Rs 182 crore made for the eight social housing schemes under the Third Plan is not likely to be fully used.

Out of the Rs 182 crore, Rs 80 crore fall under the State Plans, Rs 22 crore under Central schemes for slum clearance and housing dock labour, and Rs 20 crore under plans for the Union Territories (totalling Rs 122 crore). The remaining Rs 60 crore were to come from the Life Insurance Corporation.

Because the States have not been contributing their share of 25 per cent to many of the schemes, only Rs 96 crore are likely to be spent from governmental funds instead of Rs 122 crore. The Life Insurance Corporation's Rs 60 crore will, however, be fully utilised, specially because the State Governments themselves are putting pressure on the L.I.C.

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THE SETTING UP of Housing Boards in all States has been strongly urged because of the good work done by the Boards in whichever States they now exist.

The best example is provided by the Maharashtra Housing Board.

The old Bombay State established a housing board in 1949. Bombay even then had a tradition of social housing. As a result of the report of a commission in 1918, some ten crore rupees were spent to build 30,000 tenements for industrial workers; soon after Partition another 20,000 houses were built for displaced persons. **Between 1949 and September 1964, the Housing Board built 65,282 tenements in Maharashtra (with 13,666 more due for completion by March 1965).**

Of these tenements, more than 61,800 are in Greater Bombay. How much worse the congestion and suffering in Bombay would have been without this large addition to housing stock can be imagined.

The cost of the 65,282 houses is Rs 27.77 crore. Rents (which bring in Rs 1.50 crore annually) are reasonably low. In the suburb of Vikhroli an industrial worker occupying a Housing Board tenement pays Rs 44.92 for a tenement consisting of two rooms, a bath and a lavatory. This includes service charges. A family resettled under the Slum Clearance Scheme (there are 3,000 such tenements in Vikhroli) pays only Rs 20 a month plus Rs 4.50 as servicing charges. The Housing Board has also built flats for the middle income group which are given out on the instalment purchase system. A third of the cost is to be paid at the outset; the rest is realised over 15 years.

★

AMONG OTHER SUGGESTIONS on which there appears to be agreement is that the existing housing schemes for urban areas should be integrated into two broad categories: (1) a subsidised housing scheme and (2) a loans scheme. The need to give the highest priority for housing sweepers and scavengers in congested towns is recognised.

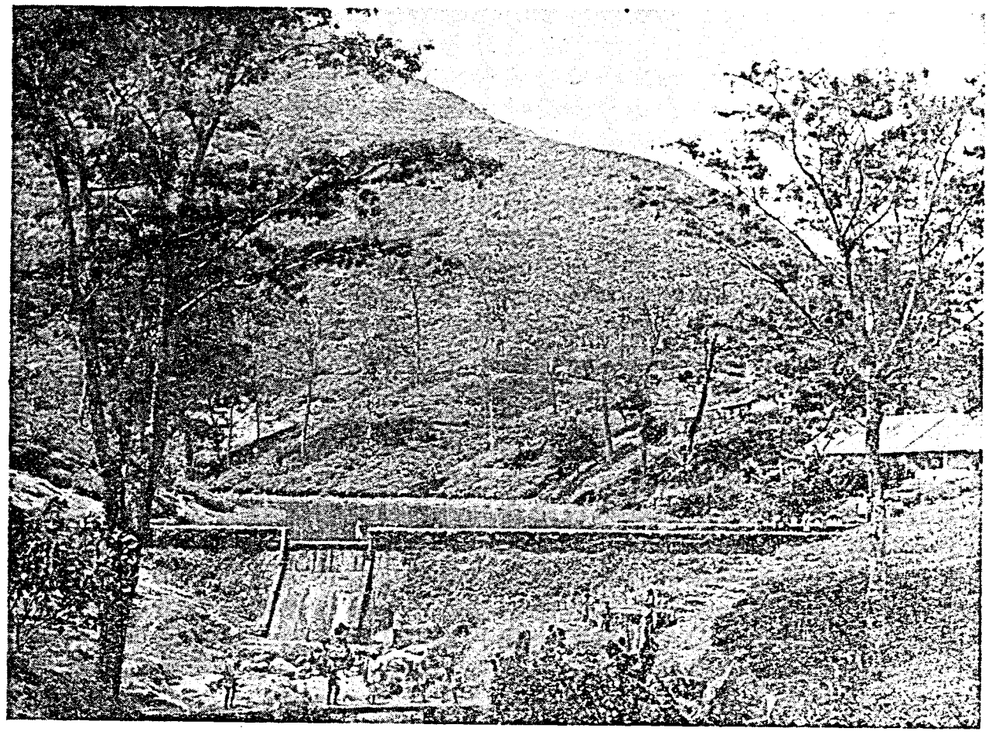
The Housing Ministers' conference has set up a committee of ministers under the chairmanship of Professor M.S. Thacker to recommend improvements in housing policy, especially legislative and other steps for speeding up land acquisition.

★

DURING HIS VISIT to the Soviet Union, the Prime Minister was impressed by the vast building programme there—tenements being built in numbers running

(*Continued on Page 18*)

Expanding Movement of Self-Help and Service



This is Stagbrook, a tea estate in Kerala, where a Lok Karya Kshetra has been doing fine work.

Lok Karya Kshetras Grow

WHEN people decide to help themselves unitedly, there is a great deal they can achieve. This faith is the basis of Panchayati Raj, and of the Lok Karya Kshetra scheme.

Lok Karya Kshetras are an effort to ensure public co-operation in the development effort and to bring the Plan and the people close together.

The scheme of the Lok Karya Kshetras was prepared by the Bharat Sevak Samaj in 1957 at the instance of the Planning Commission. A beginning was made in November 1958 with 25 Lok Karya Kshetras. At present there are about 350 rural Lok Karya Kshetras all over the country; of them 200 are in the Central sector, and the rest in the State sector.

The aim is achieved in the following way: by building up the initiative of the people and assisting the growth of local leadership; by mobilising manpower and resources for production, and by creating conditions in which people's institutions can function effectively.

The Lok Karya Kshetra is more a popular movement than a mere scheme of voluntary service by some socially-minded workers. It does make use of Government agencies like Community Development, but in 65 Kshetras the work is done without any outside help.

A dozen all-India voluntary organisations and several educational institutions participate in the Lok Karya Kshetra scheme, besides the Bharat Sevak Samaj. Recently 35 Kshetras were allotted to educational institutions.

It is not only economic activities that a Lok Karya Kshetra takes up. In 1962, after Chinese aggression, the Kshetras oriented their activities towards helping the defence effort. Twenty-five Kshetras were set up in the border areas of Assam, U.P., Himachal Pradesh and West Bengal. At several places, the Kshetras conducted surveys to assess the number and needs of the families of the military personnel and help was secured for them.

The scheme is aided by the Government and every rural Kshetra gets a grant of Rs 5000 annually.

A Kshetra covers about a hundred villages in a Community Development block that is in pre-intensive stage. A set of ten villages is selected at a time for the activities of the Kshetra. After working for about 18 to 24 months and making sure that the work and spirit initiated by the Kshetra workers will be continued, another set of ten villages is taken up.

There are three full-time workers in each Lok Karya Kshetra. They are a Mukhya Sahayogi (chief co-worker), and two Sahayogis (co-workers). They divide the villages among themselves. A Sahayogi begins with establishing close contacts with the village community and forming a village committee of Panches and Sarpanch, representatives of the co-operative societies, village school and prominent farmers and village leaders. A representative each from the village committees, panchayats, co-operatives and the schools comprise the managing committee of the Kshetra. An executive committee is also constituted to look after the day-to-day work. These committees are responsible for the working of the Kshetra programme.

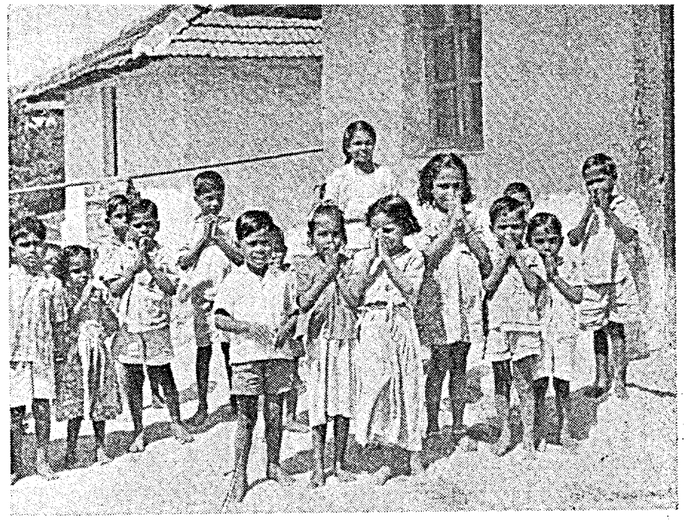
A survey of the social and economic conditions of each village is conducted and, on the basis of the data collected, a development plan for each village is separately prepared. The plan is discussed and reviewed periodically by the committees.

Agriculture is the main item in the village plan. Farmers are persuaded to take to improved methods of farming. The use of compost-manure and chemical fertilisers is popularised. Irrigation channels and wells are dug. Kitchen gardening and subsidiary occupations to enlarge the income of the farmer are encouraged.

Co-operation is emphasised in all economic endeavours of a village.

Attention is given to the maximum utilisation of local resources in manpower and material. Shramdan is organised for building community assets such as roads, bunds, irrigation facilities, school and community buildings, drinking water wells and sanitary works.

The school is the light of village life. A Kshetra worker persuades the parents to send their children to school. Literacy classes are opened for the adults.



Children say their prayers at a school run by the Stagbrook Lok Karya Kshetra

Organisation of the youth, children and women is essential for the welfare of the village. Over six hundred youth clubs have been organised so far. Women's clubs take up gainful activities for the benefit of women and Balwadis look after young children. Rural libraries and reading rooms are opened.

In a Kshetra village, a number of compaigns are organised the year round to arouse the enthusiasm of the people, keep them better informed and engage them in constructive work. Fertiliser festivals have become popular in Kerala. Over a lakh of persons participated so far in sanitation drives.

Besides rural Lok Karya Kshetras, there are also urban Kshetras and Nashabandi Kshetras. Urban Kshetras are few in number and they are confined to slum areas.

The Nashabandi Kshetras are exclusively working an intensive programme of educating the people against the habit of drinking. There are 24 such Kshetras in the country.

In order to be able to do the organisational work, the Kshetra worker is trained in different aspects of social service. The Bharat Sevak Samaj runs two training centres for this purpose—one at Mehrauli near Delhi, which was opened in 1959, and the other at Trivandrum in Kerala, started in 1963. The two centres had trained over 1,000 workers by the end of 1963-64.

THE STORY OF STAGBROOK

THE story of Stagbrook Lok Karya Kshetra in Kottayam District in Kerala is the story of an experiment in public co-operation among plantation labour.

In March 1961 the Planning Commission sanctioned this Lok Karya Kshetra, on the request of the Bharat Sevak Samaj, to be worked as a pilot project among the estate labourers in the high ranges of Kerala. Three tea estates, employing 1,000 workers and accommodating a population of 2,500, were selected initially. Subsequently the activities were extended to some of the adjoining tea estates, adding 3,000 workers supporting a population of 7,500. Bazar areas of Pallikunnu (Church Hill) and Elappara lying close to these tea estates were also included.

The tea estate workers were continuously exploited by merchants and others. They never cared for their own health, clothing and food. The only entertainment for them was a cinema house five kilometres away, and occasional festivals and other celebrations in the nearby churches and temples. They spent more than they earned and always ran into debts. Addiction to alcohol was common. Children were most neglected.

Half a dozen trade unions kept the labourers in different political

(*Continued on Page 28*)

New Houses Go Up in 700,000 Soviet Villages

CONSTRUCTION AGENCIES REPATTERNED

NIKOLAI SAPFIROV

THE Soviet Union is an immense country. There are 700,000 villages with a population of over 100 million people on its territory. Ten per cent of its farmers live in half a million small villages with not more than 100 inhabitants in each, and 60 per cent live in 50,000 small townships with 500 and more inhabitants.

It is but natural that in the reconstruction of the countryside it is the larger villages that are given priority, being the more promising in this respect. Concentrated, combined production organisation and, consequently, concentrated settling of the rural population is a specific feature of socialist agriculture in general. This makes for a more efficient use of investments and materials for capital construction. Collective and state farms have already singled out some 50,000 townships in which capital construction work is being now concentrated first and foremost. Collective farmers from small and distant villages will move to these townships, as they are built. Shops, public catering establishments, bakeries, clubs, schools, kindergartens, creches and two-family houses with garden plots are being built in these new townships.

2,000 Building Organisations

The growing scope of rural building construction has called for a radical repatterning of the organisation of building jobs and provision with building equipment. Not so long ago, the farms used to build their production facilities and dwelling houses themselves, resorting to their own facilities and labour.

In 1955, collective farms started setting up their co-operative construction organisations, building for them plants for the production of structural materials of local raw materials and buying equipment and transport facilities. There are over 2,000 of these organisations in the country today.

They have at their disposal thousands of excavators, bulldozers, building cranes, concrete mixers, and trucks. The state has been in every way promoting the development of this progressive form of building organisation and rendering extensive financial and technical assistance to rural builders. This year alone, they are to be granted 1,500 million roubles of long-term credits for building prefabricated concrete, brick, lime roofing and woodwork enterprises and buying new equipment.

Building sites are a component part of the rural landscape in the U.S.S.R. We shall hardly find a collective or state farm which is not building new homes, schools, clubs, hospitals and production premises. Here are a few figures to illustrate the scope of building construction in the countryside in the six years of the current seven-year economic development of the U.S.S.R; *in the course of these years 26,000 million roubles were invested by the state and 20,500 million roubles by collective farms in the construction of production buildings, water and irrigation developments and dwelling houses in rural areas.*

These sums were used to build almost a thousand major elevators and mechanised grain storage facilities, cattle and poultry farms, dwelling houses with a total area of 130 million square metres, including 70 million square metres financed by the state budget. *Besides over three million houses were built by collective farmers and rural intellectuals.*

Capital investment projects have acquired a still larger scope this year, which is the final year of the Seven Year Plan. A total of 7,200 million roubles are to be spent by the state and collective farms on building and erection work alone. This accounts for about 30 per cent of the entire volume of building construction in the whole national economy.

This year is to see the commissioning of sheds for 8 million head of horned cattle, pigs and sheep, 247 enterprises for the commercial production of eggs and poultry meat, elevators with a total capacity of over 1,400 tons of grain, and irrigation networks for 350,000 hectares of crop land. Hundreds of thousands of farmer families are to get new comfortable homes.

Drawing on the state's assistance the Soviet countryside is changing beyond recognition, providing its population with conveniences and services, extending and strengthening its material and technical basis—the main prerequisite of the steady rise of agricultural production. Many satisfying changes have taken place at collective and state farms in recent years. Well-planned all-brick production and housing compounds have appeared. The "Leninsky Luch" Collective Farm (Moscow Region), for instance, now has an excellent central township which is in no way inferior to an urban community: it has large block dwelling houses and attractive cottages; in the centre there is a five-storey school, library, out-patient clinic and kindergarten. The township will be fully provided with gas and central heating this year.

There are many collective farms like this one, and there will be many more soon. The task of transforming all villages into urban-type townships, of course, is not an easy job, requiring great capital investments, and it will take some time.

Mechanised mobile construction gangs which execute general and

(*Continued on Page 12*)

Why BEAS DAM project chose CATERPILLAR for earthmoving

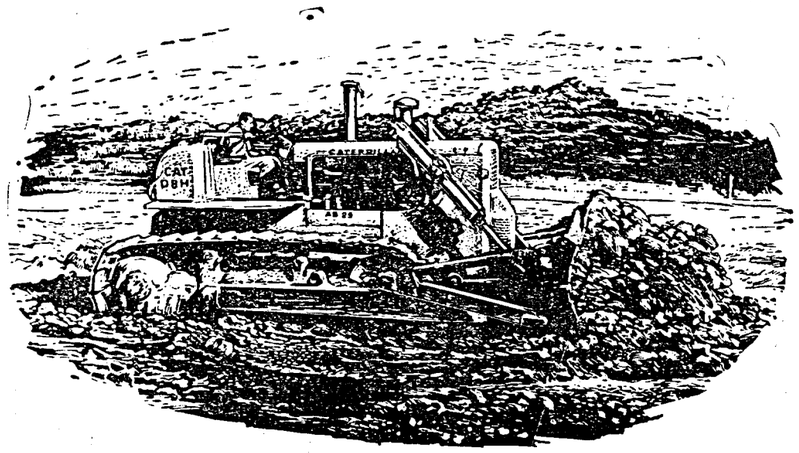
At the Beas project, machine availability is found to be as high as 92%, power shift transmission has been helpful in keeping schedules. Many built-in features in Caterpillar Track-type Tractors are continuously demonstrating substantial job economy by saving time. The high standard of dealer after-sales-service reduces downtime to the minimum, enabling higher economic production.

In 1970 nearly 25 lakh acres of desert in Rajasthan will be converted into fertile agrarian land—on completion of the Beas Project in Hoshiarpur, Punjab. On the job are a number of CATERPILLAR Track-type Tractors helping develop the dam site faster.

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Consult your nearest CATERPILLAR dealer—if Long Term Low Cost is your prime consideration.



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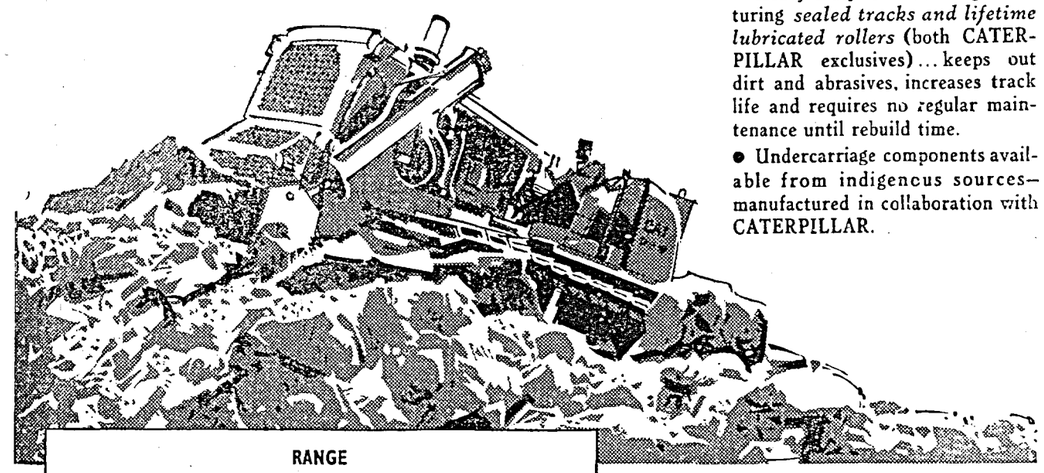
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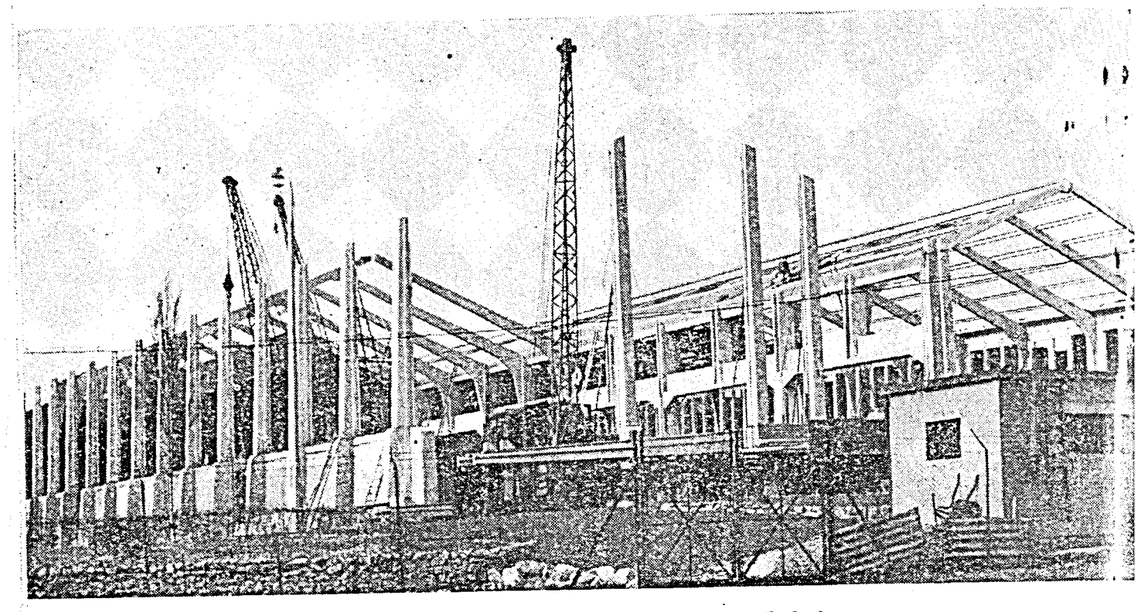
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A pre-cast workshop under construction in Warwickshire, England

Factory-Made Homes Cut Costs in UK

By STANLEY ALDERSON

Perhaps the most compelling reason for the growing popularity of prefabricated systems is the tremendous expansion of industrial and mining development in so many lands far removed from the existing centres of population. Such enterprises as the Snowy River hydro-electric scheme in Australia and the great uranium mining centres of Canada's northern territories are examples of great developments far off the beaten track where, in the absence of normal building facilities, prefabricated structures from Britain have provided not only homes for the workers, but also the schools, hospitals and offices required to service these enterprises.

BRITAIN long ago produced the system of school building, using pre-fabricated walls, columns, beams and partitions. But the example was not immediately followed in housing.

House building was largely in the hands of small and medium-sized firms, which were neither technically nor financially equipped for experiment. Also, it was widely believed that prefabrication and standardisation were not applicable to British housing.

These methods had proved successful in other European countries. But in those countries more people lived in flats, and flats lent themselves to industrialised building. In Britain, over half the local-authority building consists of houses, not flats; and of all the homes in the country about three quarters are houses.

Over and above this, there was a prejudice against industrialised house building in Britain, even among architects. People thought of the typical concrete flats of France and Russia and equated prefabrication and standardisation with monotony.

The origin of the present revolution in house building was the appointment of Mr. Cleeve Barr as the Ministry of Housing's chief architect in 1960. Mr. Cleeve Barr set the Ministry's research and development group to developing a lightweight system of prefabricated parts for house building, quite distinct from the heavy continental system.

The system now perfected is similar in principle to the "Clasp" system for school building. It is extremely flexible, comprising many kinds of factory-made components that can be assembled in many different ways.

The structure of the building is "hung" on a steel-and-timber frame. The outer walls can be panels of timber, lightweight concrete or, indeed, more or less any material. So far from being open to the charge of promoting monotony, the system affords much more variety than traditional British house building.

The break-through came in 1962. By this time Mr. Cleeve Barr's team had gone far enough with their research to know it would be successful. The first housing embodying the new system was completed at Sheffield in the following year.

By 1962, also, it was evident that industrialised house building was going to be an economic necessity. The index of building costs of three-bedroomed council houses had gone up by 50 per cent in ten years, and

15 per cent of the increase had occurred in the previous year.

Labour costs, in particular, had become a problem. With full employment and increasing affluence, ever higher wages were necessary to attract workers into an industry where the work was hard and it was often necessary to travel and be away from home during the week.

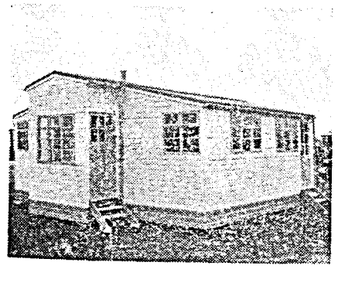
Moreover, the high wages paid to labourers reduced the differential with a craftsman's wages. Young men entering the industry began to feel it was not worth doing an apprenticeship. A serious shortage of craftsmen could be foreseen. Mechanisation was the logical answer to the problem and mechanisation of house building means mainly prefabrication.

Slum Clearance

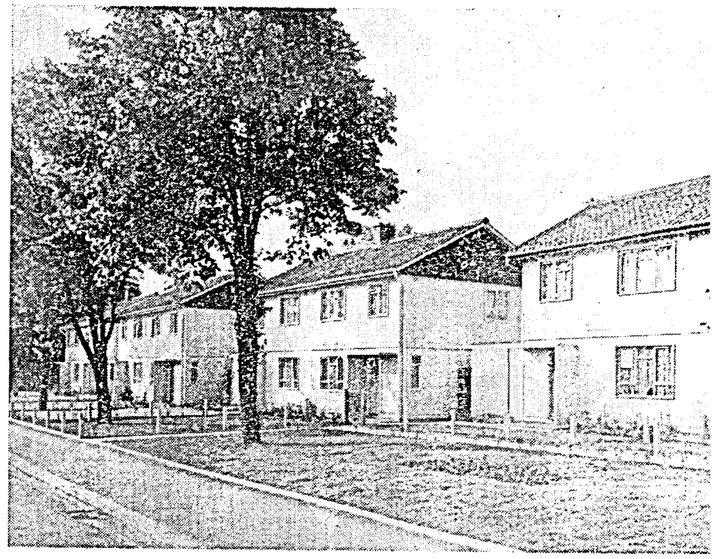
In October, 1962, the Minister of Housing and Local Government, Sir Keith Joseph, announced an accelerated slum clearance drive based on the new techniques. About the same time, it became known that the London County Council was heavily committed to a programme of prefabrication for house building.

Shortly afterwards, Sir Donald Gibson was appointed to a new post as director general of research and development at the Ministry of Public Building and Works. Sir Donald had been responsible for rebuilding the bomb-damaged city of Coventry. He had been associated with "Clasp".

Quite suddenly, a revolution in house building looked inevitable. The manufacture of standardised components is economic only on a large scale, and before this time firms had hesitated to invest in it because they could not feel assured of a large market.



A mobile house which can be folded and moved on a single vehicle and erected within six hours.



Prefabricated homes in Hertfordshire

The confidence that now the market would be there constituted the break-through. Ever since then, British newspapers have been carrying reports of plastic and aluminium houses that can be erected in a day and towed by a car, and of blocks of flats made from prefabricated components and *erected in nine days instead of 15 months.*

An Industrialised Building Systems and Components Exhibition, held last year in London's Crystal Palace, displayed both "instant houses" and systems of standardised components employing new materials. Even two years ago, such an Exhibition would have been unthinkable.

Needless to say, the Exhibition itself was erected in record time.

New Methods in Sweden

Standardised Dimensions Help Speedy Building

GORAN HELLSTEN

SWEDEN has 7.5 million people, three quarters of whom live in towns. The country had a housing stock of 350 units per 1000 population in 1962.

In recent years, investments in building and civil engineering have amounted to some 15 per cent of the gross national product (GNP). The corresponding figures for France were rather over 10 per cent, Britain around 8 per cent, West Germany and Italy 12 per cent, and Switzerland 17 per cent. Over and above the 15 per cent in investments, 4 per cent of the GNP have gone to maintenance.

Of the 1964 investments, more than one-third was spent on housing —over 5 per cent of the GNP; 1.5 per cent of the GNP was invested in new industrial buildings and as much in commercial buildings and in roads.

As these figures show, the largest group of investments is in housing: the production of housing units has risen sharply in recent years. The

1962 figure was 10.7 units per 1000 population against 7 in France, 5.9 in Britain, 9.9 in W. Germany and 8.1 in Italy. Of the 81,400 units built in 1963 the private sector accounted for the largest share, 32,700, while municipal enterprises built 28,500 and co-operatives 20,200.

Less Work on Site

LIKE other countries Sweden employs the method of prefabrication of elements which can be more or less simply assembled on site. The greater the degree of prefabrication, the less the work on site. The object of these industrialised building methods is to replace manual labour on the building site by machines to the greatest possible extent.

Many interior fixtures have been prefabricated for a long time past—wardrobes, kitchen benches and cupboards, window frames and doors. This process has now been extended to painting and the attachment of fittings in the factory.

Attempts to prefabricate the frame of the building came much later. The first real trials were started by a number of building enterprises in the early fifties. The elements used by these firms were designed by them and often manufactured in their own factories. This is the "closed system", the builder undertaking the planning, manufacture of elements, and the actual building of the house.

There is also an "open system", however, in which building elements are available on the open market, dimensioned for a particular building project.

More Research

IN Sweden we are now well on the way to achieving a dimensional standard for frame elements. About a year ago the storey height of blocks of flats was standardised. This led to standardisation of the dimensions of elements for outside walls, facings, stairs, ventilation ducts, refuse chutes, outside wall insulations, piping, electric mains, and lift shafts. The latest step came recently with the acceptance of a standard for horizontal frame dimensions, the horizontal module 3 decimetres (just under one foot). This new standard is expected to have a great impetus on the manufacture of elements and especially of concrete elements. It will form the basis for planning and dimensioning of frames and will directly affect the design of their component parts, outside walls, load-carrying partitions and floors. Elements made to this standard will thus have horizontal dimensions which are multiples of 3 decimetres. The same horizontal standards have been adopted in several other countries, so that an international exchange of building components and of machines and formwork can now take place.

Even if developments in the element sector have been slow, building methods in other respects have undergone great changes, most particularly perhaps in their increased mechanisation. A house of reasonable size can as a rule be built today with the aid of a crane, and on road-building the machinery costs, excluding drivers' wages, represent 40-45 per cent of the total.

A government commission was recently appointed to examine questions of industrialisation in the building field, and this is expected to have a great influence on future developments. The commission is to study what government measures are required to promote industrialisation and will deal with such questions as co-ordination and standardisation of dimensions, financing of new element manufacturing enterprises, how building regulations should be amended to meet new methods, and what means should be created for long term planning.

This enquiry is of a temporary character: the more permanent work is in the hands of various research organisations. For government building research a fund was created ten years ago which is financed by charges payable by builders, generally in proportion to the sum they pay their workers. This charge has so far brought in about 4.5 mkr per annum but has now been doubled.

Funds are also available for research at technological institutes, trade associations, for individual researchers or research groups, and at the National Institute for Building Research.

From "Featuring Sweden"

Mass Housing in Soviet Union

(Continued from Page 7)

specialised building jobs at collective and state farms on a contract basis have been set up by the state. There were over 350 of them last year, and another 440 are to be organised this year. Measures are being taken to put all rural construction work on a modern industrial basis and have the jobs done by large-scale state-operated contractors. There are already 140 trusts and 76 self-sufficient building and erection organisations today.

The rural construction planning and designing system has undergone radical changes as well. Large centralised designing and research institutes specialising along the basic lines of rural construction are ousting the small-size local institutions of this sort. All the local bodies engaged in the planning and building of rural communities have been subordinated to the State Building Construction Committees of Union Republics.

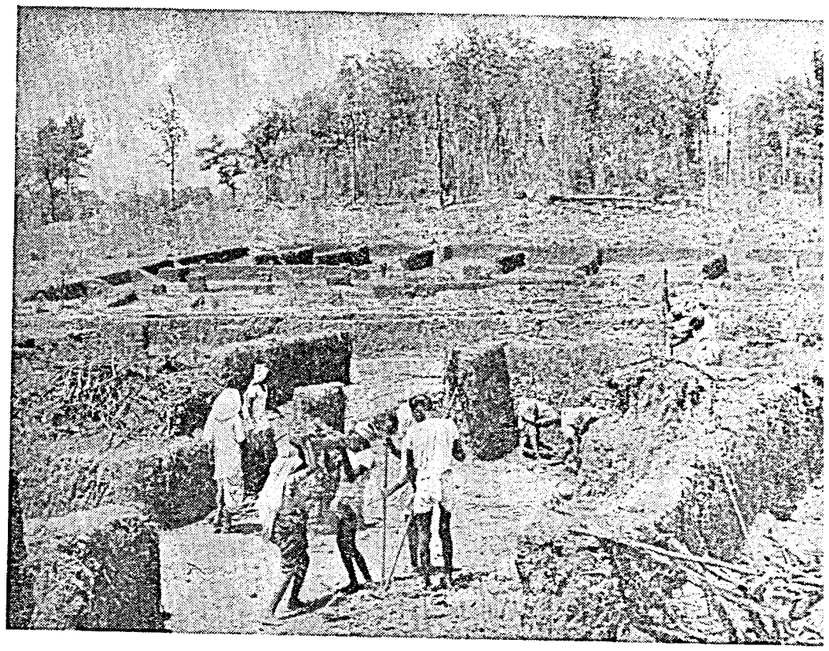
At present the rural planning and designing system comprises over 160 specialised institutions with a staff of approximately 30,000 people. Moreover, there are volunteer district architectural institutes in some regions and republics, which help the collective and state farms to plan the reconstruction of their communities free of charge.

Rural architects, under contracts with collective farms, have already worked out over 11,000 intrafarm and district plans, approximately a thousand standard designs for a wide range of farms, storages, production and dwelling buildings.

All conditions have been created in the Soviet Union for the successful fulfilment of the planned capital investment projects in rural areas. And these plans are truly enormous: 71,000 million roubles are to be invested by the state and the collective farms into the construction of farm production facilities and acquisition of new equipment under the new five-year plan. That is about as much as had been invested into the USSR's agriculture in the course of nineteen post-war years.

(Mr. Sapfirov is a commentator of the Novosti Press Agency)

29 New Villages Established



Forest being cleared to establish a village in Dandakaranya

in Dandakaranya

PROGRESS REPORT

TWENTY-NINE new villages have come up in Dandakaranya with the reclaiming of an additional 11,600 acres of land. Seventeen hundred families have moved to the village sites. Among them are 1300 families of new migrants.

The total number of villages set up in Dandakaranya so far is 174 and the total number of families resettled is 9,200.

Agricultural activities in the various settlement zones have been intensified. Cropping patterns have been evolved for the different zones. The experiments and trials of new crops and new strains continue in the mixed farms at Umerkote and Paralkote.

About 30 demonstration centres and 150 demonstration plots have been organised to educate the farmers in scientific methods of cultivation and in the cultivation of new crops.



New settler in a Dandakaranya village making a thread bag as child rests on her knees

In order to improve the land used for growing paddy, a programme of bunding and terracing has been taken up and more than 3,000 acres have already been bunded.

The amount of loan to be given to agriculturists for purchase of seeds and fertilisers has been increased from Rs. 850 to Rs. 1,015.

Other measures are also being adopted to diversify the crops with reference to the suitability of the soil and to extend cultivation of cash crops, such as mesta, niger, turmeric and chillies and to introduce new crops, such as, tapioca, cashewnut, pineapple and guava.

Twelve villages tanks have been provided with additional surplus channels for irrigation. Nearly 1,000 wells have been dug in the homestead plots in the various zones with the aid of a loan of Rs. 150 per family given from the project funds.



A pump that gives the settlers the water they need

Work on three roads, taken up earlier, is continuing. The survey and alignment of three new roads are in progress. Irrigation canals are being built in the command area of Umerkote Dam and Pakhanjore Dam. Three new schools have been completed and 44 are under construction.

One hundred families have been settled around the Pakhanjore Dam, and they will rear ducks and fish and also vegetables. A scheme has been drawn up for a dairy and poultry centre on the banks of the Kotri river in Paralkote zone.

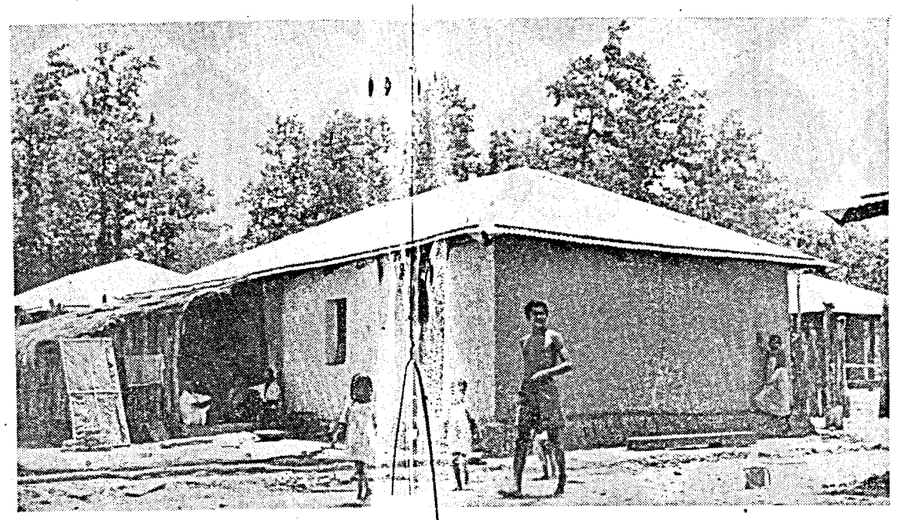
An Industrial Training Institute has been started at Ambaguda and an Industrial Estate is being set up. A site has been selected for an industrial township at Jagdalpur. Products worth more than Rs. 1½ lakh per month are being manufactured in the existing training and production centres of Dandakaranya Project. Nine hundred persons are employed in these centres including more than 750 displaced persons. A scheme for setting up handloom factories at Ambaguda and Jagdalpur, with 200 handlooms at each place, has been approved and arrangements are being made for training new migrants to be employed in the handloom factories. A spinning mill is also to be set up at Jagdalpur.

Brick kilns have been set up at Ambaguda, Jagdalpur and Paralkote. Steps are being taken to set up various small-scale industrial units, such as a wood-working unit, lime burning kilns, mineral pulverising and bone-meal mill, units to make earthenware, roofing tiles, stoneware products and a general engineering workshop.

Other units planned are a cast iron foundry, workshops to make tubular furniture, pipe fittings and builders' hardware, a plant for aluminium anodising and fabrication, a bicycle assembly unit, a tyre retreading and vulcanising unit, a printing press and so on.

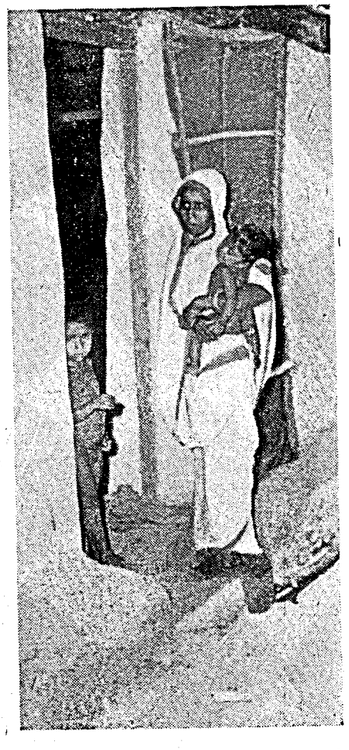


Some modern houses that have been built in the midst of the country's largest forest

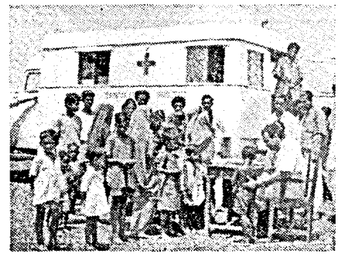


Left : **Displaced persons from East Pakistan have new homes, neatly plastered and with a roof of corrugated sheet**

Below : **A mobile clinic takes doctors and medicines to the farflung villages of Dandakaranya**



New home of mud and bamboo for a Bengali migrant





A settlement of fishermen, migrated from East Bengal, drawing in the day's catch from a lake in the forest.

PUBLICATIONS RECEIVED

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Family Planning through Clinics by C. Chandrasekaran and Katherine Kuder. Allied Publishers. 272 pages. Rs 26.

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Basic Statistics, Rajasthan, 1964. Directorate of Economics & Statistics, Rajasthan, Jaipur. 196 pages. Rs 1.50.

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Producers' Response to Changes in Prices and Marketing Policies by S. C. Gupta and A. Majid. 70 pages. Rs 12. Lectures on Advanced Economic Theory by K. T. Ramakrishna. Both published by Asia Publishing House. 315 pages. Rs. 20.

Clean People and an Unclean Country by N.R. Malkani. Harijan Sewak. 144 pages.

Laughter by the Way by Sri Thandaveswara. P. T. I. Book Depot, Bangalore. 73 pages. Rs. 2.50.

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American Industry in the Service of Man 44 pages. Published by the United States Information Service, New Delhi.

Export Prospects of Pepper. 105 pages. Rs. 10.50. Published by the National Council of Applied Economic Research, New Delhi.

VOLTAS

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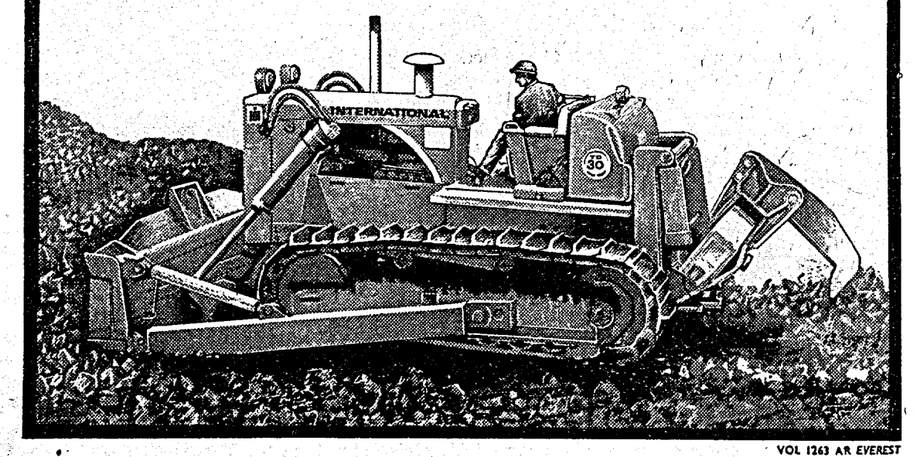
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VOL 1263 AR EVEREST

Civil Servants' Pay

A FEW years ago a political crisis was touched off in Ghana by a minister's wife who acquired—and refused to part with—a gold bed.

When an Indian correspondent recently referred to this in a conversation with a French official, the Frenchman said : "You Indians have no right to feel superior—I have seen so many gold beds in Delhi."

He explained that what he meant was the luxury in which officials and politicians in India lived, compared to officials and politicians of the same level of responsibility in Europe.

Spurred by the remark, the Indian correspondent did some fact-finding. His research had its focus on foreign service officials—since it is our foreign service men who most complain of small pay.

After his inquiries, our correspondent has given us the case of a typical middle-level foreign service official of an important European country—one who would be Counsellor if posted abroad. He draws the equivalent of Rs. 2,100, which, with payment into the pension fund, comes to Rs. 1,900. He has been in service for 16 or 17 years, is 43 years old, and has three children. He does *not* get a Government house, and spends Rs. 600 on a two-bedroom flat. Taxes and insurance take away another Rs. 300. That leaves Rs. 1000. Groceries and milk come to about Rs. 600 a month. He and his family dine out in a restaurant only half a dozen times a year—on the birthdays of his children, wife and himself, and on the wedding anniversary. The official keeps a 1958 Austin bought during his last diplomatic posting. When the last child arrived, he took five weeks' leave to turn housewife. The man himself, according to our correspondent, is of considerable intellect—and is typical of university men who come out tops in the competitive examination and join the civil service in Europe.

From his close knowledge of Delhi our correspondent says that civil servants of similar position in India have a standard of living at least twice this European's. And he goes on to point out that this kind of pay is not confined to Government service. The personnel manager of the huge Bell Telephones in Belgium draws only Rs. 3,200. An Englishman with an Oxford degree who heads a branch office of a big firm on the continent, age 36, married, draws a salary of Rs. 3,000. It is important that these figures are the equivalent of the rupee at the official exchange rate. In terms of what money can buy, their pay in local currency would work out to much less than Rs. 3,200 and Rs. 3,000. In most business houses and offices, a typist gets Rs. 700 and the range between the lowest and highest is rarely more than four or five times.

WHEN we think of this objectively, the trouble with us appears to be not that our salaried people get too little but that they *feel* they ought to get much more.

For example there is this clamour, often heard, that the Indian Administrative Service doesn't attract the best talent because the pay isn't good enough. This argument is heard in other countries also, not the least in U.S.A. There they seem to have evolved a different definition of 'the best'. It is not necessarily 'those who get the highest grades in examinations'. They do systematic talent scouting and extensive training in service. But here we suffer from the fallacy that brightness at 21 automatically leads to brilliance or distinction at 50.

Will upgrading I.A.S. salary levels of itself attract the best young men? The best Indian students will still continue to go into engineering, medicine and science where there are *assured* prospects, as contrasted with the *element of chance* in competitive examinations. Talking in terms of groups and not individuals, it is the second best that thinks of the civil service. By raising pay this fact is not going to change.



IGNORAMAN
Wants to Know

If it is not better
to fail to get
admission to colleges
than to fail
after getting
admission?

Others' Quotes

READERS of *Yojana* tell us that one of the first things they turn to when they receive a new issue of the journal is the "Quotation Box" feature. To collect "quotes" is a well recognised journalistic hobby, the most famous in this line being "Sayings of The Week" in *The Observer*, London.

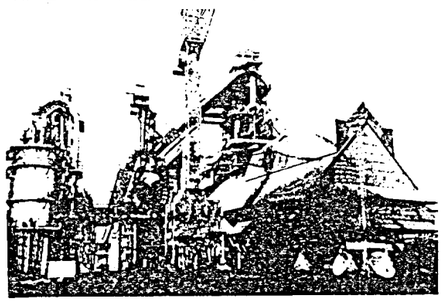
Having to keep track of these things, we picked up a fine one recently from *Productivity*, the journal of the National Productivity Council:

> "...Jeeps are difficult to get and repairs to the old ones are costly and take a long time. Supply of bullock-carts to every Panchayat Union might solve these difficulties...A double-bullock-cart might be supplied for the use of the Chairmen of the Panchayat Unions and a single-bullock-cart for the Comissioners"—*Mr. M. Bhakthavatsalam, Madras Chief Minister.*

Right, as Usual

THE plural of paisa is paise in India but paisa in Pakistan. Another indication that we in India are always more correct.

between
BHILAI and ALIND



what's the bond?

Why has Alind grappled Bhilai with hoops of steel? Or, is it coils of aluminium conductor?

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HOUSING

From Page 4

into astronomical figures, and multi-storeyed residential flats coming up in place of small old buildings. He expressed his regret that in our country, people had to live in places where even animals could not stay.

In the advanced countries of the world the trend is towards industrialised housebuilding. (This phrase is not to be confused with industrial housing). Industrialised housing means that whole houses or components of houses are factory-made and assembled on site by machines or by industrial methods.

We are, to some extent, acquainted with industrialised housing in the form of prefabricated buildings, notable examples of which are the Vikas Bhavan in Delhi, accommodating some offices of the Delhi administration. The Hindustan Housing Factory in Delhi (see *Yojana*, November 11, 1962) was set up soon after Independence, in order to speed up house-building activity on a prefabrication basis.

A committee of engineers, which also had Professor Thacker for chairman, has recently recommended the expansion of the Factory. The committee is soon to report on a second question referred to it: whether to set up a second housing factory at Bhilai.

The approach to housing with us has largely been that construction must make the fullest possible use of locally available building materials and provide as much employment as possible to the local people.

By changing over to machine methods, we might limit the employment possibilities and also need more of cement and steel. Mechanisation would also need investment in machinery. But we gain in speed.

> It is evidently with these factors in mind that the Thacker Committee felt that while India could not yet go in for wholesale prefabrication in housing, an energetic beginning should be made.

Cement and steel are costly; but bricks are not dirt-cheap. Brick-making involves the digging up of large areas of valuable land in and around the cities. It also requires large quantities of coal for the kilns.

According to the Master Plan of Delhi, to execute the housing programme it envisages, 3,500 crore bricks would be needed in the 20-year period between 1961-1981. To make this number of bricks, 1,500 acres of land and 1,750 lakh tons of coal would be needed.

To haul this coal 895 wagons would be needed per day on the average. Costs of bricks and labour would steadily go up—and conventional house-building might lose the price advantage. The position of cement and steel might itself improve in the meantime.

Therefore what we need is an imaginative combination of factory-made houses and hand-built brick houses: prefab where speed and relief from acute scarcity are required, and conventional where manpower and materials are plentiful. Meanwhile the design of prefabricated houses must be improved so that the houses are more liable and less monotonous. An architectural wing in Hindustan Housing Factory will study these problems and so will the Central Building Research Institute and the National Building Organisation.

Books

Resource Development Regions Outlined

Resource Development Regions and Divisions of India. Planning Commission. 173 pages.

R. K. Amin

THE book outlines a scheme for resource development in India by dividing the country into 15 regions and a total of 61 divisions. This has been done as a result of an analysis of data on topography, soils, climate, geological formations, land utilisation, irrigation and the cropping pattern and availability of mineral resources for each district of the country.

Such a scheme should be considered a "must" for India when we have accepted planning as an instrument of economic growth. An assessment of resources, both actual and potential, is necessary for a variety of reasons. First of all, the Planning Commission has emphasised the need for balanced regional growth. This can best be done by evolving a pattern of development which takes into proper account the differences in physical conditions and resources development potential in different parts of the country. Secondly, so far we have drawn up our five-year plans on the basis of estimated needs without taking into account the availability of resources. This approach has led us into troubles. To make our plans more realistic a proper assessment of resources, both actual and potential, is necessary. Thirdly an awareness of actual as well as potential resources provides the necessary motor force to the entrepreneurial talents of our country.

Finally, such an estimate will help us to decide on location of industries largely on the basis of economic considerations. The experience of planning in this country suggests that often political pressures compel us to locate projects at places where they cannot work successfully. From this point of view the attempt of the Planning Commission to prepare this book is indeed praiseworthy.

The book has been divided into two parts. The first part gives a brief description of the regions of the country and the second part, which consists of appendices, gives us statistical information about each region. In the first part the country has been divided into five primary or major natural regions, namely (*i*) the Himalayas and associated hills, (*ii*) the northern plains consisting of the areas of Indo-Gangetic plain included within India, (*iii*) the peninsular plateaux and hills, (*iv*) the East Coast plain, and (*v*) the West Coast plain. The main criterion for demarcating these primary natural regions has been physical factors such as topography, soils, geological formations and climate.

These primary regions have been divided into 14 resource development regions demarcated mainly on the basis of agricultural land use and cropping pattern. Thus, 14 resource development regions have been distinguished on the mainland of India, two in the Himalayan area, five in the northern plains primarily on the basis of rainfall, four in the peninsular plateaux and hills, one in the East Coast plain and two in the West Coast plain. The fifteenth region consists of the islands in the Bay of Bengal and the Arabian Sea.

In a subsequent chapter, each region has been described, and its details (such as area, population, rainfall, soils, mineral resources etc.) have been given. By thus describing a region the study hopes to serve two principal objects: (*a*) to provide a framework to those concerned with planning at the Centre and in the States and (*b*) to furnish a scheme of division of States into internally homogeneous units so as to evolve a unit of planning at the State level. For administrative convenience the district has been considered to be the primary unit for the formation of homegeneous region. There are in all 61 homogeneous regions in the country.

The relevant statistical information has also been given in two groups in the appendices. The first group of data provides us the general economic information such as area, population density, degree of literacy, wage rates, and per capita income, while the second group of data gives us information on the physical conditions and agricultural resources such as rainfall, soil, rock formations, cropping pattern, yield per acre of important crops and so on.

While there is no doubt that the book will prove an important source of information for regional and country planning, it is lacking in two important respects. First, one of the fundamental criteria for regional planning is that it should be evolved for human habitation. It should keep man in the centre of the process of planning. For this purpose, one must have data regarding human attitudes, habits, traditions, needs, values in life, etc. The details about manpower resources ought also to be furnished. It is only when psychological, sociological and economic data on manpower resources are properly listed and assessed that one can evolve a regional plan. The existence of a natural resource does not automatically entitle it to economic utilisation. To examine whether there is a case for utilisation of such a natural resource, one has to obtain further details such as proximity of markets, quality of labour, quality of the physical resource, alternative resources available etc. Such details would have made the document more useful. Then, probably, the entrepreneurs would on their own arrive at decisions regarding the types of

industries they should take up at different places.

Now to the second important respect in which this study is found deficient. Possibly the book creates an impression that the 15 regions should be self-sufficient regions since their pattern of physical resources is distinct. This should not be the case. This should only be helpful in deciding the 'priorities' in development to achieve the structural changes in the Indian economy. After all, India is one welded whole politically as well as economically and the use of physical resources of any one region should be made with a view to serving the interests of India and not any one part of India. In planning at the State level, this fact should be borne in mind.

With the presentation of data regarding physical resources one should not forget that scarcity of physical resources has never been an ultimate bottleneck in economic development and, therefore, it should be emphasised only up to a point.

In the end, it should be said that there was great need for such a document when we have already arrived at the threshold of rapid industrialisation in India. It is a timely publication. It provides a perspective to planners at the State as well as Union level; and it provides basic data to actual and potential entrepreneurs to select their fields of ventures and also the place to display their adventure.

New Railway Lines

In Assam, a new railway line between Lakhimpur and Gogamukh has been opened to traffic.

It is metre-gauge line providing the shortest route between Upper Assam and the rest of the country. A further extension up to Murkong has also been opened to goods traffic only.

The line is part of the development programme of the North-East Frontier Railway, costing Rs 98 crore during the Third Plan.

Work started on July 1 on a metre-gauge railway between Hassan and Mangalore in Mysore State. The 190-kilometre-long line will cost Rs 24 crore. It will help to handle the traffic at Mangalore port which is being developed as a major port. The work will be completed in six years.

RED EARTH

Fifteen Poems from a Classical Tamil Anthology. Translated by A.K. Ramanujan. Writers Workshop, Calcutta. Rs. 4.

THESE slender poems, rich in song, are renderings from the *Kuruntokai*, a Tamil anthology probably eighteen centuries old, and they take us across time to a land of clear light and grace. They are poems of love, of young pining and wisdom. There are longings and regrets but no harsh hates.

.....And
like a honeycomb ripening on the
hills suddenly falling
he went.....

And he himself, thinking of his love, muses:

What kin was your mother
to mine? What was my father
to yours anyway? And how
did you and I meet ever?
But our hearts are as red
earth and pouring rain:
mingled
beyond parting.....

There are references to loud-mouthed towns, and to men who, when wild, will ride even palmyra stems like horses; but these are not the impressions that stay, but of "jack-fruit trees that have fruit on their roots" and of the season of cool rains "that laughs with its teeth of jasmine." It is not a society weighed down with guilt, or shame. When the girl goes away, the foster-mother says:

.....that simple girl
her face the colour of the new mango
leaf
who left us
for a man
with the long bright spear

Much has been said of the untranslatability of the lyric. But now and then comes a translator who has the benediction. Mr. Ramanujan captures the singingness of early Tamil, and gives us the lilt, and the "sharp glory of a bright-lit neem". Every word and nuance is right in English as in the Tamil.

The fifteen poems are from a larger book called *The Interior Landscape* which the Indiana University Press of U.S.A. will publish next year. A book certainly to look forward to.

H.Y.S.

TWO ANNUALS

Major Industries of India Annual (1964-65). Edited by M.P. Gandhi. M.P Gandhi & Co., Bombay. 374 pages. Rs. 15.

LIKE its previous numbers the present annual compresses in a single issue the Indian industrial scene and the course of our economic advance. The volume does not only cover the leading industries of India, traditional and non-traditional, but it also presents a refreshingly new outlook on the current problems of trade, economic policy, foreign collaboration and economic planning. The contributors sharing the highlights are: Dr. John P. Lewis with his "New Approach to Rural Works", Dr. P.S. Lokanathan with his "'Export Oriented Industries"·and Mr. Manubhai Shah with his vigorous argument in favour of export policy. Mr. K.B. Lall has thrown new light on foreign trade policy and a galaxy of industrial executives give their thoughts on the basic problems of some of the well-established as well as newly developing industries.

The annual tells more about the Indian economy than any other similar publication.

Industrial & Engineering Annual 1964 by J.C. Jain. Eve's Weekly Ltd., Bombay. 200 pages. Rs. 5.

THE publication presents a mixed panorama of India's industrial and engineering complex. Among the industries selected for review are the traditional ones such as plantations and textiles and a few of the more recent engineering industries such as instruments manufacture, machine-tools, automobiles and power generation. Interest has also been focussed on the prospects and problems facing small scale industries.

The annual has some useful contributions on problems of industrialisation. Marketing, finance, management and export promotion have been carefully selected as the major themes of analysis and study. The articles on public relations, purchasing, and trends abroad cater for a more diversified readership. However, in an effort to present a rich variety, some of the more important engineering industries have been left out.

Besides the quality of its articles, the publication is also commended for display.

"Amicus"

Urban Regeneration and Human Needs

G. N. ACHARYA

THE ambivalence of our attitudes on public issues has now deepened into a virtual schizophrenia. We want to be regarded as a poor, underdeveloped nation needing and deserving all possible aid. At the same time we practise a prodigal hospitality which can only spell riches. Luxury hotels and jet travel are only two of the symbols of a mode of life more appropriate to affluent societies.

The same type of schizophrenia is evident when at one time we speak of political freedom as a historic point of departure, a new beginning in the life of our people; and at other times imply that political freedom meant no revolution, and stress the continuity of all our institutions.

SIXTEEN BECOME 367

We love jubilees. Nobody, therefore, saw anything unusual when the Town Planning and Valuation Department, Maharashtra State, celebrated its Golden Jubilee last February. The State itself, in its present form, is only five years old.

The discreet pages of a book published to mark the occasion (apart from other rituals) discloses little affinity between the scope and purposes of the Department as it was half a century ago, and as it is now. We are told that the Department had "almost a skeleton staff" in 1914. Elsewhere the expression "minimal staff" is used. No numbers. But the inevitable "group photo" taken in 1915 shows only 16 persons including sepoys. As late as 1945, the staff was only 74. Last year there were 41 gazetted officers, 131 non-gazetted staff and surveyors, and 195 in the clerical and drawing branches.

The more real and substantial difference arises from the nature of the legislation applicable to the working of the department. Under the 1915 Town Planning Act, valuation for acquisition mattered most, planning least. The 1954 Act of the same name makes it obligatory on every local authority to prepare a development plan within four years—an injunction, like many others in our Constitution and statutes, which has remained unimplemented in many cases.

The mechanical details of the growth of the Department cannot be regarded as of vital interest. It would have been quite another matter if the Department could have recorded the growth of the concepts of urban regeneration, and their acceptance as official policy. It is a sign of the virtual atrophy on that front that even today urban development seems to be regarded as a problem in engineering and no more.

"Men come together in cities," said Aristotle long, long ago, "in order to live: they remain together in order to live the good life." The good life of the entire community—the rich and the poor, the car owners and the pedestrians, the working adults as well as the non-working old and children, has to be taken into account in urban planning. Their need to work and play, to earn and to spend, to sleep as much as to stay awake; their requirements in sickness and health; their quest for rest, solitude, recreation and culture, have all to be considered in any planning that is comprehensive and worthwhile.

There is no sign of any deep understanding of this principle in the changes now on in Bombay. There is, for instance, a bustle of activity in widening roads and building over-bridges to speed traffic. The assumptions underlying this activity cast doubt on our socialist professions.

The car owner already has an advantage over those who have to walk or use public transport. He can reach his destination quicker and in greater comfort. Yet, it is somehow thought very important that he is not delayed or detained anywhere. Under the latest traffic regulations vehicular traffic runs on straight lines at road junctions and the pedestrian is asked to make a detour. In addition to walking longer distances, he has to run the gauntlet of marker blocs, erected everywhere across his path to indicate car parks, or to prevent "U" turns by vehicles.

For the same purpose, an over-bridge has already come into use at Kemp's Corner and another is in the making at Princess Street. The first serves traffic in one direction only—north-south. It has involved encroachment on the Malabar Hill. The Princess Street bridge, even more than the one at Kemp's Corner, has brought permanent misery to the residents alongside. Those on the ground floors find their view blocked by an ugly rumbling bridge and those on the upper floors have their peace disturbed by traffic which has risen to their levels.

POLICEMAN VERSUS CITYSCAPE

The bridge will also scar the proud panorama of the famed Marine Drive. Lewis Mumford in *The Culture of Cities* wrote: "The city is a fact in nature, like a cave, a run of mackerel or an ant-heap. But it is also a conscious work of art, and it holds within its communal framework many simpler and more personal forms of art. Mind *takes form* in the city; and in turn, urban forms condition mind...The city is both a physical utility for collective living and a symbol of those collective purposes and unanimities that arise under such favouring circumstances. With language itself, it remains man's greatest work of art."

With us, traffic is not the concern even of the engineer, but primarily of the policeman. Police officers

are not tested for aesthetics. They have no quarrel with the ant-heap view of city life. The idea that there is such a thing as a cityscape can strike a police officer as something strange and non-existent. If city life were informed by a sense of beauty or harmony, it wouldn't be marred by loud and vulgar advertisements across the bay, over the walls of temples, mosques and cremation grounds. So many neon lights wouldn't glitter in such maddening disarray. And, the city centres wouldn't be used as hideous car parks.

NIGHTMARE OF NOISE

Writing in London Diary in *The New Statesman* on June 4, (a rare thing for him these days) Mr. Kingsley Martin said: "The centre of cities must be freed from traffic. I have seen this done in Sweden, and a beginning has been made in some towns in England. Life would be much more tolerable if the centre of every city was a haven where you could stand, sit and talk in security and peace."

That is an improbable dream in Bombay, and in most of our cities too. The automobile, mostly ignored in the scheme of things visualised by town planners (as evidenced by the lack of garage space and parking lots), is fast upsetting their calculations. Dr. Rafiq Zakaria, Maharashtra's Minister for Urban Development, in an introductory note to the book referred to earlier, says that planners should be able to visualise the permissible limits of a city's growth, "on the basis of potentiality of utility services". It should be clear to any intelligent observer that in respect of road space for automobiles, Bombay has certainly reached its optimum capacity, at least in the more significant areas.

In the days when city builders were worrying about the needs of security from marauders rather than problems of wheeled traffic, the Indian theory was that city streets must be broad enough for a horse to turn round. By the same token modern streets must be wide enough for an automobile to turn round. But how wide is that, when you remember those low, purring, high-powered, steel and chromium monsters, with their noses and behinds looking alike, and with tails and fins growing with the fashion? There are too the lorries and trucks, growing larger day by day, but still not banned from using up road space for parking.

Next to the struggle to enable cars to move faster, the city is engaged in a hectic attempt to build residential flats. Narrow-chested, multi-storeyed, scarecrow-like apartments with rents few can afford are mushrooming fast. Their shapes and their rental values result from land prices. It is land price that has induced the Central and Western Railways to crowd apartments on narrow spaces almost brushing the railway lines. With literally hundreds of goods and passenger trains thundering past daily, life in these apartments must be a nightmare of noise.

LAND PRICES RISE

A citizen's right to peaceful sleep may not have acquired constitutional acceptance, but the inability of a Planning Department to enforce a rule that homes cannot be built on railway lines can only be pitiable. I will be told—quite truly—that the Department has nothing to do with this matter, and land values follow inexorable economic laws. On July 4, 1964, Bombay newspapers carried a news item which said that the State Government had sold two plots at the Backbay Reclamation measuring 3,416 square metres to an estate agency at what was "believed to be the highest price ever offered in India for any type of land."

On the basis of a price of Rs. 5,000 per square metre, the lessee was to pay rent at the rate of six per cent and a half per year. This was the highest of 20 tenders and the agency was to deposit Rs. 35 lakh at once. The land prices in this area, the report said, had risen 60 times during the last 14 years. The rise elsewhere may not be so spectacular. But here is something that concerned the Town Planning and Valuation Department right from the outset, because the provisions of the 1915 Act dealt with freezing of land values in order to acquire land for public purposes. Public purposes or private purposes, urban development is being simply defeated by costs—of land, materials, labour and profit margins.

The building of overbridges, the location of flats along rail lines, the leasing of reclaimed land at high prices, will all be cited as instances of economic efficiency. Maybe, they are. R.H. Tawney in his classic, *Religion and the Rise of Capitalism*, had this to say: "Economic efficiency is a necessary element in any sane and vigorous society, and only the incorrigible sentimentalist will depreciate its significance. But to convert efficiency from an instrument into a primary object is to destroy efficiency itself." Our economic development, as Tawney said a few words later, "must be based on some conception of the requirements of human nature as a whole".

While nobody need grudge the Government its little pleasure in celebrating the jubilee of a potentially useful department, one cannot help regretting that it should have been unable to resist what Mumford called "the acquisitiveness of a sick metropolis". Urban development in a society that professes socialist objectives must be comprehensive and pay greater regard to human needs.

SHAMBU By Malinda Topa



WHY & HOW ?

How Do Accidents Take Place in Coal-mines?

A Yojana Science Note

A coal-mine is a source of immense riches—and like all forms of riches it carries its own risks. The hoards of "black gold" kept by nature in her vaults underground are taken out by men at considerable suffering. A couple of months ago three calamitous coal-mine explosions occurred in three different countries of the world—India, Japan and Yugoslavia—resulting in the death of about 700 workers. Among these the Dhori explosion near Dhanbad which killed 300 people was one of the biggest coal-mine disasters in the world.

SAFETY DEVICES

Five lakh workers are employed in the coal mining industry in India, and India is among the seven leading countries of the world in coal production. These workers contribute in a large measure to the increased production of coal, which accounts for 70 per cent of the total value of India's mineral production.

Mining of coal by modern methods started in India in 1814. As in other parts of the world, in India too there has been steadily increasing emphasis on safety measures. The labour welfare measures adopted since Independence place redoubled stress on this aspect. Mine safety weeks have begun to be organised. There is insistence on adoption of safety devices and procedures on the part of mine managements, and workers are being educated in safety-consciousness. Rescue stations with modern equipment, manned by trained persons, have been opened in various places. In spite of all these, fatal accidents occur—not only in India but elsewhere in the world.

FALLING ROOFS

Underground accidents may be caused by falls of ground, or during haulage and transport, or owing to mine gases catching fire and exploding. Half the total number of casualties each year is due to the falling of mine roofs and sides. Although not more than one or two are killed each time, regular falling causes a large number of deaths in the aggregate.

This can be prevented by giving adequate support to mine roofs and sides. Along with normal support systems, pillars of coal are left unmined to supplement the protection. A technique known as "rock bolting" is widely used now. In this method, holes are drilled in the strata of coal and steel rods are inserted which bolt together several weak layers to form an effective thick beam.

LARGE HAULAGE

Accidents are also caused frequently on account of haulage and transport. A coal mine requires a large number of haulage workers. Because of the large-scale movement of men and material and also because of lack of space and poor lighting, accidents often occur.

NOXIOUS GASES

During mining operations, pockets of noxious gases are often struck. Sometimes the interaction of carbon, moisture and heat produces harmful gases. When coal strata are disturbed, the highly explosive methane gas or firedamp which is occluded in them is given off. A naked flame sets fire to the methane-air mixture. Very often, minute electrical sparks set off fires and explosions. Only specially designed electric equipment is used in mines. Also, all mines are classified into gaseous and non-gaseous. Extra precautions are taken in gaseous mines.

WHITE-DAMP

To reduce danger from gas, long bore-holes are drilled in the coal strata and the gas is drained out to the surface. Also, large quantities of air, up to 20,000 cubic metres per minute, are circulated inside the mines to reduce the percentage of methane.

Even one per cent of carbon monoxide, sometimes called white-damp, can cause death. It is produced in the course of incomplete oxidation of coal.

AFTER-DAMP & COAL-DUST

A third kind of damp is after-damp. It is a mixture of gases formed after explosions.

Among the various factors which cause deaths in coal-mines, the most devastating are the coal-dust explosions. Coal-dust presents a far greater danger than methane or firedamp.

EXPLOSIONS

What is a coal-dust explosion? A modern coal-mine consists of a number of coal-producing faces or seams. Underground seams are reached from the surface through "shafts" or "pits" and through underground tunnels several miles long. As coal is transported through tunnels along which passes a constant current of air, their irregular surfaces become covered with a thin layer of coal-dust. If the dust is raised into the air it can form an explosive mixture. The methane gas that is liberated when coal is extracted may accumulate and sometimes be ignited by faulty electrical equipment or by the explosives that are used in blasting the seams. Once in a while such an explosion may be so strong as to raise the coal-dust on the surfaces of the roadways and the dust cloud thus formed may be ignited by methane flames. This blast may set off a chain of explosions throughout the network of roadways.

(*Continued on Page 24*)

Amiya Thirty Years After

IT is nearly thirty years ago that I first met Amiya Chatterjee. He was a guard on the East Indian Railway and I used to work on a Calcutta newspaper.

I was at Rampur Halt Station waiting for a train to Calcutta. A goods train drew in along the platform, and noisily came to a halt, with the monkey brake (as railwaymen call the guard van) just in front of me. Inside the van I saw a young man holding a ledger. What seemed unusual, however, were a heap of books and a bunch of Rajanigandha flowers on a wooden box.

Books and flowers in the guard's compartment of a goods train carrying sand, cement, corrugated sheets and cattle? Improbable! Here is an unusual man, I decided.

The tea I had ordered arrived in the meantime, and I walked across to the guard's van and offered him a cup. He was surprised at this unexpected gesture and looked at me for a moment before accepting the tea with a smile.

We began talking. "You are right," said Chatterjee, "I am a misfit here. I had no alternative. After my father's death I had to carry the burden. Had to leave college and take up this job."

I gathered he had four dependants—mother, brother and two sisters, one unmarried and the other widow. We talked for nearly an hour until the train lazily pulled out for Burdwan. My own train was two hours late.

Chatterjee and I began to write to each other. His letters were brief and unconventional. I can still recall what he had said in his first communication to me: "With the first rains of the monsoon the Rajanigandha in my courtyard has begun blooming. I wish I could convey to you the intoxicating smell." A year later he sent me another note: "Have you ever cared to look at a village after it has been drenched in rains? It reminds me of a woman returning from her bath in a tank." Now and then he sent me his favourite passages from Tagore and Shelley.

OUR correspondence became more and more spasmodic. After a time I didn't even know whether he was still at Nalhati. A decade or so later, I learnt from another railway friend that Chatterjee was on the suburban section and was posted at Bandel. From the station I found out his address and when I visited his place I had a surprise in store. He was married and had two little sons!

When did he marry and how was it that he did not care to inform me? Chatterjee smiled sadly and didn't answer. As I left, he walked with me a little way and said: "What was there to inform you, my friend? Mother was not keeping good health. She wanted me to marry and marry the girl of her choice. As an obedient son, I had to carry out her wish."

Earlier during the visit he had shown me a journal which had published one of his latest poems. He now asked me what I thought of it. I said it had signs of promise. "The pity is," Chattterjee said dejectedly, "my wife doesn't like flowers or poetry. But I have not lost hope of converting her."

Some years later I came away to Delhi. Once again Chatterjee had begun writing to me. The letters were now a frantic cry for getting free from the clutches of reality. After a few years, however, the correspondence from his side stopped altogether. He did not acknowledge my letters.

WHILE in Calcutta this time I managed to find his address. I wrote to him to expect me on a particular morning, and I bought a fresh bunch of Rajanigandha for him from the Hogg Market.

Chatterjee received me with open arms. We talked of children and jobs and of life in Calcutta and Delhi. He showed me with pride the new sofa set he had bought. One by one he also showed me his other acquisitions—an almirah, a dressing table, a pedestal fan. "I have been promoted, you know," he went on, "I now run the mail train between Howrah and Mughalsarai and earn a lot on extra mileage. If you come a month from now you will find me in Howrah in a far bigger house."

I looked at him. In the place of the pale and poetic Amiya of thirty years ago, here was a plump, satisfied creature. I looked round the room. No. There were no books or flowers. I peeped out at the small courtyard and found tomato and *bhindi* growing there.

I left the place assuring him that I would call again. A chorus of conch-shell sounds filled the evening air. I discovered I had the bunch of Rajanigandha still in my hand.

KALI BISWAS

Mine Accidents

(*Continued from Page 23*)

The increase in the use of conveyors for transporting coal along underground roads has increased the hazards of coal-dust explosions. In 1958, explosions at Chinakuri and Central Bowrah collieries killed 199 persons.

Some of the larger coalmine explosions in this century are : 1906, Courrieres, France, 1,099 killed; 1942, Honkeiko, Manchuria, 1,572 killed; 1946, Grimberg, Germany, 439 killed; 1962, Luisenthal, Germany, 298 killed; and 1963, Miike, Japan, 458 killed.

One of the common methods to prevent coal-dust explosions is to introduce large quantities of limestone dust into the mine and to spread it over all surfaces on which coal-dust can accumulate. When an explosion occurs the stone dust quenches the flame and dilutes the coal-dust cloud.

Another method is to place shells loosely across roadways on which several tons of stone dust is heaped. This dust is thrown into the path of the advancing flame by the first blast.

PUNJAB HAS BEST EVER HARVEST

Bright Spot

Punjab produced in 1964-65 more grains than ever before.

The production totalled 89.87 lakh tonnes, as against 57.44 lakh tonnes in 1963-64.

The Third Plan target for the State is 68.50 lakh tonnes—which means that the 1964-65 harvest is 31 per cent higher.

The cultivable area in the State increased to 17.80 lakh acres in 1964-65 from 17.20 lakh acres in the previous year.

FIFTH STEEL PLANT AT VISAKHAPATNAM

Consortium's Suggestion



THE British-American Steelworks for India Consortium (BASIC), with which India signed an agreement in January for a study of the fifth steel plant in the public sector, has suggested Visakhapatnam in Andhra Pradesh as the site for the fifth steel plant.

Its second choice falls on Hospet, in Mysore State.

The Consortium is of the view that India should establish the fifth steel plant on a deep water site, and that made Visakhapatnam the most suitable.

The Consortium was asked to investigate six sites, namely Visakhapatnam, Hospet, Bailadila, Goa, Salem and Neyveli.

The proposed steel plant will have a capacity of 1.5 million tonnes of steel, further to be expanded to about 4 million tonnes.

Rice and Sesame Record

The production of rice in the agricultural year just completed (1964-65) has been the highest ever, according to the all-India final estimate.

The quantity was 38.73 million tonnes, an increase of 1.84 million tonnes, or 5 per cent, over that of the previous year.

The area under the crop was 36.07 million hectares, an increase of 0.45 million hectares, or 1.3 per cent, over the previous year.

The production of sesamum was 466,200 tonnes (458,800 tonnes in 1963-64) in 2,503,100 hectares.

MORE CARS AND SCOOTERS

The production of cars in 1964 was 23,226, 48 per cent over the previous year. The production of scooters rose to 37,193 an increase of 40 per cent.

In addition, 33,472 lorries were produced, an increase of 17.5 per cent over the previous year. The output of jeeps was 10,436, an increase of 30 per cent.

The percentage of indigenous content has now gone up to 85 in cars and 90 in commercial vehicles.

SNIPPETS

I. C. I. Fertiliser Plant at Kanpur

A factory to manufacture bearings is to be set up in India with Japanese collaboration. It will be managed by a new company, the India Nippon Precision Bearing Manufacturing Company, and is expected to begin production by May next year....A private factory to produce nylon fabrics is to be set up at Meerut at a cost of Rs 1 crore in collaboration with an American firm....**The Imperial Chemical Industries will set up a fertiliser plant at Kanpur with an annual capacity of 2.5 lakh tonnes of nitrogen...The plant will cost Rs 25 crore**... Foundations for the Gujarat fertiliser factory have been laid...The Rajasthan Government is to set up two cotton spinning mills at Ganganagar and Chittorgarh, each with a capacity of 25,000 spindles...The work on the development of Porbandar as a major port will begin after the monsoon...The Narotowa barrage, 29 kilometres from Jalpaiguri in North Bengal has been opened for irrigation. Built at a cost of Rs 45 lakh, it will irrigate 23,000 acres of land.

24TH INDUSTRIAL ESTATE OF MADRAS

MADRAS State has opened its 24th industrial estate at Ambattur. It accommodates 70 units.

Madras State now has about 7,500 small-scale industries, compared to a couple of hundreds only ten years ago.

● An agreement has been signed with the Soviet Union for training Indian personnel in designing thermal power stations.

● Japan has given a credit of 21.6 million yen (Rs 28.56 crore) for the final year of the Third Plan. It will be used for the Gorakhpur fertiliser plant, the Durgapur alloy and steel plant and the Gujarat fertiliser project. It will also be used for purchases relating to projects in which Japan is collaborating.

● The two loans, totalling Rs 250 crore, which were floated by the Union Government, have been fully

A Village of Harijans Plans for Better Days

By INDRA YESHWANTH

KURANGANILMUTTAM, a village in Madras provides a graphic example of the way Harijans are transforming themselves in the last few years.

The preponderant majority in the village is Harijan—83 per cent of the population of 435. Most of them are agricultural labourers and tenants; a few own lands and cultivate them.

This village is eight kilometres from Conjeevaram. Besides Harijans, it has a small number of Vanniyas, Viswa-Karmas and Brahmins. The Vanniyas are mostly landowners and cultivators; the Viswa-Karmas are carpenters and black-smiths.

Caste hierarchy is maintained, of course, but happily there have been no inter-caste feuds. Tradition rather than prejudice keeps the Harijan quarters away from those of other castes. All except the two Brahmin households take water for drinking from the tank near the local temple. Matters of common interest are decided through discussion. A few years ago when the Harijan tenants demanded a higher share of produce from the leased lands, the Vanniyas conceded the demand without any heat being generated.

NEW FARMING METHODS

Several Harijan labourers have been able to purchase lands. They have adopted improved methods of cultivation such as the use of iron ploughs, the application of fertilisers and more manures. One Harijan cultivator has even installed an irrigation pump. The village forms part of the Dusi development block, and under extension schemes it gets improved seeds, fertilisers and pesticides.

Paddy is the main crop of the village, but most Harijans eat *ragi*. On 180 acres of wet land both paddy and *ragi* are sown. The villagers sell their paddy at Conjeevaram and buy ragi, which is a cheaper grain. In spite of improved economic condition, there is no noticeable trend towards a change-over to rice.

The only source of irrigation in the village is the Mamandoor Hissa tank which gets its water from the Palar Anicut channel. Depending on the water supply, there are two or three harvests of paddy. On 80 acres of dry land other millets and groundnut are cultivated.

The Harijans live mostly in thatched houses. Of the 93 households in Kuranganilmuttam 75 belong to the Harijans. Three of their houses have been tiled recently. There is no proper drainage, but the streets are well maintained and are clean. The development block has sunk a well in the midst of the Harijan quarters for drinking water. The old pond in the village is no longer used as a source of drinking water, but for washing cattle and clothes. The Harijans in fact want it to be closed as it breeds mosquitoes.

EDUCATION IN DEMAND

The younger Harijans are keen on higher education. There is even an engineer among them. Despite the fact that there is only a primary school in the village, the Harijan Welfare Elementary School, a number of Harijans have completed middle school. But progress is much slower among Harijan women.

All the students and the two teachers in the village school, which was started in 1946, are Harijans. Non-Harijans go to the schools in the near-by villages of Pallavaram or Mamandoor. The average attendance in the Kuranganilmuttam school is fairly high—about 75 per cent. The building needs repairs but the children are given mid-day meals.

Kuranganilmuttam has no panchayat of its own. It is attached to the Vadagalpakkam panchayat, 2½ kilometres away. Harijans and Vanniyas have a representative each on the panchayat. The Harijans have their own hereditary caste panchayat. Its three leaders meet occasionally. But as ceremonial heads they have little influence.

There is dissatisfaction that the Vadagalpakkam panchayat is not giving enough attention to Kuranganilmuttam. There is no road connecting the village to the Wandiwash road or to other villages. There is no clinic. The general feeling is in favour of joining the Dusi panchayat, especially because a large part of lands of the Kuranganilmuttam tenants comes from landowners in Dusi.

A YOUTH LEAGUE

The old social and religious traditions and customs do not seem to have much attraction for the young. The Harijans do not go to the Valeeswarar temple in the village although their entry into it is no longer barred. Even Ayyanar and Mariamman, the traditional gods of Harijans, are now seldom worshipped by the younger people. Village festivals, once the community's craze, are becoming less popular.

Apart from their caste organisation, the Harijans have formed a youth welfare league. It aims at improving the sanitation, education and employment in the village in co-operation with the development block. There is scope here to introduce subsidiary occupations like dairying, mat weaving and poultry farming which can supplement the labourers' earnings.

Kuranganilmuttam, in spite of its lack of proper communication facilities, has its attractions for the outside world. Tourists occasionally go to the village to see its Pandava Caves. The Valeeswarar temple itself has fine architecture of the Pallava period.

The article was first published in "Jagriti"

Yojana Bhavan Diary

June 19 & 22—Mr George Carter, Regional Director, North Africa —Near East—South-Asia Division of the Peace Corps, Washington, visited Yojana Bhavan and had discussions with Mr Asoka Mehta, Deputy Chairman, Mr M. Butt, Joint Secretary, and Mr U.S. Rana, Director, Liaison.

June 24—Mr C.A. Majid, Economics Officer, ECAFE, met Mr B.N. Datar, Chief, Labour and Employment, Planning Commission.

June 26—A new executive body of the Planning Commission Club was elected. The new office-bearers are :

President—Mr A. Mitra

Vice-President—Mr G.P. Sharma

Secretary—Mr R.S. Das

Joint Secretaries—Mr K.B. Lal; Dr Miss Champa Aphale

Members—Mr K.K. Rastogi, Mr Kuldip Singh, Mr R.P. Genda, Mr M.V. Narwani, Mr D.K. Issar, Mr Krishan Gopal, Mr Amin Chand and Mr T.S. Kohli.

June 30—A meeting of the Members and staff of the Planning Commission was held to mourn the death of Mr B.K. Kaul, Adviser (Programme Administration), on June 29. Mr Kaul had joined the Planning Commission on May 1.

July 3—Mr K.H. Junghans, Assistant Professor of Agriculture, Heidelberg University, visited Yojana Bhavan for talks in connection with the participation of the German Voluntary Service in India's development activities in rural areas.

July 11—Mr U.S. Rana, Director, Foreign Volunteers Programme, left on deputation for Germany to study the foreign volunteers' organisations.

QUOTATION BOX

Each State has two Plans, one to discuss with the Planning Commission and the other which the State itself considers feasible.

—Mr Asoka Mehta, quoted by United News of India

Some business executives no doubt can deal better with modern conditions of stress than others, and certain animals also are less sensitive than others.

—From "World Health"

The Joint Secretary first made his appearance during the war. The Additional Secretary was by and large a post-war phenomenon. The Special Secretary came still later, more as a consolation prize before a civil servant retired or while a senior Joint Secretary marked time to occupy the Secretary's chair.

—Editorial in "The Times of India"

The essential feature of behaviour pattern of modern Indians is, of course, that there is no pattern.

—Prof. Ashok Rudra

What we really need at the present juncture is no further Plan but a Plan holiday, ranging from five to seven years.

—Mr D.C. Kothari, President of the Madras Stock Exchange

Since all hurry has been eschewed —and hurry, especially hurry in speech, was a foible of the late Prime Minister—there is no danger now that hurried decisions will be taken and that they in turn may lead to undesirable results..... The Madras linguistic orgy was no credit to anybody. But there is a great deal to be said for the masterly inactivity with which it is being met by Delhi.

—Mr H.M. Patel

And so why not Bijli Smashan (instead of Vidyut Shava Dahan Griha) for the electric crematorium! Even the tonga-driver will know where to take you, Sir, if you wish to visit the place.

—A letter in "The Statesman"

The democratic structure of India makes the Shastri Government particularly vulnerable to public opinion of all shades—the ill-informed, the well-informed, the well-intentioned and the malicious.

—"The Yorkshire Post"

In London alone, 13,000 telephones were either smashed, ripped from kiosk walls, or put out of action in a single month. British Railways disclosed that the bill for deliberately broken carriage fittings was running at over £750,000 a year.

—Mr Brian Inglis in "Private Conscience, Public Morality"

The party leaders decided last year that the young would never be allowed to look down on the countryside. Thus by 1977 every student will be spending half his time at study and half at work, until he ceases to know whether he is an intellectual or a peasant.

—From a report on China in "The Times", London

Puthirasikamani, a former police constable, who is alleged to have fired at a Hindi name-board at the post office in Madurantakam on February 1 last, was found guilty and sentenced to undergo imprisonment for a total period of 18 months by the Additional Assistant Sessions Judge, Chingleput, on June 25.

—A report in "The Hindu"

The Governor (Mr Giri) said that the Chief Minister needed a plane for his work and if the Government could not give him one, people should give one paisa each and raise sufficient amount to help buy a plane.

There was a ready response to the suggestion of the Governor. A non-gazetted official in Bangalore was among those who promptly responded to the Governor's appeal by sending one paisa by money order to the Chief Minister for the "paisa fund".

—A report in "The Hindu"

A generalist-administrator, brought up to collect revenue and enforce criminal law in the districts, is supposed to be better qualified to run a health department (because of his emotional detachment as between one disease and another) even though he may not be able to tell the difference between a vertebra and the pelvis or the connection between the spread of TB and the lack of medical research....

The time has come to shed either the generalist-minister or the generalist-secretary. Two tiers of ignorance are one more than the country can afford.

—From "Bureaucrats and Technicians" in "The Indian Express"

A touch of irreverence will do AIR no harm at all. A Government that never laughs at itself is, soon laughed at by many.

—From a note in "Now"

STAGBROOK STORY

(*From Page 6*)

groups, precluding a common outlook or collective action for their improvement.

When Bharat Sevak Samaj launched the project, the problems of women and children were taken up first. A nursery school was started with six teachers who were trained later by a trained teacher. A fee of Rs. 1.50 per child was collected to meet the expenses of the teachers. Now there are seven nursery schools with 200 children. The estate managements provided the buildings and equipment. The children of the workers who once wandered about in dirt are now given shelter and guidance.



Miss P. Mahalamani, a farmer's daughter who is a Sahayogi ("co-worker") in Stagbrook, teaches embroidery to a group of Stagbrook girls. At left she teaches a housewife to stitch at a sewing machine



There was also the problem of ill attended babies whose mothers have to go out for work. Creches were provided by the managements but usually an old woman, illiterate and unclean, was in charge of the babies. The Kshetra workers offered to take over the creches and now there are 5 creche centres where 80 children are attended to by trained girl workers. Mothers of the children are given advice on child care.

Mahila Samajams were organised and home science camps for housewives held now and then. The Stagbrook Mahila Samajam purchased a sewing machine and started a sewing class where women are also taught lacework and embroidery. A women's co-operative society is being organised to produce and market the garments. There are now 9 Mahila Samajams with a membership of 400.

A family planning seminar was held last year. Contraceptives were distributed at the seminar.

A 'Stagbrook LKK Arts Club' has been started for cultural activities. Musical instruments are provided for its thirty members. The club staged a drama in 1963 and another is being rehearsed.



Tea estate labourer's son learns his first letters and figures

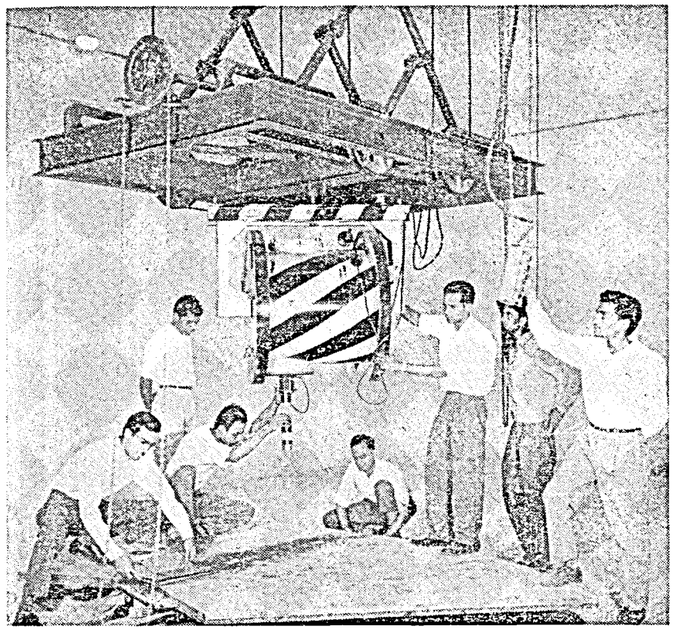
A reading room and library was started in 1961. It has 296 members and nearly 2000 books and periodicals.

A sports club has been functioning. The volleyball court was levelled by the workers by Shramdan.

These activities have brought in a unity of purpose among the labourers. Now the workers are more informed and 77 persons are contributing to the Time Deposit Scheme. Teachers of the local panchayat school find the children from the nursery schools more intelligent and keen in their studies. The people have become aware of their role in nation building and feel that they must work harder in their own interest as well as in the national interest.

Mr. C.K. Mani, chairman of the managing committee of the Kshetra, says, "Last year, a hundred Fertiliser Festivals were organised in the area. We also propose to organise one hundred home science camps to teach women how to look after their homes. Our next target is a Plan seminar in August in which representatives of the people, industrialists and Government officials will participate."

Pictures : TARA CHAND JAIN



Fault Finding Machine

AN industrial radiographic unit using Cobalt-60 radioactive isotopes has been installed in the Bhopal Heavy Electricals Factory.

The gamma rays emitted by the isotopes are used for testing of huge welded steel equipment. A steel joint 100 mm thick can be radiographed in a matter of just ten minutes to detect any flaws which are invisible to the naked eye. The 2000-curie radiographic unit installed at the HEL is one of the most powerful of its kind.

Radiography is one of the many new techniques in the field of what is called 'non-destructive' testing which is the science of detecting flaws or measuring the performance capabilities of materials or manufactured articles *without causing any damage to it.*

Modern engineering industries make heavy demands upon construction materials. In the various applications of atomic energy, in aircraft flying at supersonic speeds, in power station plants, oil refineries, bridges, ships, and defence equipment the importance of quality and reliability of the metallurgical products used cannot be overemphasised. With modern equipment and expert diagnosis, non-destructive testing methods are used to locate the nature and position of defects in such products with a surprising degree of accuracy.

Items ranging from small samples of solid material and miniature components of equipment to the large pressure vessels of nuclear reactors are tested by these methods. With the coming of automation in many industries, non-destructive testing will gain yet further in importance.

Non-destructive testing is not a modern innovation. 'Ringing' pots (or coconuts) against one another in order to detect cracks and proving the temper of a knife blade before using it are age-old methods of non-destructive testing.

The modern techniques of non-destructive testing are divided into nine groups: radiological, elastic, electrical and magnetic, optical, thermal, mechanical, chemical, penetrant, and atomic and nuclear.

Among the radiological methods are radiography, fluoroscopy, X-ray spectroscopy, electron microscopy and radioactive tracer techniques. Testing methods using radioisotopes are now widely applied. Radioisotopes are unstable atoms which emit beta particles and gamma rays in the course of becoming stable. This process, known as radioactive disintegration, occurs naturally in elements such as uranium and thorium and in isotopes of strontium, plutonium, caesium, cobalt, etc., produced artifically in nuclear reactors.

The rate of disintegration of these isotopes is measured in curies. When the radiation emitted by these isotopes falls on matter, it is absorbed and scattered to an extent which depends on the thickness, density and atomic number of the material. This principle is applied in gamma radiography. The four commercially available sources of gamma rays are cobalt-60, Iridium-192, Caesium-137 and Thulium-170.

In radiography, the gamma rays from an isotope kept in a sealed container are made to pass through the specimens for testing and are recorded on a film or screen placed as near as possible to the opposite face of the specimen. If there is a hole in a specimen more radiation will pass through it than through the surrounding portions. A shadow is produced thus on a photographic plate which is called the radiograph. It can provide information on the nature, extent and location of an internal defect with reasonable accuracy.

The major advantages of gamma radiography in comparison with X-radiography, which is another method of non-destructive testing, is that it does not need electricity or water or continuous operator control. X-rays, on the other hand, are produced by electrical means and so continuous operator control is necessary for an X-ray set.

The Heavy Electricals at Bhopal will soon have, in addition to the 2000-curie cobalt-60 radiographic unit, two radioisotopes of two-curie cobalt-60 and one-curie Caesium-137 and two industrial X-ray radiographic units.

Reg. No. D-876

MASTER CRAFTSMEN-III



ABDUL QADIR RANGREZ

weaver of kani shawls

By USHA CHETTUR

THE weaving of the richly ornamented Kani shawl is an intricate art, which comes only from years of industry and patience. This highly developed craft of making loom-woven woollen fabrics has been practised by a small and exclusive band of weavers in the valley of Kashmir, each of whom is a veteran craftsman. Adbul Qadir Rangrez, the recipient of the national award for Kani weaving, is the oldest among them. At the age of 89, he still works on his loom, and in the past sixty years he has produced some of the masterpieces in Kani shawls of our time.

Abdul was born in 1876 in a family of hereditary Kani weavers at Kanihoma (Gulmarg district), and showed a keen awareness of his heritage in his early years. The spark of interest was kindled by his father, Abdul Gaffar, who was a renowned weaver. Heredity and environment nourished the interest of the young weaver. As an apprentice he showed such an aptitude for learning the techniques of Kani weaving, that his father often marvelled at the deftness of his young fingers as they picked out and completed the contours that had only been outlined to him.

Apprenticeship in those days entailed a long and arduous period of more than ten years, during which the apprentice was expected to learn the essential technicalities of the craft by watching the master at work. Any practical work was confined to the tedious task of completing the routine patterns that the master would lay out. But Abdul Qadir got over this routine very soon and was seen working side by side with his father, and often even independently.

After four years of initial apprenticeship, Qadir convinced his father that he had learnt the basic principles and techniques of shawl weaving. Not satisfied with the routine patterns and designs, the young man aspired to have a thorough knowledge of the decorative designing, especially the traditional ones, whose very intricacy had persuaded many craftsmen to take up work of lesser skill.

The next phase of his apprenticeship was spent under the late Ahmed Sheik, one of the great exponents of the traditional Kani weaving. Qadir acquired thoroughness in weaving the intricate designs directly on to a shawl piece. By an amazing sense of colour and composition he left the impress of his personality on every piece of work that he executed.

Although he was trained in the traditional designing, Qadir infuses every piece of work with a freshness and modernity without losing the classicism of tradition.

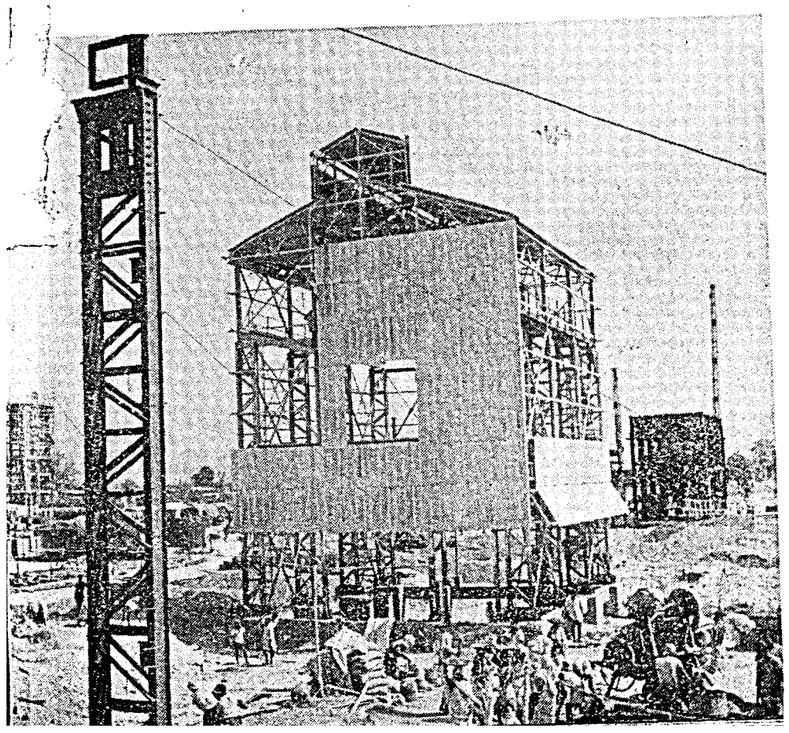
Abdul Qadir is not only an expert weaver. As a member of the staff of the School of Designs of the All-India Handicrafts Board, he has evolved simple methods of producing and manufacturing all the components of the complicated looms which are specially used for weaving Kani shawls.

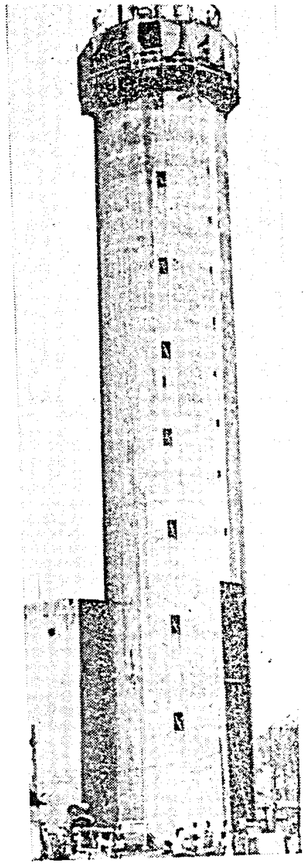
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YOJANA

A uranium mill will start working next year at Jaduguda, Bihar, where there are large deposits of the atomic mineral. The mill has been designed and is being built by our own scientists and engineers without foreign assistance.

Report and more pictures on Pages 2, 3





The shaft head frame of the uranium mine at Jaduguda. It is 45.5 metres high and was built in 240 hours. Left: The crusher of the uranium mill under construction.

NINTH YEAR
15
AUGUST 1, 1965
25 PAISE

ABOUT YOJANA

YOJANA seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion on problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

The Advisory Board of the journal consists of the Minister of Information and Broadcasting, Minister of Community Development and Co-operation, Minister for Agriculture, Mr T. N. Singh, Mr Shriman Narayan, Mr Akshaykumar Jain, the Secretary, Ministry of Information and Broadcasting, and the Secretary, Planning Commission.

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COVER : The head gear of the uranium mine in Jaduguda, Bihar, and a view of the uranium mill under construction. The first photograph is from the Atomic Energy Commission and the second is from S. Kumar.

Letters

THE OTHER SIDE OF THE MEDAL

In your editorial "Education for Growth" (*Yojana*, June 20), you have given figures of enrolment of students in colleges, universities and technical institutions. I wish you had the courage to give figures of failures also—year by year, class by class, in colleges and universities. What is the *quality* of education that is being given and what are the *results*? That is more important. There has been no bigger waste throughout the three Plan periods than the waste signified by growing failures in high schools, colleges, universities and polytechnics. Why not focus attention on this sorry state of affairs?

Burnpur BRIJ BHUSHAN TRIKHA

Got to Think

In an article (*Yojana*, July 4) on the expenditure on scientific research in our country, your contributor quoted Lord Rutherford as having said: "We haven't any money; we have got to think."

It is an excellent piece of advice for the Planning Commission.

Reading the same article, I was also reminded of a statement by Norbert Wiener, the mathematician whose work has led to so many advances in automation. He has said: "The trouble is that scientific work of the first quality is seldom done by the go-getters, and that dilution of the intellectual milieu makes it progressively harder for the individual worker with any ideas to get a hearing."

Bombay A. B. JOSHI

Garo Marriage

In an otherwise readable article on "The Garos, the Eagle Men of Assam" published in your esteemed journal of April 25, Mr. B.C. Nag has made a number of inaccurate statements about the Garo marriage system.

The Garos are a matriarchial community and their women have some advantage over the men in matter of matrimony. As such polygamy is out of question in such a society. Though clan-exogamy is the general rule among the Garos, monogamy is the prevalent system and polygamy is never favoured.

Mr. Nag has made another statement about the bride living in the bridegroom's house on probation. The case is exactly the opposite. In a strictly Garo system of marriage, the groom has to undergo many vicissitudes including being physically lifted (at least thrice) to the bride's house to remain confined with the girl in a room for a night. In almost all cases, the bridegroom has to live with the bride in the house of the bride's parents. I do not want to seem to pick holes in an article on an interesting topic, but Mr. Nag should have verified his statements either with the literature on the Garos or with reliable informants.

Borbheta (Jorhat) Assam N. SAHA
Research Officer,
Agro-Economic Research Centre for North-East India

Natural

In the June 6 issue of *Yojana* you published an interesting and useful report on the work being done by the Amul dairy. But the report contained an error. You have said: "The secretary of each village milk society is trained to administer the artificial semen."

The semen itself, I needn't point out, is not artificial but natural.

New Delhi "BIGNORAMAN"

Paper Mill

In your issue of May 23 (Page 25) it has been stated that India's biggest mill has gone into production at Amla in Madhya Pradesh. May I point out to you that the location of the mill is at *AMLAI* in Shahdol district and not at *AMLA* which is in Betul district.

Bhopal V.R. GOPALASWAMI

YOJANA

Vol. IX No. 15 Fortnightly Journal Published on behalf of the Planning Commission Sravana 10, 1887

TO CHECK NUMBERS, THE LOOP

A Family Planning Information Week was held from July 16 to July 22. The main purpose of the week was to tell the people about the LOOP. The word stands for Lippes loop, which has been proved by medical tests in various countries to be the easiest, cheapest, nearly the surest, and therefore the best, of all means of preventing conception.

Lippes loop, despite the name, is not a loop or ring, but a coil. It is made of polyethylene, a plastic, and looks like two letters S joined together; and it bids fair to be the spiral which will fight the population spiral.

Thoughtful citizens all over the world speak of the importance of averting the population explosion. If it took centuries for the number of human beings on the planet to double, now it takes only three or four decades. Science has discovered death-dealers, the chemical and nuclear explosives, but the more remarkable achievements of science are the drugs that control death. Until recently people thought of the birth of a baby as a gamble with death for both mother and child. A century ago one half of all children died within a week of birth. A mere fifteen years ago in our country one child out of every four born died within a year. New drugs and new discoveries in midwifery have subdued infant mortality. Science has also dealt a blow to epidemics and to the slower-killing diseases.

Death control, however, has led to an alarmingly swift increase in populations. Numbers are growing fast in precisely those nations which are short of the means of reasonably good living. Even as the teacher is proverbially blessed with more children than the moneylender, most backward nations have a higher birth rate than the prosperous nations. The hungry become hungrier. Forty per cent of the world's people go to bed on a half-filled stomach; and a quarter of them are Indians.

Each year India's population goes up by 10,000,000. To feed this increase India requires 2,000,000 tons of additional food-grains.

The very science that helped us to control death has at last come out with reliable methods of limiting birth. "Birth by choice and not by chance" is accepted more and more widely. This choice was exercised in the old days through continence and denial. In the last century a French medical man, Dr Condom, developed rubber protectives which are referred to by his name. Jellies and tablets and oral pills, as also surgical devices, have since been evolved to prevent the union of sperm and ovum. Several kinds of intra-uterine contraceptive devices have also been developed, of which Lippes loop has been recommended, after extensive trials both abroad and in India, as the method most suitable for adoption on a mass scale in our country.

Medical research has this special quality. What is discovered in one area benefits all mankind. Unlike experiments in economics or education, the findings of medicine have world-wide application.

Each method of birth control has its points and its limitations. In our conditions of widespread poverty, illiteracy and lack of privacy, that method is best which is the least expensive, demands the least effort on the part of the person, is least capable of misuse and has the highest percentage of success. Lippes loop has all these advantages. It costs practically nothing. It cannot be misused; only a trained doctor will insert it. And once put in, it works for years. Ninety-nine per cent effectiveness has been observed among users. It is not a victim to forgetfulness. And it also truly assures the element of choice. If a person fitted with the loop later desires a child, she has only to go to her doctor and have the loop removed.

A campaign to popularise the loop has now started. A factory for making it has been set up in U.P. A gift of 600,000 loops has been received from America. The movement, in the initial stages, will be more intensive in urban areas than in rural areas, mainly because of lack of loops and doctors. Our doctors have so much to do but, because of the supreme urgency of population control, they will be taking on this extra task. Special programmes are being organised to train them.

This special emphasis on the loop does not mean that other family planning methods will be at a discount. The nation's need is such that it must employ all of them. From July 1, in fact, a system of mass supply of contraceptives has come into force. The intention, as the journal *Family Planning News* explains it, was to supply rubber contraceptives, jellies and foam tablets free to all rural people and such urban people as earn less than Rs 300 a month. But because of the likelihood of their finding their way back to the market, a nominal charge is being made. State Governments are being advised to get supplies from the Union Directorate-General of Health Services. The Central Family Planning Board has urged that there should be no slackening of effort in regard to sterilisation and distribution of contraceptives. It is to be noted that there are at present 15,800 family planning centres, of which 14,000 are in rural areas. The Union Government has repeatedly stated that no funds will ever be denied for this nation-saving task.

Nation-saving. That is what family planning does. Mr Asoka Mehta has just described the family planning campaign as a movement much bigger than even the freedom fight. The goal of the freedom fight was to secure for each Indian the opportunity to lead a decent life. Such is the aim of the family planning movement too. Unless there is a curb on numbers now there is no chance of the mass of our people living a tolerable life or our country surviving.

A Project Called JUMP



URANIUM MILL IN BIHAR

PLANNED AND BUILT SOLELY BY OUR ENGINEERS

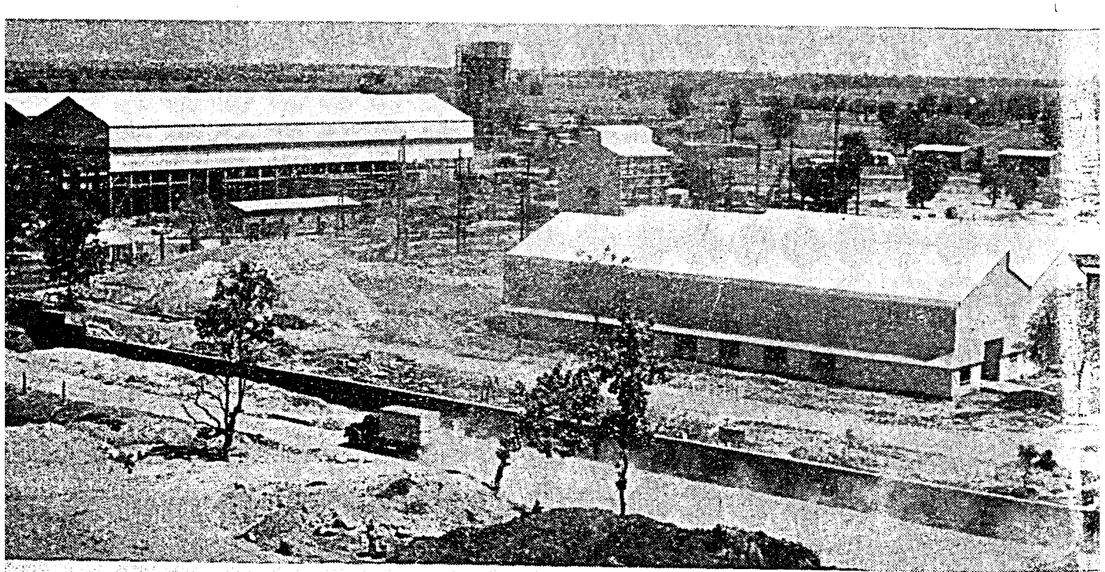
Fuel for Three Atomic Plants

ABOUT 50 kilometres east of the steel town of Jamshedpur in Bihar State, the once sleepy and quiet town of Jaduguda now hums with activity. A number of large concrete and steel structures are coming up which constitute "JUMP"—the Jaduguda uranium mill and mine project being built there by the Department of Atomic Energy.

A large labour force is engaged in building these facilities for winning and processing the ore to obtain uranium—the fuel for India's atomic power stations.

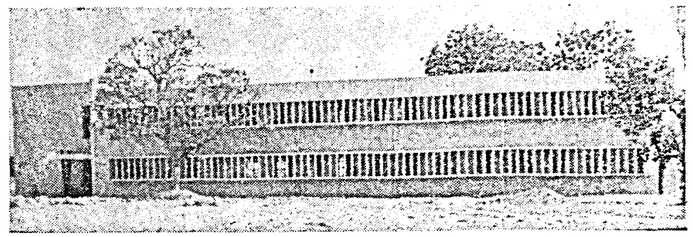
Recently the Government of India approved plans for setting up three new atomic power reactors of 200 megawatt capacity each. One of these will form the second unit of the Rajasthan atomic power station already under construction near Kota. (The first unit at Kota is being set up with Canadian aid.) The other two reactors will be installed at Kalpakkam near Mahabalipuram in Madras State.

The Rajasthan and the Madras atomic power stations will together generate 800 megawatts of electricity by the end of Fourth Five-Year Plan. All these four reactors will use uranium fuel.



Jaduguda has enough uranium reserves, in terms of both quality and quantity, to warrant exploitation, and a mine to win uranium ore is being developed there. The main shaft of the mine will be sunk in two stages. It has been so planned that the mine will continue to function normally even during the second stage of shaft sinking. It will have permanent equipment, including the head frame, permanent winders etc.

Construction of the concrete head frame, which is more than 45 metres high and 7.5 metres in diameter, was completed in 240 hours working round the clock, with the aid of slipform, a Swedish technique of concreting. Incidentally the head frame is being used as a sinking head gear, thus obviating the erection of a temporary head gear.



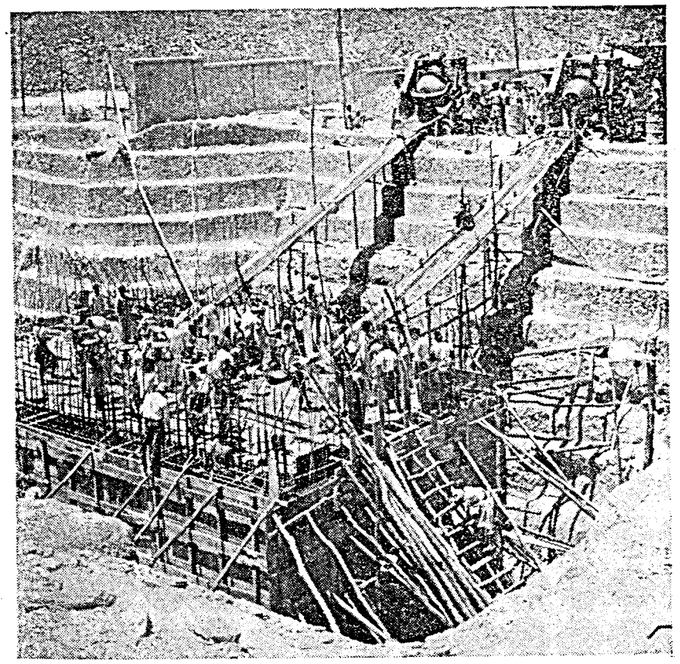
To process the ore, a uranium mill is being built near the mine. *The mill, which is expected to cost around Rs. 43 million has been designed and is being built by Indian engineers of the Atomic Energy Establishment without any foreign assistance.*

The general plant facilities include a water treatment plant, a boiler and compressor house, a modern repair and maintenance shop, a well-equipped laboratory and electric main receiving station.

Construction work on the mill began last year, the civil works, including the main process building have by now reached an advanced stage. Orders for the plant and equipment have been placed and it is expected that the mill will go on stream early next year.

A housing colony is being set up for the employees of the mill and the mine. At present about 1,200 houses are being built according to a phased programme. This colony will have all amenities like a bank, a post office, a shopping centre, a hospital and a school.

To ensure water supply for the mill, mine and the township a barrage with a capacity of 1.4 million cubic metres is being built across a small river that flows about two kilometres north of the mill site. A road running over the barrage will connect the plant and the colony with a new railway station.

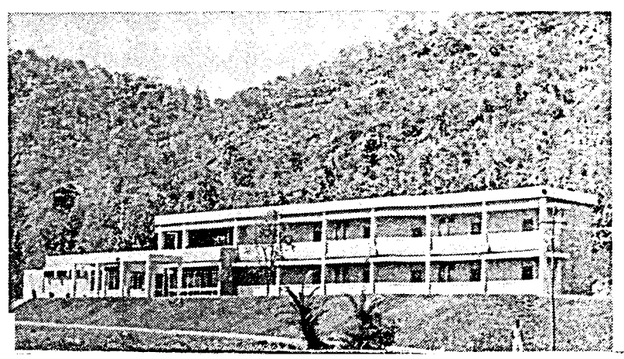


Article based on a note from the Department of Atomic Energy. Pictures on the opposite page and the one alongside are from S. KUMAR.

AT LEFT: General view of JUMP. On far side is the chemical house where crushed and graded ore is chemically treated to form an oxide of uranium which then goes to the nuclear reactors. The maintenance shop occupies the foreground; the tall structure behind it is the screening shed.

ABOVE: Picture, taken a few months ago, shows concreting work in progress on the ground hopper which receives ore from the mine and transfers it to crusher.

RIGHT: The hostel; and TOP RIGHT: the administrative building.



VAST GROWTH IN 10 YEARS OF NATIONALISED LIFE

STATE BANK GOES TO VILLAGES

Interview

TEN years ago the Imperial Bank of India, then the largest commercial bank in the country was nationalised, and the State Bank of India came into being.

In this decade of nationalised ownership the State Bank has grown swiftly and surely. It is the pacesetter to the 84 Indian banks, and commands a third of the total banking deposits in the country. As befits any major institution in a socialised order, the aim of the State Bank is service rather than profit. While its transactions are based on impeccably sound business practices, the State Bank is seeking out new areas to serve the people.

At the time of nationalisation the Imperial Bank had 477 offices, mainly in the cities and big towns. Since then the State Bank and its Subsidiaries (Government-owned banks of the old Indian Princely States) have opened 1,100 new offices, mostly in the smaller towns and half-rural areas. There are 64 offices in villages.

These branches mainly serve farmers and the rural industrialists.

AND NOW: ONE-MAN BRANCHES

The State Bank is now launching a scheme for one-man branches in villages.

The scheme of one-man offices is an attempt to reach the villager directly and to extend to him credit facilities at comparatively low rates for agricultural production. So far the Bank has been indirectly financing him through co-operatives or land mortgage banks.

By helping the co-operatives to give loans to the weaker and neglected sections of the community the State Bank has done pioneering work. Commercial banks were not giving advances to co-operatives or for agricultural marketing or for small-scale industries. The State Bank's liberal advances to co-operatives (Rs 69 crore) and to small-scale industries (Rs 50 crore) have now induced the private banks also to come forward to help these fields.

Overall advances made by the State Bank have more than quadrupled in ten years to about Rs 500 crore.

The State Bank, although in the public sector, still has a small minority of private share-holders. The Reserve Bank of India holds 92 per cent of the shares, the remaining shares being held by nearly 1,300 private share-holders. It is managed by a board of directors which is partly nominated by the Government and the Reserve Bank of India and partly elected by the private share-holders.

RURAL CREDIT SURVEY

To understand the part played by the State Bank in strengthening the economy and serving the rural people, *Yojana* had a conversation with two of its officials. Mr M.N. Muttoo, the Bank's Chief Development Officer in New Delhi and Mr J.S. Varshneya, Chief Officer, Rural Credit, Bombay.

Yojana : Mr Muttoo, I believe you have been associated with the State Bank of India even from its pre-nationalisation days. Please tell me in what way the Bank has been serving the farmers.

Mr Muttoo : Let us go back to the old days for a while. There were much less scientific storage facilities in the villages than now—and the crops were being damaged to the extent of 10 to 15 per cent. Marketing movements were practically nil. Farmers and small entrepreneurs borrowed money at exorbitant rates from the village money-lenders. Soon after Independence the Government appointed a Rural Survey Committee and it made several important recommendations.

Yojana : What were the main recommendations ?

Mr Muttoo : It suggested that an All-India Warehousing Corporation and a National Co-operative Marketing Federation should be formed. And to provide cheap credit to the farmer and small entrepreneurs through co-operative marketing societies and indirectly through co-operative banks, the Committee stressed the need for a State-sponsored and State-associated bank. It said that the Bank should have branches initially in every sub-divisional headquarters so that it could reach the rural areas and that the banking habit might gradually percolate to the villager. The Government accepted these recommenda-

Yojana : That is when the Imperial Bank was nationalised ?

Mr Muttoo : The Imperial Bank was the biggest bank in the country at the time, with more than 400 offices. The Government might have thought that it was better and more useful to take over such a big bank than building up a new bank from scratch. Anyway, you will recall, that the demand for a nationalised bank had been there for a long time.

SERVICE ABOVE PROFIT

Yojana : How is your Bank different from other banks, the commercial banks ?

Mr Muttoo : In the concept of commercial banking there are three essential factors: profit motive, "security" consciousness and the habit of lending to a man who is already well-off.

Commercial banks go only to places which are economically well off, where there is a ready source of deposits so that they can augment their profits. On the contrary we go to less developed areas also, encourage trading conditions, industrial development and agricultural improvement and then wait to take advantage of the rising prosperity of those areas.

Then again, in commercial banking money is lent against easily realisable security like gold, food grains, machinery and equipment. The small entrepreneur, engaged in small-scale industrial activity had to borrow from indigenous small bankers at extortionate rates of interest. It was difficult for his industrial unit to be viable because most of his profits went to his moneylender by way of interest. So the State Bank began financing the small industrialist in a big way. Our only condition is that he should be technically competent and that he should have some reasonable stake in his business. Because of our low rate of interest the small industrialist's margin of profits has been increasing.

HELPING SMALL INDUSTRY

Yojana : Can you give any example of a small industrialist who has made good with the Bank's help ?

Mr Muttoo : To give any particular client's name is against the ethics of banking, as you know. There are hundreds of examples. We regularly undertake case studies. I can tell you about an interesting case.

About three years ago, there was a depression in the machine tool industry in Batala as a result of competition from better organised, larger units outside Batala. About 65 entrepreneurs among our customers were affected by this depression. It was difficult to realise our money by immediate sale. We investigated. The crux of the problem was that the Batala entrepreneurs were not making machines of high precision. If some money could be given to them to improve the quality of the machine tools, the products could be sold. We did so, and quality machines began to be made. Thus, 50 of the 65 accounts were rehabilitated in the course of three years.

You see, that is another difference between us and other banks. Normally a bank sells the security of a customer in distress while, if the *bona fides* of a customer are not in doubt, we nurse the account to health by giving more money and guidance. Again, we link our credit with not what the borrower has, but what his machines can produce and what he can sell.

Yojana : Did this have any effect on other banks ?

Mr Muttoo : Following our example, other banks have also taken to financing small industries. *That is a major contribution of the State Bank*. Also, it has resulted in a general reduction in the lending rate. We charge only 7/7¼ per cent, compared to 8½ per cent or even much more of other banks.

Yojana : How many small industrialists has the State Bank helped and in what way ?

Mr Muttoo : In 1954, there were 1,300 small industries with us in the whole country. In five years the number has risen to more than 6,000 and it is steadily growing. Besides giving them finance for working capital, we also give instalment credit up to Rs 5 lakh to be repayable in a maximum period of five years for the purchase of light machinery. For heavy machinery, building, land etc., we have a medium-term loan scheme under which the repayment can be extended up to a period of ten years. There is no lending limit for this. We have both engineers and field of officers for guiding these small industrialists.

RURAL PILOT CENTRES

Yojana : Has your scheme to finance rural development enabled the growth of industries in villages?

Mr Muttoo : You know, the rural industries project is a big scheme of the Planning Commission which was started in 1962. Under the scheme rural industries are started in such a way that local raw material will be utilised and the things produced will be consumed locally. The State Bank has agreed to finance industries in the rural industrial estates. There are 46 such rural industries pilot centres. As for the Northern Circle with which I am connected, there are three pilot centres, at Solon near Simla, Kathua in Jammu and Deoband in U.P.

Yojana : It is said that you give special facilities to the co-operative sector in such matters as remittances and collection of bills. What are those facilities ?

Mr Muttoo : Yes, we do. When a Central Co-operative Bank wants to remit money to apex banks and *vice versa*, we do it free. Previously we used to charge some commission on such transfers. Similarly, we collect bills for co-operatives at nominal rates while we used to charge normal rates before.

MARKETING

Yojana : How closely has the Bank been associated with the development of agricultural marketing?

Mr Muttoo : You know, warehousing is an essential part of marketing. We have subscribed to the share capital of the Central Warehousing Corporation. We give advances against Warehouse receipts which enable the farmer to avoid distress sale and to take advantage of high prices in the lean period.

ONE-MAN BANK

Yojana : May I now ask Mr Varshneya a few questions? As Chief Officer of the State Bank in charge of rural credit for the whole country, could you please outline the idea behind the one-man banks ?

Mr Varshneya : Well, the scheme has only been finalised now. We are just starting on it. You know

we are committed to the development of the agricultural sector. So we want to meet the villager as near the village as possible.

We propose to start 64 branches of the bank in villages on an experimental basis as pilot centres. One person will manage each of these offices. He will assess the various credit requirements, and put up proposals for financing. Of course, his work will be supervised by the area managers. The idea is to give money to the villager direct for agricultural production. We have already gone into the semi-urban areas appreciably. This is our first endeavour to be in direct contact with the villager.

Yojana : Will banking facilities be welcomed in the villages which are used to traditional modes of credit?

Mr Varshneya : Our experience with small towns and regions where there had been no banking shows that people will welcome us. Our role in providing credit will be supplemental and co-ordinating and not competitive in the usual sense of the term. We shall try to fill in the gaps and inadequacies in the existing credit institutions. Hitherto we have been advancing loans to co-operative land mortgage banks to enable them to issue long-term loans for land development purposes.

KNOWING THE VILLAGE

Yojana : How do you expect to tackle the villager ?

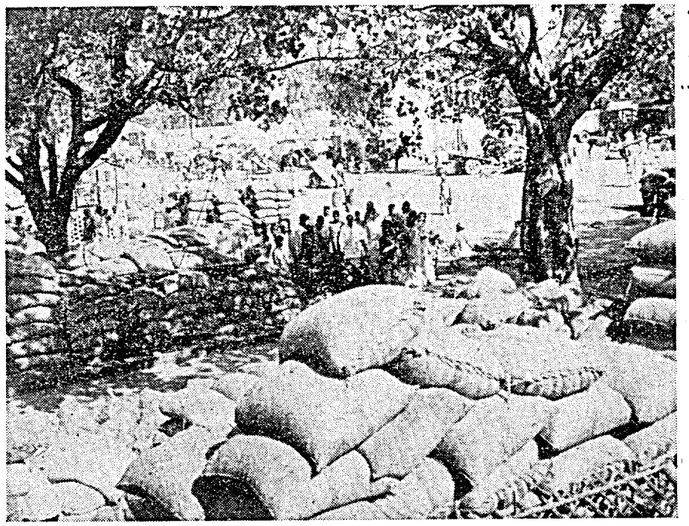
Mr Muttoo : Excuse me for butting in. As you know, it is a new experiment of the State Bank. We want to educate ourselves to find the villager's real needs. Unless the Bank gains the confidence of the villager who has his pet notions and prejudices, we will not succeed.

The villager has had, from early times, very intimate ties with his moneylender, socially and in so many other ways. So we have to effect a break-through and earn the villager's confidence by methods other than banking. The men who are to be in charge of these banks are to be properly selected and trained. Apart from being a banker, he has to be a friend and guide to the villager. He should not only take and give money but he has to develop communion with the villager, converse with him on his farming, his welfare, medical care, family planning and so on. We are yet to work out details as to how to get about it.

Mr Varshneya: Anyway, methods other than those practised in urban branches will have to be adopted.

Yojana: Mr Muttoo, you talked of training your one-man bank agents. What training arrangements does the State Bank have now for its employees?

Mr Muttoo : We have training schools at seven head offices. The Bank also has a staff training college at Hyderabad and several training schools. Senior officials also attend management courses in India and abroad.



The 'mandi' in Sonepat, Punjab. The Bank advances money against produce stored in Government warehouses.

YOJANA BHAVAN DIARY

The Planning Commission has completed the first series of discussions with the various Chief Ministers on the Fourth Plans of the States.

On July 8 the Commission discussed the provision of long-term credit to agriculture by land mortgage banks.

The National Development Council's Committee on Resources met on July 11.

On July 13 the Works and Housing Minister's note on a Central Housing Board was considered by the Planning Commission.

On July 21 the Planning Commission met to consider the report of the Fourth Plan Resources Working Groups.

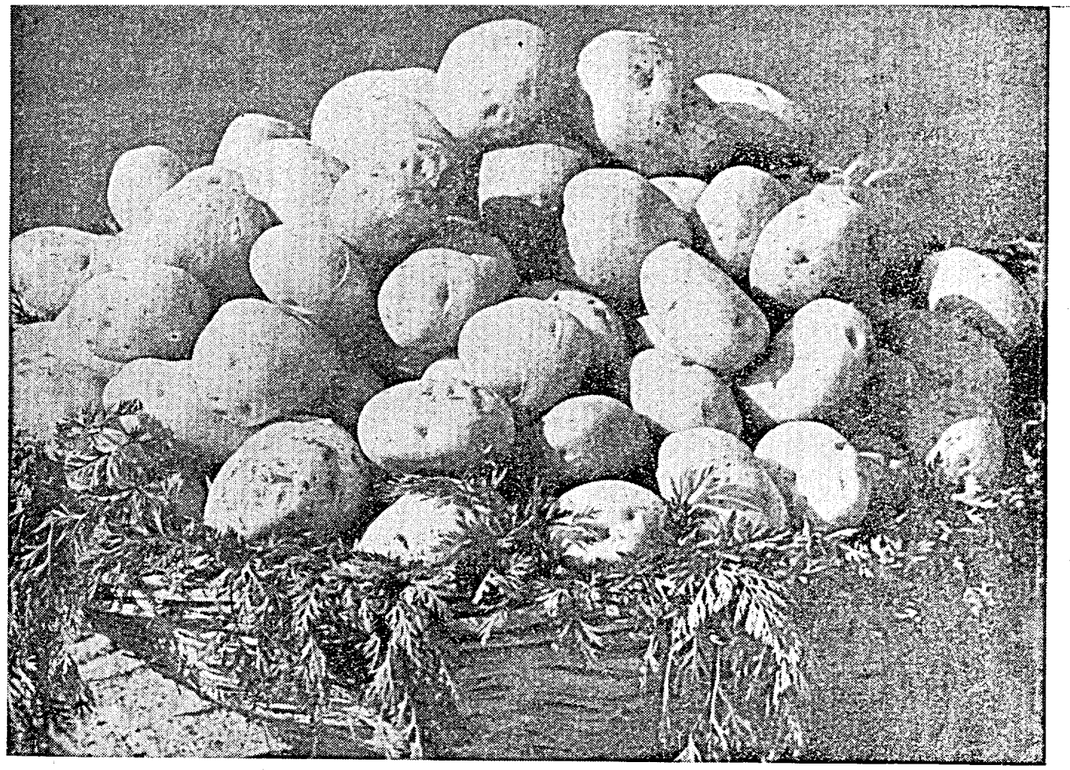
On July 15 Mr Asoka Mehta, the Deputy Chairman, had discussions with the Union Finance Minister and Industry Minister on the Fourth Plan programme to manufacture cars and trucks.

An advisory committee with the Deputy Irrigation Minister as chairman has been set up to advise the Planning Commission on the merits of individual projects for irrigation, power and flood control proposed by the Central and State Governments for inclusion in the Fourth Plan.

Mr M.R. Yardi assumed charge as Adviser (Programme Administration) on July 12.

Dr A.C. Joshi, former Vice-Chancellor, Punjab University, joined as Adviser (Education) on July 17.

Work relating to water supply schemes has been transferred from the Health Division to the Construction Economies Division with effect from July 15.



Kuber is the god of wealth in Indian mythology. This variety of healthy, disease-resistant potato, developed at the Kufri centre of the Potato Research Institute is called Kufri Kuber.

POTATOES — Sturdy and Plentiful

RESEARCH IN SIMLA

Yojana Staff Feature

by Rosscote Krishna Pillai

"WE ordered more than a hundred tonnes of potato to be thrown into the Bay of Bengal !"

"What! In these days of food shortage !"

"Yes, yes. There was no go. They were all seriously infested with golden nematode, a vicious potato disease. Along with the potatoes the Madras Government was importing disease from U.K."

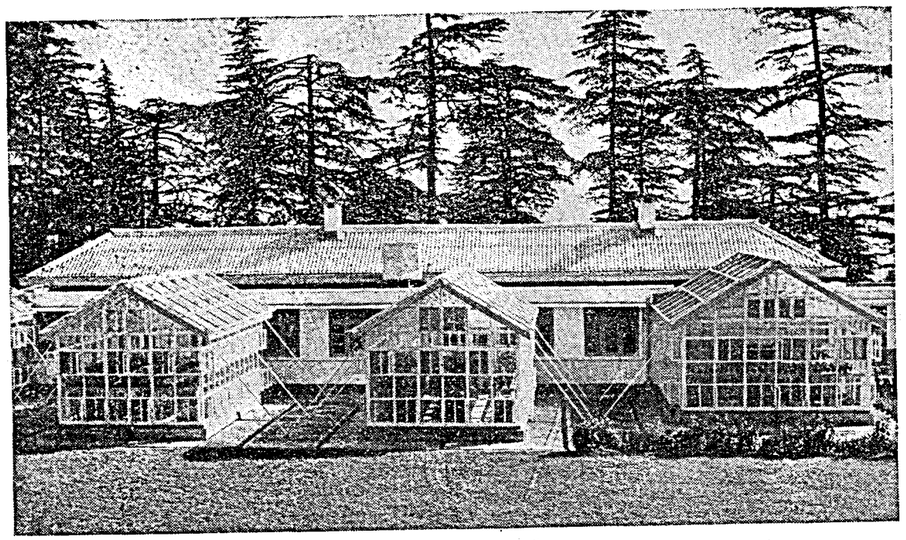
"That's why you had to dump them into the sea?"

"We couldn't help it. Otherwise the disease might have spread to the whole of India. I was deputed by the Central Potato Research Institute to the Madras port. I examined the stock and found it rotting with this vicious disease. The disease is not visible to the naked eye. A scientist has to examine it."

"Can't you prevent this happening ?"

"That is the snag. You can't take a single plant or flower or fruit into the United States. We too have restrictions in regard to some plant; but we have no restrictions on import of potatoes. Anyone can bring in potatoes from abroad along with potato diseases. At this rate our efforts to develop disease-free seeds will be scuttled. You know in U.K., golden nematode alone causes a loss of two million pounds. The Centre should insist that there should be no imports without the Central Potato Research Institute's clearance."

I had this conversation with Dr K.K. Narula the nematologist, when I recently visited the 'maternity home' of good potatoes in India, the Central Potato Research Institute in Simla.



Disease-resistant varieties of potatoes are multiplied in these glass houses of the Simla Institute for all-India cultivation.

The white-panelled laboratories and glass houses of the Simla Institute look handsome silhoutted against mountain pines. Around the Institute one can see serried rows of blue, white and red flowers of potato. The Institute itself was established at Patna in 1949, and was shifted to Simla in 1956. Its functions are to develop and multiply disease-free seeds and disease-resistant varieties of potato in India.

Potato, tomato, tobacco. All three are the gifts of the New World to the Old. They have come to us from the American Continent. All three, according to botanists, belong to the same large family. To Europeans, Americans and Australians potatoes rank as a staple food of millions. We regard them as vegetables. In a year an Indian uses only five kilogrammes as against 100 to 175 kilogrammes in Europe and the United States.

Mr Deshmukh, Chief Potato Development Officer of the Institute said: "Why potato, you might ask. The potato has special characteristics. It gives two and a half to three times more calories than cereals. It can feed more mouths. The big need of the country is to get more from the land. We have not so far exploited the potential of potato."

"But the potato fattens, doesn't it?"

"Well, well, well. One of those fallacies. Anything fattens, when people eat rich food. But how many in our country eat rich food? The potato contains 20 per cent carbohydrate, which is superior to the carbohydrate content of cereals. It contains 1.5—2 per cent protein. It is an excellent source of Vitamin B and C. It contains minerals like calcium, iron, magnesium and potassium. In U.K. potato was the only source of Vitamin C during the Second War."

The potato appeared on the Indian soil in the seventeenth century. In 300 years the crop has spread over four lakh hectares and the production is around three million tonnes. For 100 every hectares under cereals we have 2.5 hectares growing potato (while it is 30.5 hectares in Europe). The yield per hectare is 80 quintals with us, and 270 quintals in Western countries.

It is here that research has its role. The potato has been mainly a temperate crop. It is grown under long summer-day conditions in Europe. The tuber matures there in six months. The varieties imported into this country flourished in the hills under these conditions. They did not thrive well in the short winter-day conditions in the tropical and sub-tropical plains of India.



Virus-infected potato leaves show black veins.

C.P.R.I. through intensive research has evolved a number of new varieties from imported ones which are now under large-scale commercial cultivation in the Gangetic plains and some plains of east, south and west India. Among them are early maturing varieties like Up-to-Date, Kufri Kuber, Craigs Defiance, and medium and late varieties, like Kufri Red, Kufri Safed, Kufri Kisan and Kufri Sindoor (C 140).

Botanist Khanna of the Institute showed me a heat-resistant variety



you see here what research can do," he said.

As is heat, so is frost an enemy of potato. It is a problem in the hills as well as the plains. There are two ways to defy frost. One is to develop early maturing varieties which can be cultivated either before or after frost. The other method is to breed a frost resistant type. The Institute has developed both kinds of breeds. A-3775 is a moderately frost resistant variety released by it.

"You see those varieties of leaves from which roots have sprung. We are trying to keep them under conditions that are obtained in Ladakh and Nefa, that is in—60°C and —8°C. If we succeed, which most probably we will, we can grow potatoes for our *jawans* right on our snowy frontiers, instead of transporting them over long distances."

Besides the Botany Section, other sections housed at the foot of a hill half a mile away from the main building are the Entomology Section, the Genetics Section and the Cytogenetics Section.

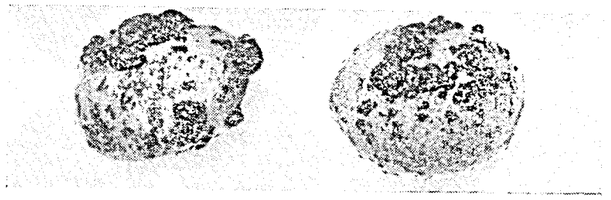
"Most of our work in the Entomology Section in the earlier days was concentrated on aphids", said Entomologist Narula, who has recently changed over from coconut research to potato research. "Aphids cause direct damage and also spread virus diseases. We have found out that the green peach aphid is the most dangerous species which spread all the insect-transmitted virus diseases of potato."

"We have found methods to combat the insect on the plains where we have 90 per cent of the potato cultivation", Dr Narula continued. "We can grow the crop before December when the insect appears in the plains".

The scientist explained that effective insecticides, which were easy to handle and could be supplied to which he has developed in the Institute.

"This is called HB 1699. It can be grown in the South Indian plains where the temperature is very high. It has been successfully tried out in Coimbatore. More varieties are under trial. Normally the tuber does not form in tropical heat, you know. Europe has no such problems. So

Left : Potato hybridisation—pollen from the flower of one variety is transferred to the flower of a different variety and the flower is covered with polyethylene bag. A third variety is formed.



Above: 'Charcoal rot', a fungal disease, which blackens potatoes.



entists spot virus at Simla Institute. eases caused by insects like natodes and viruses are not so ily detected by farmers and result eavy losses.

Pictures: I.C.A.R.

the soil in granular form, had been developed and their dosage, mode of application and efficacy worked out. He said that DDT was effective in the United Kingdom against aphids but here it had been found to be ineffective. He also said that a survey of the country to detect aphids had been sanctioned.

I asked Dr Narula about nematodes.

Dr Narula showed me through a microscope a nematode and its various stages of growth. The insect resembled a roundworm.

"Children of South India, especially of Kerala, suffer from roundworms, you know. Similarly the potato crop in Assam, Himachal Pradesh, Mysore, Punjab hills and Darjeeling suffer from the potato-roundworm the root-knot nematode", he said. The nematode-infested potatoes that he showed had large galls and knots on the surface.

"How do you control nematodes?" I asked.

"We have found that partial sterilisation of the soil by smouldering rubbish on it for 24 to 48 hours is a cheap and effective method. The Khasis of Assam have been using this method for long. We are also trying some new chemicals on a pilot-project basis. They have given good results in the laboratory. A new variety of potato, HC 294, which we have selected, shows some resistance to root knot nematode. We are trying to breed that also," said Dr Narula.

Dr N.M. Nair, cytogeneticist, showed me the plots growing almost all the different species of potato in the world. There were plants with triangular leaves, broad leaves, branched leaves, with red and white flowers, blue flowers.

"But out of about 200 species of potato, only one species, *solanum tuberosum* is cultivated all over the world, except in South America where American Indians grow four more species. Others are wild varieties which we are trying to cross-breed with the cultivated variety and get their good qualities into it," Dr Nair said.

"Have you developed any new breeding method?" I asked.

"We are trying a new technique. Chemicals have been used on wheat, maize and rice to induce mutation. Now we are trying chemicals like nitrogen mustard, and hydroxylamine hydrochloride on potato plants. It is a new experiment."

"Mating between close relatives is abhorred among human beings but in plants we try that to get uniform progenies. It is called inbreeding," said Dr Mehra, the botanist. "In maize it has been successful. We are now applying it to potatoes. Homogeneous varieties with really good qualities can be developed this way."

Grown around the Botanical Division is the variety which is resistant to late blight, the most serious fungal disease of potato. It causes heavy losses in the hills and the plains. The disease affects the leaves, stems and tubers of the plant. It spreads fast in humid and cool weather. A smell of rotting vegetables in the affected crop is a characteristic sign of the disease.

Dr Hari Kishore, geneticist, told me of the disease-resistant varieties developed to withstand late blight, Kufri Neela, Kufri Kumar, S. 1759, S. 1766. I saw the big, round, white tubers of Kufri Neela, supplied by the Institute to Nilgiri farmers. Until now these southern farmers had been growing the high yielding Great Scot which is susceptible to late blight and other diseases.

"Neela gives a 70 per cent higher yield than Great Scot," Dr Hari Kishore said with justifiable pride.

I also had a look at the conventional way of fighting the disease, the spraying of Bordeaux mixture: copper sulphate plus lime plus a little rosin as adhesive. Sprayed at intervals of ten days, the mixture kills fungus. The mixture is used against early blight and leaf blotch. Charcoal rot is another serious fungal disease which turns the potato black.

"What are the other kinds of diseases that affect the potato?" I asked Mr C.D. Sharma, Technical Information Officer. He took me to the Virus Pathology Section. There I saw potato leaves with green patches, stunted and wrinkled leaves, leaves with necrotic veins and rolled leaves.

The major work of the Central Potato Research Institute has been the production of disease-free stocks.

"The seed is the nucleus of success in potato cultivation. If the seed is bad, whatever may be the other measures taken, there won't be good results," said Mr Deshmukh. "High hills above 7,000 feet are generally free from virus diseases. We produce, test and select disease-free seeds in our glass houses. They are then multiplied at our Seed Foundation Station at Phagu, 12 kilometres away from Simla, under the care of a virus pathologist. They are brought down to our research stations at Kufri near here and at Mukteswar in the Kumaon hills and further multiplied. Thus the primary nucleus seed is produced. Then Uttar Pradesh, Himachal Pradesh, Punjab and Madras are given this seed for further multiplication in their higher hills.

"There aren't many high hills in India other than the Himalayas, as you know. So now we have developed a new technique of growing disease-free seed in the plains. A secondary nucleus seed which can be cultivated from September to December, when the aphids are few, has been developed. This is multiplied at our Regional Experimental Stations at Babugarh (U.P.), Jullundur (Punjab), Ootacamund (Madras), Khed (Maharashtra), and Shillong (Assam). There is a station for breeding wart-resistant varieties at Darjeeling."

I learnt that the States multiplied these foundation stocks and passed them on through successive stages to the State growers, the certified growers and finally to the common cultivators. The State Governments give premium to farmers who take seeds developed by the C.P.R.I.

Thus Kufri, famous for winter sports and the pleasure haunt of the rulers of Patiala, has become the potatogrowers' pilgrimage centre. The Institute is housed in what used to be the *aramgah* at Kufri.

"We have worked out the optimum manurial and water requirements of potato," said Mr Sardana, the Institute's statistician.

The Institute helps other countries also. Being the only organised potato research centre in Asia and Africa, it gets trainees from abroad. The Director of the Institute, Dr Pushkarnath, was invited by Nepal and Ceylon for advising on potato cultivation.

As a result of the Institute's work potato is helping us more and more to fight our chronic food shortage

The Fourth Plan of the States

A Brief Account of Dicussions with Planning Commission

High Priority for Agriculture Stressed

THE Fourth Plans of States were discussed in the Planning Commission from June 10 to July 21. These Plans were examined in the perspective of the integrated national plan. The Planning Commission had in advance indicated to the States some guide-lines in formulating their plans to fit in the overall plan for the country.

The national Fourth Plan will have a total outlay between Rs 21,500 crore and Rs 22,500 crore. The gap between this level of outlay and the resources now in sight would amount to Rs 3,000 crore, to be filled in by the Centre and States together. As Mr Asoka Mehta has categorically declared, there will be no resort to deficit financing.

The Planning Commission is of the view that the States should find additional resources for Rs 1,250 crore to fill this gap. The share of the States in new taxation was only 22 per cent during the Third Plan. This would have to be raised substantially, so that the burden on the Centre would be proportionately reduced, during the Fourth Plan period.

In their memoranda on the Fourth Plan, most States have advanced their own priorities which often differ from the accepted national priorities. (See *Yojana*, July 4) The Planning Commission has been pleading with the States to give top priority to agriculture, irrigation, and agro-industries.

The variations in the pattern and outlays on the various programmes of the States are inevitable on account of the special conditions of the States. The total of the State outlays, as indicated in the memoranda, is now Rs 9,870 crore, against Rs 7,660 crore proposed for States by the Planning Commission (roughly double the Third Plan total for the States.) It is obvious that outlays of this order cannot be accommodated within the overall limit. The States have, therefore, been asked to prune the outlays to the limit set by the Planning Commission; even for that they need to find additional resources.

The States have to resort to additional taxation from the current year. Concerted action will be called for at the national and zonal levels in raising certain taxes. The Resources Sub-Committee of the National Development Council (which met on July 10) has decided to set up a joint Centre-State unit to study ways and means for raising additional revenues, both from rural and urban areas.

The States have agreed to give their concrete proposals for raising additional resources by the end of August. Some indications given by Chief Ministers at the meeting of the Resources Sub-Committee were: a five-year wage policy for State employees, a firm licensing policy for electricity undertakings, compulsory savings, increase in taxes on zonal basis and reduction in public expenditure and food wastages.

A brief outline of the discussions held in the last few weeks between the Planning Commission and each of the States is given here. Further discussions on the State Plans will be held in September.

BIHAR

During the discussions on Bihar's Fourth Plan memorandum on June 10 and 11, the State was asked to revise its Plan and reduce its outlay from Rs 940 crore to about Rs 650 crore. The Third Plan expenditure is likely to be about Rs 312 crore against an allocation of Rs 337 crore. Accordingly the State Plan will be revised in the context of the resources and priorities indicated during the discussion. The Chief Minister agreed to explore avenues of raising additional taxes for the Plan. The State has earmarked Rs 260.9 crore on power programme, but the Planning Commission feels that Rs 143 crore would meet the requirements of State. It is also felt that the total outlay will have to be much smaller than double the Third Plan as the resources the State could mobilise are inadequate.

ORISSA

Orissa's Plan memorandum was discussed on June 14 and 15. The State proposes an outlay of Rs 460 crore, while the actual expenditure on the Third Plan comes to Rs 205 crore as against the allocation of Rs 160 crore. The State was urged to revise its Plan to bring it in tune with the outlay and priorities suggested by the Commission.

WEST BENGAL

West Bengal has conformed to the directives of the Planning Commission in framing its Plan; hence it will not be required to make major changes in the plan programmes. Total outlay is proposed at Rs. 618 crore. The expenditure on the Third Plan is estimated at Rs 301 crore. It has offered to raise Rs 175 crore by fresh taxation but the Planning Commission has suggested a bigger amount.

During the discussions held on June 16 and 17, the State was asked to spend more on agriculture, and the proposed outlay for the sector raised from Rs 105 crore to Rs 115 crore. The State's power requirements will be reassessed; at present they are placed between 2,200 MW

and 3,100 MW for the Plan period. The education programme will have to give more attention to secondary education than proposed.

The Planning Commission evinced keen interest in the State's schemes for the development of Calcutta and the Sundarbans. The State will prepare a separate development plan for Calcutta for the consideration of the Planning Commission. The Calcutta Plan is likely to cost Rs 100 crore and the State wants the Centre to provide Rs 70 crore for it. This plan may be treated outside the State's Fourth Plan. The scheme for the development of the Sundarbans prepared by a Dutch expert will also be sent to the Planning Commission for study. This scheme may also be given separate assistance from the Centre.

The Planning Commission has suggested that West Bengal should consult Bihar and Orissa on the issue of raising resources, especially on land revenue and electricity rates.

ASSAM

Assam, while discussing its Fourth Plan with the Planning Commission on June 18 and 19, claimed a share in royalties on oil from its oilfields. The Planning Commission appreciated the State's difficulties in raising adequate resources and has assured Central assistance. The State has agreed to make the best effort to raise additional resources and recast the Plan according to the Planning Commission's directives.

The State's Plan envisages an outlay of Rs 375 crore as against an outlay of Rs 120 crore in the Third Plan.

GUJARAT

Gujarat agreed to raise its Plan allocations on agriculture and education in keeping with the national plan. A short-duration programme for agriculture will be given priority along with minor irrigation and soil conservation.

During the discussions with the Planning Commission on June 21 and 22, the Chief Minister observed that the State's resources could be tapped effectively by setting up public corporations. The State has also suggested that projects on the Narmada river should be taken up in a phased manner under the Plan.

The State's Fourth Plan shows an outlay of Rs 510 crore as against an estimated expenditure of Rs 241 crore in the Third Plan. A revised Plan conforming with the Planning Commission's directives will be prepared by September.

ANDHRA PRADESH

Like Gujarat, Andhra Pradesh has also been asked by the Planning Commission to increase its allocations on agriculture and education and reduce the allocation on power.

The industrial programme of the State will also have to be revised. However, during the discussions with the Planning Commission on June 23 and 24, the Chief Minister pleaded for "greater spatial distribution of industries so as to enable relatively non-industrial States to come up on the all-India industrial map".

The Chief Minister also stated that the State would not be able to raise resources double that in the Third Plan, although it would try to raise additional resources to the extent possible.

Mr Asoka Mehta suggested that the State should take up rural works for creating additional employment.

The Chief Minister wanted the Nagarjunasagar project to be taken up outside the State's Fourth Plan.

The State has prepared a Fourth Plan with an outlay of Rs 700 crore, with an additional allocation of Rs 84 crore for the Nagarjunasagar and the Srisailam projects. The expenditure in the Third Plan would come to Rs 334 core.

KERALA

Kerala State has proposed an outlay of Rs 442 crore with a big industrial programme. Its Third Plan expenditure is estimated at Rs 174 crore.

At the discussion on June 25 and 26, the Planning Commission advised the State to cut down the outlay according to the directive. The proposed industrial programme could also be undertaken with a smaller outlay. The State's demand for more thermal power stations could not be accepted.

The Governor of the State pleaded for bringing up States like Kerala, which have low per capita income, to the national level. It would be difficult for the State to raise additional resources for the Plan. The State said that it hoped to collect an additional sum of Rs 25-30 crore by modifying the Prohibition policy on lines suggested by the Prohibition Survey team.

The State Advisory Board, at its meeting at Trivandrum on July 6, insisted on retaining the Plan outlay at Rs 442 crore.

MADRAS

Madras has been asked to reduce the Fourth Plan outlay of Rs 750 crore. Its expenditure on the Third Plan is expected to be Rs 334 crore. It discussed its Fourth Plan with the Planning Commission on June 28 and 29.

The State has planned an ambitious programme of power generation and industries, particularly rural industries. The Planning Commission feels that there is scope for pruning in both these programmes. The Commission wants higher priority to be given to agriculture. But the State feels that it would be difficult to increase the food production beyond the proposed target of 80 lakh tonnes as all major irrigation sources have already been expolited.

The Planning Commission has advised that an integrated development of large, medium and small industries as well as the southern regional power grid system will help the State to make optimum use of its resources. The State should also fix the minimum age of school-going children at six, so that expenditure incurred on admitting younger children can be saved.

The State feels confident of raising the necessary resources for its proposals. However, it has pleaded for greater elasticity on the part of the Centre in giving aid to States. The Central aid should not be tied up to specific schemes.

MAHARASHTRA

Maharashtra has also been asked by the Planning Commission during discussions on July 3 and 5 to trim its Fourth Plan to the directives of the Commission. The total outlay proposed is Rs 1,185 crore, as against the Third Plan expenditure of Rs 418 crore.

The highest allocations are given to power (Rs 325 crore) and irrigation (Rs 200 crore). The Planning Commission considers these to be too high, but the Chief Minister defended them on the ground that the present utilisation of flow for irrigation was too low in the State, only 2.5 per cent, and even after spending Rs 2,000 crore over a period of 15 years, only 25 per cent of the total potential would be utilised. He maintained that the State could not afford to cut down the outlay on irrigation, power and rural electrification. It was agreed that Professor M.S. Thacker, Member, Planning Commission, should visit the State to assess its irrigation and power situation.

The State allocated Rs 246 crore to agriculture and it was approved by the Planning Commission.

The Planning Commission felt that the State's allocation to general education was rather low and that to technical education high.

It would be difficult for the State to raise more than Rs 50 crore as additional resources. The State Chief Minister said that already Maharashtra was the highest taxed State in the country, the per capita incidence being Rs 25 a year.

MYSORE

Mysore has tailored its Fourth Plan mostly according to the directives of the Planning Commission, with an outlay of Rs 500 crore, and only minor adjustments were suggested by the Planning Commission. However, during the discussions held on July 6 and 7, Mr Asoka Mehta said that the resources position of the State was disturbing and that the administrative machinery, finances and economy of the State needed strengthening and improvement. He asked the State to raise additional resources of the order of at least Rs 60 crore, while the State had offered for only Rs 35 crore.

The State Chief Minister admitted that the resources position was not satisfactory. He explained that the State had to take care of certain backward areas and there was inadequate exploitation of natural resources in the hinterland. Inter-State differences had held up the irrigation projects and it was difficult to improve agriculture unless these projects were implemented. He wanted the Centre to sponsor the Upper Krishna project.

JAMMU AND KASHMIR

During the discussions on the Fourth Plan of Jammu and Kashmir, held on July 8 and 9, the Planning Commission agreed to the State's giving priority to power, industry, horticulture and tourism.

With little scope for expansion of agriculture, the State's economy depended mainly on horticulture, sheep-breeding, poultry, fisheries and agro-industries. The State has prepared a power programme for 57,000 kw during the Fourth Plan, which is necessary for industrial development. A common power grid for Jammu and Kashmir has been suggested.

The State demanded that some Central industrial projects should be located in the State.

MADHYA PRADESH

Madhya Pradesh told the Planning Commission, during discussions on its Fourth Plan on July 10 and 12, that the State need not give top priority to agriculture, as it was already a surplus State in food grains and already there were several restrictions on the agricultural produce. Water supply and communications were more urgent needs of the State. The Planning Commission, however, asked the State not to be too complacent about agriculture and advised that agriculture should be given the same priority as water supply and communications.

According to the Planning Commission, the irrigation programme of the State should be phased. Schemes already on hand should be completed first, and new schemes could wait for the Fifth and Sixth Plans.

The State is willing to raise additional resources of Rs 50 crore, but the Planning Commission wants it to exert itself and raise Rs 130 crore.

The Planning Commission did not favour the State's Fourth Plan outlay of Rs 800 crore, which is very much more than double the Third Plan expenditure of Rs 276 crore. The industrial programme could be undertaken with a smaller outlay than proposed.

The Commission offered to send experts to help the State in exploring ways of exploiting its rich forests.

PUNJAB

The Planning Commission has told the Punjab that its Fourth Plan outlay of Rs 500 crore cannot be accepted unless the State finds additional resources. The Third Plan expenditure of the State is estimated at Rs 232 crore.

The State is willing to raise Rs 113 crore, including Rs 75 crore by additional taxation. The Planning Commission considers this amount not commensurate with the total proposed outlay.

During the discussions on July 13 and 14, the Punjab Government pleaded for 80 per cent as Central assistance on the ground that it was supplying Bhakra power to Delhi at a very cheap rate, and that the State had to spend heavily on waterlogging and floods. It also demanded allocation of big industries for the State. It agreed to the Planning Commission's suggestion that the food production target be raised to 22 lakh tonnes from 20 lakh tonnes earlier proposed.

The Planning Commission advised the State to co-ordinate its irrigation and flood control proposals with a master plan for the north-western zone.

RAJASTHAN

Rajasthan has proposed an outlay of Rs 438 crore for its Fourth Plan. The priorities in the Plan are in general conformity with the national policy. However, during the discussions on July 15 and 16, the Planning Commission suggested some modifications in the allocations for agriculture, power and irrigation.

The Commission also felt that drainage in the Chambal area should be part of the Chambal project and that the Ghaggar flood control programme should be included in the State Plan.

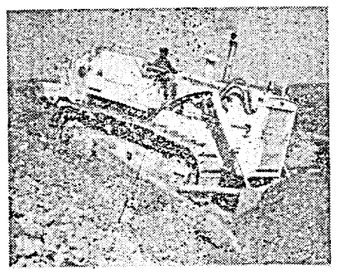
The State Chief Minister wanted the Rajasthan canal project to be treated as a national project outside the State Plan. This question will be discussed further at a later stage. The Centre has already agreed in principle to take over the Canal project.

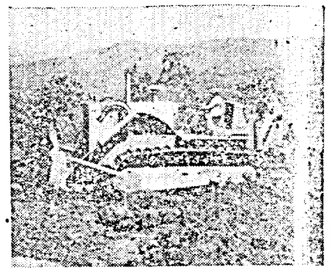
The capacity of the proposed atomic power station at Rana Pratapsagar is to be doubled to 400 MW,

(*Continued on Page 26*)



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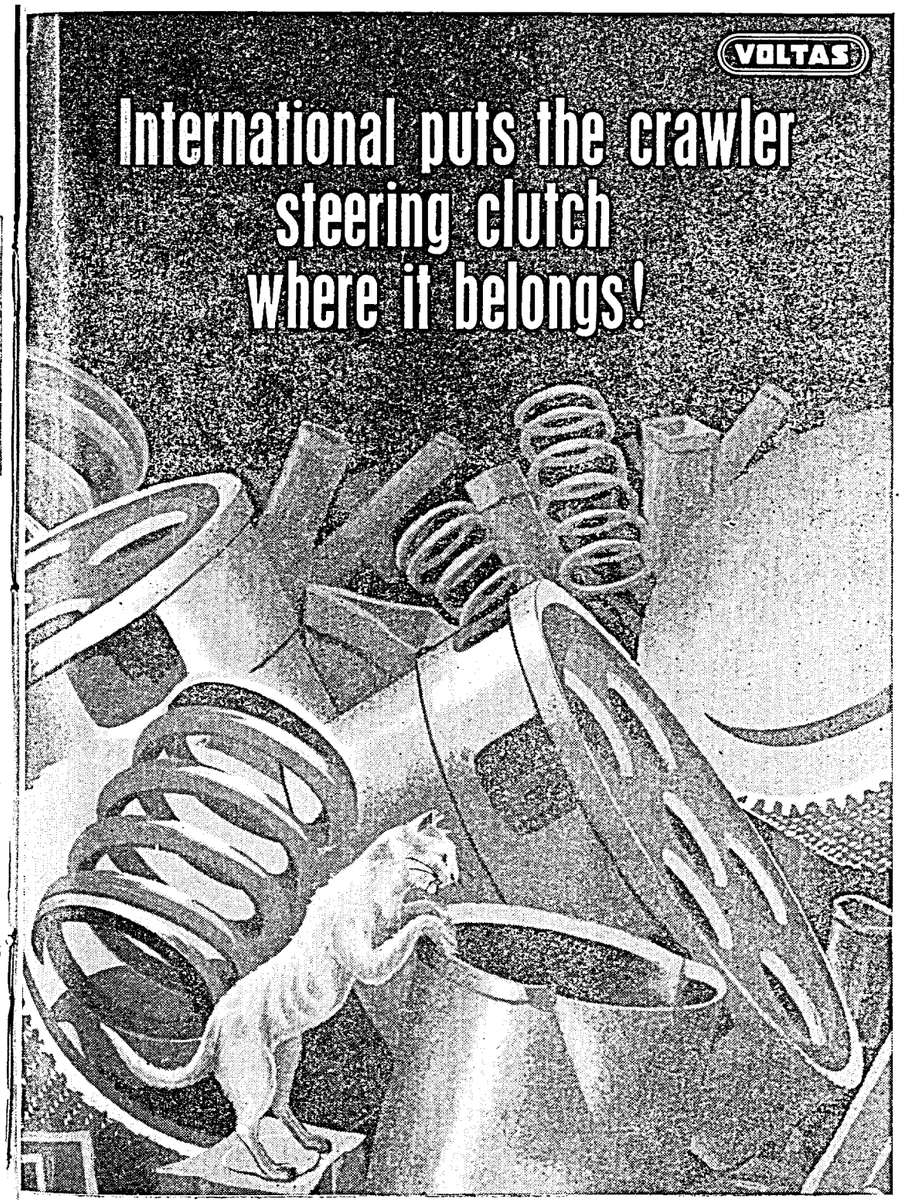
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VOL-104. EVEREST

Young Farmers

HERE is an excerpt from *Curriculum and Syllabi for Primary and Middle Classes for Recognised Schools in Himachal Pradesh*:

PRACTICAL

1. Sowing—Scientific methods of sowing
2. Irrigation
3. Weeding etc.

OBSERVATION AND THEORETICAL

1. *Plant Life*—(a) Observation; (b) Recognition of the plants according to the division outlined below: Herbs, Shrubs, Trees; (c) Observation of the parts of a plant; (d) Collection of leaves of different plants and preserving them.
2. *Domestic animals*
3. *Irrigation*—Observation of various sources of irrigation.
4. *Crop Production*
   (a) Vegetable gardening.

Observe the following vegetables growing in different areas:

(i) Leafy crops—spinach, fenugreek, lettuce
(ii) Root crops
(iii) Cole crops
(iv) Fruit crops—brinjal, tomatoes
(v) Tuber crops
(vi) Flower crops—bittergourd, bottlegourd, ridgegourd, pumpkins

(b) Ornament gardening—Observation of flowers raised in school farms.

There are several interesting things in the list—that the educationists regard brinjal as a fruit and pumpkins and gourds as flower crops. But the most interesting thing is that the syllabus is for SIX-YEAR-OLD CHILDREN!

An authority on agricultural education tells us that this syllabus is a carbon copy of the syllabus prescribed for the first year of the B.Sc. (Agriculture) course.

Men & Machines

THE International Press Institute was told recently that the time might soon come when computers, and not editors and headline-writers, would put together a newspaper. In a new play of John Osborne, a lawyer muses on what will happen to law courts when computers could decide the merits of a case on the basis of facts fed into it. Probably there will be a higher court of appeal with more elaborate computers.

What the computers will do to men it is too early to foretell. But in Bangalore recently they caused a strike. As the newspapers reported it, a computer changed the grade of a person from IV to V—and the workers protested. The computer was not to blame of course. The fault was the operator's. The computer can say, with justification, that to err is so human. Upon which the operator can well reply: But to err is, with me, so mechanical.

Anti-Matter

A FEW weeks ago a team of American researchers led by Dr L.M. Lederman of Columbia University postulated, as a result of intensive studies on atomic and sub-atomic particles, an anti-universe coexisting with the universe. Even the wildest flights of fancy of H.G. Wells and Jules Verne pale into insignificance before this concept. Dr Lederman has even reported that he has produced anti-deuteron—the first complex nucleus of anti-matter ever observed. Anti-deuteron is the counterpart to the nucleus of deuterium (heavy hydrogen).

Man, who is yet to be familiar with particles of which matter is constituted, is suddenly faced with the enormity of anti-matter and its particles. Since J.J. Thomson discovered electron in 1897 the picture of matter has been brightened with the dots and streaks of proton, neutron, positron, meson (name given by our own Dr Bhabha), neutretto and neutrino and twenty other sub-atomic particles. It is now well known that an atom consists of a nucleus with protons and neutrons surrounded by electrons.

The positron, the counterpart of electron, is, in a sense, a form of anti-matter. The discovery of positron lent weight to Dirac's equation which predicted an anti-proton, a negative proton. The existence of anti-proton was confirmed by the California Institute in 1955 and further on, the anti-neutron was also discovered and now comes the anti-deuteron consisting of an anti-proton and an anti-neutron.

Now one can reasonably expect that the anti-nuclei of heavier elements also occur in nature. So it does not require a warped imagination to visualise an anti-world built entirely with these anti-particles. If there are men there, we have to call them anti-men. Dr Lederman says that the anti-world will be "a mirror image of our world in which the flow of time is reversed".

Some time ago, when the first talk of an anti-universe was heard a poet leapt into the scene and gave it a visually palpable form. Listen to Andrei Voznesensky, the celebrated Russian poet, on the subject :

Long live Anti-worlds! They rebut
With dreams the rat race and the rut.

For some to be clever, some must be boring.

No deserts ? No oases, then.

There are no women, just anti-men.....

Ah, my critics; how I love them!
Upon the neck of the keenest of them,

Fragrant and bald as fresh-baked bread,

There shines a perfect anti-head.



IGNORAMAN
Wants to Know

whether it is true
that "spokesman"
means the man
who puts the spoke?

Gandhi on Tilak

The Power of Simple Words

LANGUAGE is probably Man's greatest invention. It is difficult to visualise the time when there was no language. Even as Man was evolving from the ape, he must have had thoughts, feelings, emotions that cried out for expression in words.

Now the word has become master. We think in words. It seems almost that civilised man's feelings and emotions do not precede, but come clothed in language.

Even so, in the inner recesses of the human mind, there must be concepts like "Brahman", beyond the reach of language. "Whence words return because (it) is unattainable even by the mind", says the Upanishad.

Subject to that limitation, it is the purpose of language to communicate. Yet people use words, flinging them about with a prodigal hand, as if they mean nothing. This is particularly true of the English language in India.

As readers' knowledge of English declines, one would think that writers would make a special effort to make themselves understood. The contrary seems to be the case.

Simple, direct expression is a skill which calls for discipline and practice. I was reminded of this when I was recently reading again, the tribute paid by Mahatma Gandhi to Lokamanya Bal Gangadhar Tilak, whose death anniversary falls today (August 1).

Gandhiji sought to address as wide an audience as he could possibly reach. Hence he had to be simple. He used no stenographers. He had little time to prepare drafts and make revisions. The simplicity was wholly attained by a rigorous discipline, guided by transparent sincerity. Both are clear in the following passage written 46 years ago!

> "Lokamanya Bal Gangadhar Tilak is no more. It is difficult to believe of him as dead. He was so much part of the people. No man of our times had the hold on the masses that he had. The devotion that he commanded from thousands of his countrymen was extraordinary. He was unquestionably the idol of his people. His word was law among thousands. A giant among men has fallen. The voice of a lion is hushed. What was the reason of his hold upon his countrymen? I think the answer is simple. His patriotism was passion with him. He knew no religion but love of his country. He was a born democrat. He believed in the rule of majority with an intensity that fairly frightened me. But that gave him his hold. He had an iron will which he used for his country. His life was an open book. His tastes were simple. His private life was spotlessly clean. He had dedicated his wonderful talents to his country. No man preached the gospel of Swaraj with the consistency and the insistence of the Lokamanya. His countrymen, therefore, implicitly believed in him. His courage never failed him. His optimism was irrepressible. The Lokmanya had hoped to see Swaraj fully established during his life-time. If he failed, that was not his fault. He certainly brought it nearer by many a year. It is for us who remain behind, to put forth redoubled effort to make it a reality in the shortest possible time. He will go to the generations yet unborn as a maker of modern India. They will revere his memory as a man who lived for them and died for them".

I have analysed that passage. There is no striving for effect. There is not a single difficult or unusual word. The sentences are short. The longest of the 31 sentences has 22 words counting the articles as well. In the same way, in descending order, there are two sentences of 16 words, three of 14, two of 12, one of 11, one of ten, four of nine, three of eight, three of seven, six of six, two of five and three of four words each.

One has only to look at an editorial, an article or even a news report of any contemporary journal to be struck by the contrast. Sentences of four and five words are hard to come by.

It is not easy to emulate Gandhiji in any matter. Yet it seems to me that if we continue to teach English, a book of selected passages from the Mahatma's writings, must be prescribed as a text, not only for its contents, but its style. English teachers must be trained to point out to their young hopefuls that Gandhiji's way of writing was a perfect illustration of the journalistic requirement of clarity, simplicity, brevity.

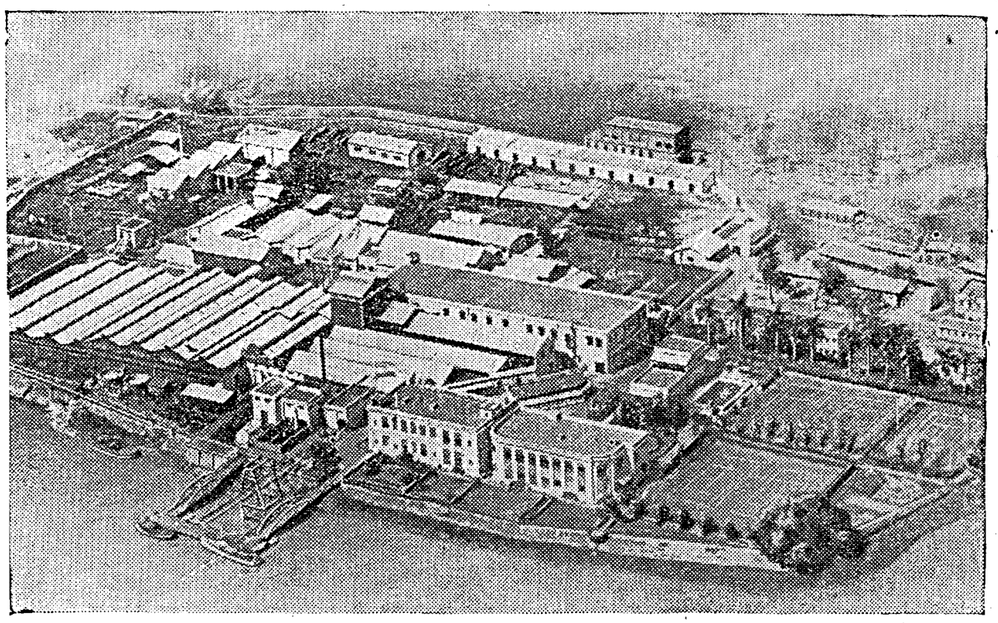
G. N. ACHARYA

Book Banks

AMONG the various ideas and schemes which are cropping up to commemorate Mr. Nehru, those relating to the education will perhaps have the most far-reaching impact. One such commendable effort is being made by the Ramanarayan Chellaram Charitable Trust of Bangalore.

The Trust has decided to open book banks and text-book lending libraries in some engineering colleges (See *Yojana* of July 19, 1964). Three such banks have already been working at the engineering colleges at Coimbatore, Quilon and Indore and nine more are to be opened in the engineering colleges at Allahabad, Jodhpur, Patiala, Sangli, Bombay, Anantapur, Anand (Gujarat), Jadavpur and Patna.

The Trust will supply to each of the selected institutions text-boks and library almirahs, together worth Rs. 5,000, for the benefit of the needy students. Rotary Clubs in the nine towns will co-operate with the colleges in selecting deserving students and supervising their work.



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Books

Thinking of the Future

Perspectives—Studies in Social and Political Forecasting Vol. XI, No. 1, Jan-March 1965

In a land where astrological consultation is a widely-prevalent frailty, attempts to peep into the future should be routine. One is, therefore, surprised to learn that the Indian Council for the Future owes its existence to a suggestion by a distinguished French political philosopher, M. Bertrand de Jouvenal. To cavil at that fact would be graceless xenophobia. But one may regret that the Council like many other organisations similarly situated owes its very existence to foreign grants. The future will always be with us; foreign grants may not.

Meanwhile the Council has commissioned studies "in the nature of projections in selected fields which set their sight twenty years ahead presently around 1975." That is what a blurb on the inside cover of *Perspectives*, a supplement to *the Indian Journal of Public Administration* says. Two of the three studies included in this volume speak of only ten years, and the third leaves things vague.

Vagueness is understandable when one speaks of "The Future of the Backward Classes", though Mr. Andre Beteille's effort is the longest and most conscientious of the three included in this volume. His statement that the basic character of Indian society is "its division into a multitude of status groups of unequal rank, each associated with a variety of privileges and disabilities supported by traditional sanctions", is a clear enunciation of a widely accepted fact. But it seems status groups can continue without the support of privileges.

The caste system is the greatest distortion to which Hinduism has been subjected. Yet it has kept going for thirty centuries, despite all the noblest teachings of the sacred books, all the efforts of religious and social reformers, and the influence of the Buddha, Islam and the British. Therefore when Mr Beteille asserts that "Indian society is undergoing profound changes" and that "the scales seem to be decisively weighted in favour of a lowering of many of the barriers of traditional society," it is possible to detect wishful thinking.

The latest and most powerful attack on untouchability made by Mahatma Gandhi was somewhat inhibited because of the failure to recognise untouchability as merely an offshoot of the caste system. To pick off the poisoned fruit as long as the tree is allowed to flourish is an exercise in futility. Mr Beteille's analysis of the mobility of the Backward Classes along the axis of power and status smacks of a needless distinction. Power is also a means of status.

The root of the poison tree is status-consciousness rather an elusive ghost to lay. Mr Beteille describes "traditional Indian society" as "highly segmental and hierarchical in character". Is that not a perfect description of the Indian administrative machine, and many other institutions too? In a status-conscious society, hopes of amelioration of backwardness must be bleak.

A projection of "Trade Unions" by V.B. Karnik, and of "The Press" by Chanchal Sarkar are workmanlike. They were bound to be careful about their facts and cautious about their assessments. Neither in their views nor in their language could they be expected to be wild.

Mr L. P. Singh, the editor, in a note says that there is a notion common between the three studies and they are included in this volume "by the accident of their timely completion". But I hope I am not being entirely fanciful in seeking the same ghost lurking in these two fields too.

Mr Karnik just touches the problem when he points out how "most unions do not enjoy the right of recognition", and how this drives them to the paths of frustration and subversion. Is not that the result of the owners' (the Brahmins, men of higher status) refusal to deal with their lower status employees ?

Mr Sarkar notes how organisations connected with the Press are "bound by their rigidities". In his role of a detached and objective observer he blames all of them impartially for their lack of vision. But he has noted that till today the representatives of the organisations of employers and employees have never got together to discuss a single problem across the table. They both talk to the government; but there is no dialogue between them. Again status-consciousness. A pervasive ghost this.

G. N. A.

RURAL CHANGE

Changing Pattern of Indian Villages by G.R. Madan. S. Chand & Co., New Delhi. 509 pages. Rs. 15.

G.D. Patel

This is a lucid book explaining the problems of rural reconstruction and the socio-economic changes in villages. The work is mostly the outcome of lectures delivered to students of the master's degree courses at the J.K. Institute of Sociology and Human Relations and later in the Department of Sociology and Social Work of Lucknow University. The author has a good grounding in all the problems of rural reconstruction dealt with in the book. Although Uttar Pradesh is taken as the regional background for the treatment of the problem, the theoretical exposition is comprehensive and the book will prove useful to students and others elsewhere.

The book is divided into 20 chapters which deal with problems such as evolution of village community in India, Community Development, land reforms, the co-operative movement, Panchayati Raj, agriculture,

Book on Rural Economics

Indian Rural Economics by S.C. Jain. Published by Lakshmi Narain Agarwal, Agra. 234 pages. Rs 7.50.

V. Sagar

According to the author the book has been written primarily for 'non-specialist students' who take up degree or diploma courses in economics and agriculture with 'hardly any express intention of specialising in rural economics as such' and who do not have any (or have little) previous knowledge of the subject. As a matter of fact, no background material on the subject is required for a student offering rural economics as a subject for such courses since the curricula drawn up for them take into account all these factors. At the most, knowledge of elementary economics is enough for this purpose. As such the book in the present form is not likely to serve any useful purpose as it is too high standard to the persons who have little or no knowledge of rural problems but too elementary for those who take rural economics as a subject in the degree or diploma courses.

The eight chapters into which this book has been divided relate to soils, land utilisation and irrigation; agricultural production; land policy and land reforms; consolidation of holdings; pattern of agrarian economy; agricultural marketing; agricultural prices and their stabilisation; and, agricultural finance. Six notes appended to the book deal with land tenure and land reforms in Madhya Pradesh; livestock and agriculture; agricultural workers; development of village industries; agricultural taxes; and agriculture in the Fourth Plan.

The pattern of contents would show that all the aspects relating to rural economy have not been dealt with, and that not enough care has been taken to give due space to the various topics in accordance with their importance. The chapter arrangement is also not proper. Separate appendices could be dispensed with and all of them with the exception of the first could, with suitable modifications, be included at appropriate places within the text. Collection of material from different sources without any proper scrutiny and co-ordination appears to be the cause of this lop-sided presentation of the material in the book. It also explains why some of the data and statements included in the book are not up to date.

The reviewer also came across a number of factual and other irritating errors. There is no uniformity in the units used at various places. This, again, is due to the fact that factual information obtained from different sources has been used without any attempt at checking it, analysing it, and bringing it up to date.

People who are not intimately acquainted with the rural conditions should refrain from attempting to write books in the interest of the subject as well as their own interest.

Communication

tion in the systems of his own make. The animal vocabulary is limited but is sufficiently varied and practical. The gorgeous plume of the peacock, the angular dance of the honey bee and the spider or the inflated throat of a toad are far more effective love signs than a side glance or an epistle in black and white. Long before man in an aircraft communicated with the airport terminal by wireless, the brown bat has been locating its quarry by modulated frequency signals. Man is yet to evolve an underwater radar like that of an eel which generates 20 pulses for second for locomotion.

The twelve illustrations in the booklet are well drawn. R. K. P.

PUBLICATIONS RECEIVED

Speeches of Prime Minister Lal Bahadur Shastri. Publications Division, 156 pages. Rs. 4.50.

Techno-Economic Survey of Uttar Pradesh. National Council of Applied Economic Research, 368 pages. Rs. 20

Fiscal Policies and Economic Growth (Building From Below). Krishi Goseva Samiti, New Delhi. 230 pages.

Agricultural Production—Functions, Costs and Returns in India by C.H. Hanumantha Rao. Asia Publishing House. 99 Pages. Rs. 12.

Demographic Profiles of an Urban Population by V.P. Pethe. Popular Prakashan. 144 Pages. Rs. 15.

Freedom and Fetters in Panchayati Raj

The feeling that it is for officials to show results, with elected representatives pulling them up, must go

PANCHAYATI Raj was introduced six years ago. It is perhaps too early to subject its achievements to a critical assessment in terms of its objectives. Still it is necessary to take stock of the extent to which development programmes have made use of the scope offered by this experiment in democratic decentralisation.

Panchayati Raj itself was the outcome of experience gained over six to seven years of Community Development which emphasised the need for a people's agency to secure the largest measure of people's participation in development programmes.

Ours is a land of rich traditions. Will Durant wrote that India was "the mother, through the village community, of self-governent and democracy. The village community of ancient India, the panchayat system, is the prototype of all forms of self-government and democracy that have ever been evolved in various parts of the world." The village was the unit of administration, and the village community was self-governing and self-reliant. The panchayat collected taxes, settled legal disputes and took decisions on matters affecting the life of the community and even of individuals. The village elders constituting the panchayat enjoyed the confidence and respect of the community, and in turn were responsible to it. The system helped in maintaining peace, protecting the interests of the community and preserving the established values.

With foreign domination, more particularly with the establishment of British rule in India, the village communities had a setback. Many of the functions exercised by them and the panchayats, such as land allotment, collection of taxes, dispensation of justice, were taken over by the Government. Responsibility for village development also came to be assumed by the Government. Education was designed more for preparing individuals for em-

B. RUDRAMOORTHY

ployment in official service than for development of the personality. There was externalisation of the village community's values and loyalties. A feeling of helplessness spread among villagers. Village communities began to break down, and their dependence on external sources for their needs and problems developed into a habit.

Local self-government institutions of a new kind were started during the second half of the last century, but these were intended more to lessen the administrative and financial burden of the Government than to transfer powers and initiative to the people. In the absence of real autonomy, these institutions could at best be an extension of the administration. A number of rural reconstruction projects were taken up in the first half of this century by eminent public leaders and

Mr Rudramoorthy is principal of the Orientation and Study Centre, Mysore.

tional provision. The Constitution has made a reference only to village panchayats, and one of the Directive Principles is that panchayats should be invested with more powers and resources so that they could become strong units of local self-government. It does not refer to the two higher levels of self-government, the Panchayat Samiti and the Zila Parishad.

It is the Balvantray Mehta Team that recommended Panchayati Raj and put forward a blue-print for a three-level structure below the State Government. The actual shape that Panchayati Raj takes in each State—it is not uniform throughout the country—depends on the State legislature. Thus the pattern of Panchayati Raj is influenced by the aspirations and problems of the political party or group in power in the State. While it is still being argued that Panchayati Raj institutions should not come under the influence of political parties, the organic linking up of the three tiers cannot but place these institutions under the influence, direct or indirect of political parties.

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THE saying that what an act of legislation gives by one hand the rules take away by the other applies to this case also. Too many directives, restrictions and procedures have crippled the initial enthusiam in these institutions; the village communities and the supposedly revitalised institutions still continue to look up to and depend on outside agencies, not only for financial assistance, but even for their functioning.

The urgent needs of Panchayati Raj may be listed as follows:

1. Statutory provisions based clearly on clear and unambiguous objectives.
2. A conducive political atmosphere.
3. Guidance and supervision.
4. Incentives.
5. Safeguards.

It is time that the objectives of Panchayati Raj were clearly enunciated in a way that is applicable to all parts of the nation, for it is of vital concern to the nation as a whole that these institutions should be developed as local self-governing units equipped with the necessary powers, functions and resources. External control and interference must be minimum but there must be adequate guidance.

If we agree that Panchayati Raj is an ideal form of direct democracy, it becomes essential that the Constitution should recognise Panchayati Raj, instead of allowing its shape to be influenced by political factors in the different State legislatures.

It is said that although the administration is gradually reconciling itself to transfer of powers to Panchayati Raj institutions, some elected representatives of the people at the higher level have hesitations in this regard. This hesitation may be more due to a fear that power in the hands of people not much experienced in the art of governing may be misused, and a fear that their own power may be curtailed.

There might be some basis for the first fear; the remedy lies not in depriving the institutions of their legitimate rights and powers but in instituting an effective system of education, supervision and safeguards. Any denial, or even postponement, of transfer of legitimate powers to the people and their institutions will result in delaying the development of their abilities. It will also lead to increased tensions and frustrations.

Another danger would be increased dependence on government agencies who themselves might find it difficult to meet the increasing demands from the people.

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THUS many of the problems encountered in Panchayati Raj arise out of village communities continuing to depend on outside sources for initiative, financial help and leadership. Secondly, complicated procedures come in the way of the development of self-reliance. Thirdly, there is a general lack of competent guidance. On the operational side, frictions have not been uncommon between officials and elected representatives of people. Lack of faith and conviction in Panchayati Raj among some officials did create problems in the early stage, and continues to do so. But, by and large, the official machinery has reconciled and adjusted itself to the set-up. But there is still need for a clear understanding of the mutual role of officials and elected representatives in Panchayati Raj.

Lack of such understanding has been an impediment to the success of Panchayati Raj. Both officials and elected representatives should regard each other as partners in a common venture. Their roles in the context of Panchayati Raj can be listed as follows:

Elected representatives in Panchayati Raj institutions
formulate policies,
take decisions,
mobilise local resources, and
provide leadership.

Officials
furnish facts, with analysis,
to enable sound policy decisions,
implement decisions,
educate, and
train.

Panchayati Raj institutions are often criticised for taking decisions which are parochial in nature. Considering their lack of a wide horizon and their anxiety to fulfil obligations to their constituencies, this is not to be entirely unexpected. But to what extent are officials facilitating sound decisions on the part of the institutions by analysing situations and supplying facts relevant to issues?

One instance out of many might be cited as an illustration. When a Panchayat Samiti is to decide or sanction grants for building a school building in a village and when there is more than one application or request, it is the duty of the block officials to collect data regarding the number of children in the school-going age in the various villages, the distance from the nearest school, the people's contribution promised, and the number of people contributing in each of the villages. Based on these data, the issues can be posed for the consideration of the Samiti. Discussion will then tend to be concentrated on these issues instead of being diffused and discursive. In the absence of such guidance from officials, the decisions are likely to be influenced by the members' personal preferences and prejudices, by political gain rather than social advantage.

Elected representatives working in Panchayati Raj institutions need guidance in other ways too. In conducting meetings, in arriving at deci-

(*Continued on Page 25*)

How Elections to a Panchayat Were Fought

A Case Study from Rajasthan

B.N. SINGH AND R.S. CHAUHAN

ELECTIONS play a large part in the working of the panchayat system. They are the grass-roots of national politics. They provide a measure of how our rural people think and what they want. They are of vital importance to policy-makers at the national and State levels. An attempt has been made in the present article to analyse the voting behaviour of the people in a particular village of Rajasthan.

Panchayati Raj was introduced in Rajasthan in 1956. Since then panchayat elections have been held every four years. The third panchayat elections were held in Rajasthan in January this year.

Dudu, the place where this present study was conducted, is situated midway between Ajmer and Jaipur on the national highway that runs through the two cities. It is generally regarded as an alert and progressive village. It has a middle school, a girls' primary school, a veterinary hospital, a malaria eradication unit, a sheep-breeding centre, a post office and a police station. Thus, while retaining all the features of rural life, it has considerably benefited by the welfare programmes. The last Census recorded the population of the village as 2,829. According to the block register, the area of the village is 10,541 acres.

For the purposes of the election this area was divided into ten wards. Twenty-one candidates were in the field, two from each ward, with the exception of ward I which had only one candidate. All the candidates were either heads of households or the main earning members. Seventeen of the candidates were engaged in agriculture, three were in small business, and of the remaining two, one was a bicycle repairer and the other was a tailor. The agrarian nature of the Dudu society is reflected in the high proportion of farmers offering themselves for election.

As for literacy, more than half the candidates were illiterate (11 out of 21). Seven had the equivalent of middle school education and the remaining three could just manage to read and write. The survey showed that none of the candidates read a newspaper or listened to the radio regularly. Five candidates said that whenever there was a chance they read newspapers and listened to the radio. All the candidates, however, had visited Ajmer and Jaipur many times.

The candidates were between 28 years and 55 years of age, the average age being 40. There were no women among the candidates. These two points illustrate the villagers' attitude to age and sex.

Four candidates were Muslims. Of the Hindus, the division by caste was as follows: three Jats, three Mahajans, two Brahmins, one Rajput, two Gujars, the remaining belonging to the backward classes.

A candidate's economic status did not seem to be a limiting factor in his decision to fight elections. Candidates with an annual income as low as Rs 700 competed on equal footing with those who earned Rs 3,000 per annum.

How Did They Stand?

How did a man come to stand for election? The inquiries showed that they were persuaded by political parties, communities, or, as some candidates claimed, voters of their ward.

No political party participated in the Dudu panchayat elections openly. Yet it was evident that political loyalties figured prominently and played a decisive role in the elections. As in other elections the political parties canvassed for candidates who owed them allegiance, and worked against candidates belonging to rival parties. The considerations on which a political party supported a candidate could be summed up as follows:

(a) He was a member of the party;
(b) He represented a certain community and was an influential person;
(c) He was likely to defeat the candidate of the rival party:
(d) He was, apart from being influential, a 'panch' in the outgoing panchayat; and
(e) He was an able person and one likely to bring credit to the party if elected.

The two parties that are prominent in Dudu are the Congress and the Swatantra party. Neither party, however, backed exclusively the candidates of a particular community, or of a particular occupation or of income or of academic qualification, save on the ground mentioned above. It is clear from the table on the next page.

Support of Community

More than the affiliation of a political party, what a candidate sought, and worried about, was the support of his community. Unless he was assured of the help of his community, a candidate did not make up his mind to contest. The survey revealed that just as a candidate depended on the support of not only his own community but one or two others, he had also to count on the opposition of some other communities.

A community backed a candidate not only for the reason that he belonged to it but also because the opposing candidate belonged to a rival community. Sometimes a candidate was supported by a community under the belief that he would, if victorious, arrange land and food grains. Sometimes a community supported a candidate because it considered him to be an able and deserving man. It was not as though personal qualities had no influence at all.

Campaign Strategy

The forces that successfully persuaded a candidate also generally undertook responsibility for canvassing his case. It is to be noted again that both the participating political parties, Congress and Swatantra campaigned clandestinely, because of the understanding forbidding political parties functioning directly in panchayat elections. What the two main political parties—they put up candidates in each of the ten wards—did in Dudu can be summed up as follows :

a. They criticised the means adopted by the candidate of the other party.
b. They criticised the ideology and policies of the rival party and exalted their own.
c. They denounced the candidate of the opposing party and praised the virtues and adherence to principle of their own candidate.
d. They advanced attractive and ambitious programmes and promised to execute them, if people elected their candidates.
e. They served as instruments that cut across castes and communities.

Allegations of use of money to influence and purchase votes were bandied about. The Swatantra party alleged that the Rajasthan Congress had set apart Rs 6,000 for the purpose. The Congress said that the local leader of the Swatantra party spent lavishly to win the election. Careful inquiries showed that little money was spent by either party. The "ideological" campaigning consisted in Swatantra party accusing the Congress of being responsible for the high prices of all basic commodities, and the Congress accusing the Swatantra party of attempting to bring back feudalism turning every free citizen into a slave. To each political party its own candidates were intelligent, capable, free from parochialism and casteism and true representatives of the people; the opposing party's candidates were illiterate, partial, weak and selfish.

It is noteworthy that no political worker was imported from outside for the election campaign. Only local workers did the canvassing. No meeting was called or organised. Workers went from house to house. With neighbours joining in, every visit became a small gathering of ten or 15 people. What was said was in the form of a conversation rather than a speech. Contesting candidates as well as their families went round the wards from door to door presenting their case and soliciting votes. It was in these meetings that candidates made certain promises, for instance the arrangement for the distribution of 'parti' land and the sale of food grains at fair and cheaper prices, approval of the construction of a house, and the disposal of a land dispute in their favour. Another promise invariably made by the candidates was that they would devote themselves whole time to the development of the village, and they would conduct themselves with dignity. Criticism of the opponent was generally mild and was limited to pointing out weaknesses of character and work.

Seven candidates charged that their opponents had provided drinks and sweets to win votes. Often, such allegations were mutual in a ward. Three candidates complained that their rivals threatened voters with grave consequences if they did not vote as told. No candidate, however, admitted that he himself was guilty of any irregularities.

On election day, January 4, the voters were brought by the candidates and their supporters in groups. As they squatted around the polling booths they were again lectured or instructed on how to vote and for whom. The candidate accompanied the voters up to permitted bounds.

Ward No.		Caste	Education	Occupation	Was he a Panch before?	Supported by the Party
1.	a	Jat	I	Agri.	Yes	Con.
	b	Rajput	L	Agri.	No	Swa.
2.	a	Mahajan	L	Agri.+Business	Yes	Con.
	b	Brahman	L	Agri.+Priesthood	No	Swa.
3.	a	Mohamdan	L	Agri.+Medicine	Yes	Con.
	b	Chhipa	L	Business	No	Swa.
4.	a	Chhipa	L	Business	No	Con.
	b	Jat	I	Agri.	Yes	Swa.
5.	a	Jat	I	Agri.	No	Con.
	b	Mohamdan	I	Agri.	No	Swa.
6.	a	Gujar	I	Agri.	Yes	Con.
	b	Kumawat	I	Agri.+Business	Yes	Swa.
7.	a	Mohamdan	I	Cycle repairer	Yes	Con.
	b	Deroga	I	Agri.	No	Con.
8.	a	Patwa	L	Business	No	Con.
	b	Balai	I	Tailor	No	Swa.
9.	a	Brahman	L	Agri.+Bussines	Yes	Con.
	b	Raigarh	L	Small Business	No	Swa.
10.	a	Mohamdan	I	Agri.	No	Con.
	b	Gujar	I	Agri.	No	Swa.

L- Literate or educated. I-Illiterate. Con-Congress. Agri-Agriculture. Swa-Swatantra.

Results Analysed

Analysing the voting results, what one would notice prominently is the high level of voting-consciousness among the people. The polling figure was as high as 85.8 per cent. Out of 1483 voters on the rolls, 1273 registered their franchise and only 61 voters were invalid. In three wards the polling percentage was above 92.

The second feature was the strong political orientation of the polling. Although neither Congress nor Swatantra party directly contested the elections, Congress-supported candidates got 611 votes, as against 595 secured by Swatantra-backed candidates. It has to be kept in mind that caste loyalty had its own part to play.

Religion also seems to have an impact on voting behaviour. All the four contesting Muslim candidates were elected. They contested from those wards in which they had large numbers of their community. Though they did not outnumber the Hindus in any of the wards, it is clear they secured the bulk of votes from their sect. But many Muslims did vote for non-Muslim candidates. For example, in block 7, there were 84 Muslim voters but the Muslim candidate secured only 71 votes. The Muslim candidates, in turn, secured votes from other communities as well. In Ward 5, for example, the victorious Muslim candidate polled 59 votes although the ward has only 23 Muslim voters. Evidently, personal influence, personal virtues and support of political parties instigate communal feelings. The same trend would have been true of castes within the Hindu candidates. It could generally be said that while members of a community did not vote as a block, few were expected to go against the representative of their own community. Communities that did not field their own candidates voted in accord with traditional caste alliances. The personal record of a candidate assumed importance in such cases.

The level of a candidate's education was not much of a factor. Seven illiterate candidates registered victories.

Candidates' Views

What did the candidates themselves think of how the votes went? Three candidates were of the view that family and caste determined the selection of the candidate. Seven were of the opinion that it was caste and political party that affected voting behaviour. Four thought that many agriculturists voted as their former zamindar advised them to. Seven declared that only personal merit counted with the people. (If personal merit was the only factor, they should have neither hoped nor feared the pleasure or displeasure of any community, but they did not seem to have thought so before the results were announced.)

Various attitudes were expressed by the candidates towards the working of the panchayat system. These can be classified as :

a. It is good in its present form and is working satisfactorily (only one candidate).
b. The system is bad in itself (two candidates).
c. The system is good but it requires certain alteration.
d. Don't know (three candidates).

The majority of the candidates were of the opinion that the panchayat system was good in itself, but certain evils had crept in. Those evils, in their view, were: participation of political parties in election; high-handedness of higher officers; election of incapable candidates; the political attitude of elected members.

Thirteen candidates admitted that they had no knowledge about the literature and Acts passed and published by the Government of Rajasthan.

What was the priority item in development, according to these candidates ?

Eight candidates said increase in agricultural production. They wanted more irrigation and better distribution of quality seeds. The second priority was given to the expansion of education. Supply of drinking water, electricity and medical facilities occupied the third, fourth and fifth places.

Some Favour Dowry

What were their attitudes towards Government-sponsored schemes?

Twelve candidates appreciated the family planning scheme. It is noteworthy that of the seven who denounced the scheme, four belonged to either the Brahmin caste or to Islam. The other critics of family planning belonged to the backward classes. In their view children should be considered handome gifts from God. In spite of favourable attitude towards family planning by majority of candidates, it is remarkable that none of them admitted that they themselves were adopting any contraceptive device.

Again, twelve candidates favoured the abolition of dowry system. The opposition, it is interesting to note, has caste origins. Five defenders of the dowry system belonged to the backward classes, and one was a priest. All the Muslim candidates were in favour of its abolition.

Four candidates opposed the abolition of untouchability. It is surprising that out of these four, three belonged to the backward class, and the fourth was from the priestly class.

The findings of the survey of the panchayat election in Dudu village can be summed up as follows: family ties, community's support, party help and, to some extent, personal standing played a decisive role in the election. Though the majority of the people were in favour of retaining the panchayat system, yet they were critical of the way it functioned. The reasons are not far to seek. The involvement of party politics not only slackened the work of panchayat but caused bitter tension and rivalry among villagers. It coloured the view of elected candidates, which hampered, in turn, the development of the village. Pressure of ex-landlords, casteism, unfair means to win votes, and apathy on the part of the Government towards the candidates of the panchayat were some of the other contributing factors.

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OFFICIALS AND PANCHAYATS

(*Continued from Page 22*)

sions democratically, in working in villages where local resources are to be mobilised, they need guidance. The growing tendency that officials are there to show progress and the elected representatives are there to pull up the officials needs to be changed. The two have to be jointly responsible for the progress of their area. There is need for intensive education and training for both officials and non-officials. The scope and intensity of training centres that are already in existence should be expanded.

Panchayati Raj presents the Extension Service with a challenge and an opportunity. Has the Extension Service been meeting the challenge and using the opportunity? The answer can at best be a qualified yes. Merely to blame Panchayati Raj institutions as lacking in interest and as being parochial is like a bad workman quarrelling with his tools. With all our dedication to and experience in democracy, we should not find it too difficult to gear up the extension agency to work wholeheartedly with Panchayati Raj institutions.

DISCUSSIONS ON STATE PLANS

(*Continued from Page 13*)

according to the Planning Commission.

UTTAR PRADESH

The Planning Commission appreciated the priorities given to agriculture, minor irrigation and family planning in the Fourth Plan of Uttar Pradesh but could not approve the total outlay of Rs 1,400 crore. The expenditure on the State's Third Plan is estimated at Rs 534 crore against the original outlay of Rs 497 crore.

The State did not indicate in the memorandum the extent of additional resources it could raise for the Fourth Plan. During the discussions held on July 18 and 19, the Planning Commission suggested that the State could raise rates of water, electricity and transport. It was also pointed out to the State to improve efficiency and receipts and reduce costs on public enterprises. The State could provide developed factory sites to attract industrial entrepreneurs.

The State Chief Minister emphasised the power programme, and the Planning Commission agreed to give due attention to it. The irrigation and power projects already undertaken will be expedited.

The State's pace of development in the recent years was commended.

NAGALAND

The Chief Minister told the Commission during the discussions on July 20 that the State's draft Fourth Plan could be considered to be its first proper plan. The State proposed an outlay of Rs 41 crore.

The Third Plan of Nagaland had visualised an outlay of Rs 7.15 crore.

The Commission suggested that the development of roads and road transport should be given high priority in view of the lack of communications in the State. The State was also told to lay emphasis on the development of cottage industries, handicrafts and horticulture.

The Deputy Chairman emphasised the need to constitute a proper team to prepare a long-term plan of 10 to 15 years for Nagaland and an agricultural plan in the light of the N.D.C. Hill Areas Committee's recommendations.

NEXT ISSUE

Pepper Research

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Report on

Community Development

Conference

QUOTATION BOX

We gained from the experience of our predecessors and climbed, as it were on their shoulders..... and we were, blessed with good luck, ever so essential in Himalayan heights.

—Lt. Commander Kohli

There are almost as many kinds of written English as there are candidates taking an examination.

—From report of Study Group on The Study of English in India

The entire State (of Pondicherry), including the three other former French colonies of Karaikal, Mahe and Yanam, is about 479 sq. km. in area, or about the size of an ordinary district. The population is also small (369,079 according to the 1961 census)...To administer this small area, there is a vast and almost unmanageable bureaucracy headed by a Lieutenant-Governor, a four-member Cabinet including a Chief Minister and an army of civil servants numbering over 8,000...In addition there is also a 30-member Legislative Assembly. As against this, the French used to govern the territory with a civil force of less than 100, including about a dozen French nationals.

—From a report in "The Statesman"

The Chief Ministers of West Bengal, Bihar, Orissa and Assam met in Calcutta recently and came to the unanimous view that the scope for raising additional resources existed more at the Centre than in the States ...Here again, the idea is that the blame for additional taxation should be borne by the Centre, and the States should continue to be regarded as genuine friends of the poor.

—Mr K. Rangaswami in "The Hindu"

One of the reasons for what is termed as pro-English feeling in Madras is that English came to the South not as the language of the conqueror but as the language of trade and commerce.

—Mr. C. P. Ramaswami Aiyar

The only resource the Mysore State has in excess is mildness.

—Mr S. Nijalingappa, Chief Minister of Mysore

You can disprove anything anybody says about India.

—The Duke of Edinburgh

The British, though they ruled India for two hundred years and at first with great success, never succeeded even in discovering the Hindu mind, not to speak of getting to grips with it.

—Mr Nirad C. Chaudhuri in "The Continent of Circe"

On the basis of several interviews conducted (in the U.S.A.) by the Institute (of Motivational Research, New York), it was concluded that (Indian) *bidis* at present appealed more to women than to men. The Institute therefore feels that the masculine character of the commodity should be highlighted (while advertising it in the U.S.A.)

—A report in "The Statesman"

At any hour of the day in Calcutta you can find someone asleep regardless of where he is (usually in the middle of the pavement), but in Bombay you will find him hanging over the wall staring at the sea.

—Miss Dhira Bapat in "The Sunday Statesman"

International charity—A Sacred Cow.

—Heading of an article on economic aid in "New Society"

Unless a large tanker loaded with wheat goes into Bombay every day of the year, the pipelines are not full, and starvation develops. If something happened and that pipeline got cut off, one would have a famine in India that would make the Bengal famine of the 'forties seem like a picnic.

—Prof. Galbraith, in an interview on B.B.C.

The Home Ministry often also inquires into the workings of other Ministries. It seems time somebody had a look at the expanding universe of Home.

—"The Statesman"

I appreciate that the Halwais' Union and milk vendors have realised their duty to supply pure milk to the public.

—Capt. Rattan Singh, Punjab Minister for Agriculture and Animal Husbandry

Plant for Heavy Pumps with Soviet Aid

A plant for the manufacture of heavy pumps and compressors will be set up in the public sector. An agreement for preparing a detailed project report was signed in New Delhi on July 14 between India and the Prommashexport of the Soviet Union.

The plant, to be located at Naini (near Allahabad), will have an annual production capacity of 16,700 tonnes of finished machinery. It will also have its own foundry for iron castings.



SNIPPETS —

The eastern regional electricity grid has been set up. It comprises eastern States...Work has begun on the seventh unit of the Neyveli thermal power station...The Heavy Electricals, Bhopal, has manufactured four generator-transformers of 75,000 KVA each...Pilot plants for producing sodium sulphate are being set up at Bhavnagar, Kandla and Tuticorin...The production of high-speed precision lathes at the HMT factory at Kalamasseri (Kerala) will be stepped up to about 90 machines from the present rate of 35...The Life Insurance Corporation contracted a business of Rs 93.92 crore in the first quarter of 1965-66. In June alone the business amounted to Rs 42.38 crore...The exports of the textile variety, 'Bleeding Madras', was 7.2 million metres valued at Rs 2 crore, a record, during the first three months of 1965-66. In 1964-65, the exports were 20.7 million metres valued at Rs 6 crore... The supply of crude oil from Ankleshwar oil field to the Bombay refineries has been increased to about a lakh tonnes from 90,000 tonnes....The Ennore Fertiliser Works, a private concern, will be expanded at a cost of Rs 3.3 crore in collaboration with a Japanese firm...A regional labour institute has been opened at Kanpur. ...The number of joint management councils in the industrial establishment has gone up to 97 in the four years of the Third Plan from 30...An N.C.C. college for women has been opened at Gwalior. It will train 500 women cadets every year... India will supply the Soviet Union six lakh pairs of shoes valued at Rs 1.5 crore, under a contract, the biggest so far, signed recently by the State Trading Corporation.

"BLEEDING MADRAS" SETS A RECORD

M.V. Jalakanta, a new cargo vessel, 12,300 DVT, built at the Hindustan Shipyard, Visakhapatnam, has been launched. It is built for the Scindia Steam Navigation Company.

ALUMINIUM FACTORY

A big aluminium plant has begun production at Mettur in Madras State. It has a production capacity of 10,000 tonnes of aluminium metal from bauxite. The capacity will be doubled later.

Costing Rs 14 crore, the plant has been set up in collaboration with an Italian firm, and is owned by a joint Indo-Italian company named the Madras Aluminium Company Limited, Coimbatore.

Mr. K.L. Luthra, Director, Transport, Planning Commission, took part in the discussions of the expert group of ECAFE on transport planning held in New Delhi from July 19 to 27.

FERTILISER PLANT FOR COCHIN

A fertiliser plant, based on naphtha, will soon be set up in the public sector at Cochin. It will produce two lakh tonnes of ammonium sulphate every year and will be ready in about three years. A major portion of its product will be converted into urea (132,000 tonnes) and phosphates (104,000 tonnes). The cost is estimated at Rs 31.2 crore, including foreign exchange component of Rs 11 crore. The project will be executed by the Fertilisers and Chemicals (Travancore).

RAMAGUNDAM POWER-HOUSE

A thermal power station with an installed capacity of 200 MW is to be set up at Ramagundam in Andhra Pradesh. There will be three units of 66 MW each.

Work began on July 18. The first unit is expected to be commissioned in two and a half years and the remaining two within six months later. It is estimated to cost Rs 16 crore.

10 per cent Rise in Pulses Crop

The project is estimated to cost Rs 14 crore, including Rs 6.32 crore in foreign exchange which will be given by the Soviet Union from its second credit of 1961.

The heavy compressors and pumps will meet the requirements of steel, fertiliser, chemical and petroleum industries.

GODAVARI BRIDGE

A road bridge across the Godavari at Bhadrachalam, built at a cost of of Rs 70 lakh, has been opened to traffic. This is the second bridge on the Godavari in Andhra Pradesh. The first at Soan was opened earlier. Two more, one on the Gautami and the other on the Vasistha, will be completed next year. The fifth will be a rail and road bridge at Rajahmundry.

FORUM EVENTS
Reporting the Activities of College Planning Forums

Workers in Major Project Run into Debts

THE Planning Forum of the Government College, Kota, recently conducted a family budget survey in the Gandhi Sagar colony of the river storage and power project. The colony is located near the Gandhi Sagar reservoir across the Chambal. The reservoir, which was completed in 1960, feeds the power station at the foot of the dam.

The maintenance staff of the power project and their families live in the colony which is on the border between Madhya Pradesh and Rajasthan. Among them 50 families were surveyed by the Planning Forum.

At the time of the survey these families had 249 members of whom men numbered 130. The people mostly were from Madhya Pradesh, U.P., West Bengal and Bihar.

Out of these families, 45 are those of Government servants and four are in other occupations. Among them two earned less than Rs. 50 a month and one earned more than Rs. 250. Of the remaining families, ten earned more and 37 less than Rs. 150.

There were only 51 individual earners. Others were dependants, including women and children. There was no female earner. The per capita monthly income came to Rs. 24.75 and the per capita expenditure was Rs. 28.45, leaving a per capita deficit of Rs. 3.75. It is a pity that many of the workers' families had run into heavy debts. About 34 households were under permanent debt. The total debts at the time amounted to Rs. 6,671, the per capita debt being Rs. 26.75.

Out of the 34 households, 11 had old debts ranging from Rs. 300 to Rs. 1,000. Twenty-three households had debts of less than Rs. 100. Six households were under debts ranging between Rs. 100-350. The remaining five were indebted to the extent of Rs. 1,000.

Loans were provided by *mahajans* who charged high rates of interest, sometimes as high as 25 per cent. There were no co-operative societies or other credit institutions.

Among the major items of expenditure incurred by the families the largest was of course on food (62 per cent). Clothing (10 per cent). light and fuel (5 per cent), housing (4.6 per cent). education (3 per cent) and medical (3.4 per cent) were the other important items. Washing. hair cut. smoking and entertainment accounted for nearly an eighth of the expenditure.

The expenditure pattern showed that education and health were being neglected. In a month only Rs. 217 were spent by 50 families on the education of 71 children. Medical expenses amounted to Rs. 246 per month for a total number of 249.

This is not much more than what the families were spending on soap (69 paise) or smoking (68 paise).

Malaria was widespread in the colony. More than half of the households were affected by this disease.

Housing seemed to be no problem in the colony. Out of the 50 households 13 were in free government quarters and the remaining were in rented accommodation. Each family had not less than two rooms and some had three rooms. On an average two persons shared a room. More than 60 per cent of the houses had water and electricity connection.

The few shops here are badly located and poorly furnished. Some have closed because of lack of business. This is somewhat hard to believe when it is remembered that Gandhi Sagar is a Rs. 20-crore project.

SHAMBU by Malinda Topa



Armament Trainer

An armament trainer aircraft has been designed and manufactured by the Air Force indigenously. It will train pilots in the various phases of air-armament work such as air-to-ground firing, bombing, rocketry and air-to-air exercises.

Process for Refractories

The Central Glass and Ceramic Research Institute has developed a process for manufacturing high alumina refractories entirely from indigenous raw materials.

YOU ASK US WE TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

3-Year Course in Engineering

K.L. Das, Cuttack

Which institutions have three-year engineering courses for B.Sc. graduates?

Answer: There are 17 institutions, with a total admission capacity for 1,205 students, having a three-year course in engineering for B.Sc. graduates. The 17 institutions are:

1. Roorkee University, Roorkee.
2. University College of Engineering and Technology, Jadavpur, (Calcutta).
3. Government Engineering College, Jabalpur.
4. Laxminarayan Institute of Technology, Nagpur.
5. College of Engineering, Anantpur.
6. College of Engineering, Waltair.
7. College of Engineering, Kakinada.
8. University College of Engineering, Hyderabad.
9. College of Engineering, Trivandrum.
10. College of Engineering, Guindy (Madras).
11. Government College of Technology, Coimbatore.
12. P.S. College of Technology, Coimbatore.
13. Madras Institute of Technology, Madras.

And the Indian Institutes of Technology at Kharagpur, Bombay and Madras as also Indian Institute of Science, Bangalore.

Besides, 13 more institutions have been approved for conducting the three-year course. They are:

1. A.C. College of Engineering and Technology, Karaikudi.
2. A.C. College of Technology, Guindy.
3. Engineering College, Trichur.
4. B.M.S. College of Engineering, Bangalore.
5. University College of Engineering, Bangalore.
6. National Institute of Engineering, Mysore.
7. J.V.D. College of Science & Technology, Waltair.
8. College of Engineering, Poona.
9. Faculty of Engineering, Jodhpur University.
10. Bihar Institute of Technology, Sindri.
11. Institute of Radio Physics and Electronics, Calcutta.
12. Bengal Engineering College, Howrah.
13. Department of Applied Chemistry, Calcutta University.

Rated Capacity

P.R.N. Murty, Srikakulam

What is the meaning of 'rated capacity' of a plant?

Answer: Broadly speaking, the 'rated capacity' of a plant is its normal capacity for a given period of time. It implies the production capacity of the plant if worked in conditions as expected to prevail for its working, without any occasional acceleration or unforeseen impediment.

The rated capacity is determined by balancing several factors such as the regular supply of raw materials, adequate technical personnel and the working capacity of the machinery.

It may be noted that the rated capacity does not denote the capacity to produce the maximum in the given period of time, nor the capacity to produce the minimum. It is approximately the usual production capacity in normal working conditions. The plant *can produce more than the rated capacity* if other conditions for its working are more than satisfactory, or it may produce at a lower rate if there is some snag in the working.

Let us take an example. A man can work for about eight hours a day without feeling exhausted or hampering his health, provided he gets proper food, rest, etc. This is analogous to the rated capacity of a plant. But if occasion demands, the man may work for more than eight hours a day and give a larger and better output, and yet keep himself fit, with better nourishment, improved efficiency methods, etc. Or, if he catches cold or is otherwise unwell, he may work for fewer hours and give a smaller output than his normal (or rated) capacity.

VASECTOMY—GOOD RESPONSE

It is said that the people are impervious to family planning advice. But it is not true. Our experience with the orientation and vasectomy camps since 1963 in Khammam district in Telangana in Andhra Pradesh, under the auspices of the Health Department and Family Planning Association of Andhra Pradesh, has been encouraging.

Vasectomy camps were held at Bhadrachalam, Palair, Sujathnagar and Kallur and 436 vasectomy operations were performed during a total of nine days—51 at Bhadrachalam, 55 at Palair, 30 at Sujathnagar and 300 at Kallur.

It may be noted that at all these places, persons came forward voluntarily to get themselves operated upon. No incentive, in money or otherwise, was offered for the operation. Still more significant is the fact that at all these places, the majority of persons who were operated upon belonged to backward classes—at Bhadrachalam, Koya tribals, who have a very high rate of birth (10 to 20 children in a family) and at Palair and Sujathnagar the Banjaras and Lambadis. In remote rural areas, the people who are proverbially supposed to be ignorant and tradition-bound are found to be more keen on vasectomy operations than those in the urban areas.

This shows that even those people who live away from the urban civilisation feel the necessity of family planning. What they need is guidance and help. Adequate resources and proper approach should create a favourable social consciousness and win their trust and confidence.

RAM KISHORE



MASTER CRAFTSMEN: IV AND LAST

APPUKUTTAN ACHARY

by USHA CHETTUR

THE choice of Kesavan Appukuttan Achary for the national award for master-craftsmanship in ivory carving disproves the beliefs that age makes the craftsman. At 40 Appukuttan is one of the youngest of the national award winners, but his youth in no way subtracts from achievement.

Appukuttan was born in 1925 at Karikkakam in Kerala State into a family of the 'Achary' community of Kerala. He had general education at a local school and his uncles, Kochappi Achary and Ramankutty Achary, imbued him with a passion for the traditional calling. Appukuttan has been working on ivory for 23 years now.

It was when he was 16, and had successfully completed school, that he was placed under his uncles to develop the intrinsic Achary bent dormant in him. The Achary community of Kerala are architects who also excel in carpentry, wood-carving and ivory carving. They claim descent from Viswakarma, the architect of the gods.

After the first few months of training, the uncles decided that Appukuttan's future lay in that most delicate of mediums—ivory.

He joined the Ravi Varma Drawing and Painting Institute at Trivandrum to gain a closer feel of the essentials of form and line in drawing. The rhythm and fluid expression for which Appukuttan's work has become known can be traced to the short period spent at the Institute.

He was soon claimed by the Ivory Manufacturing Centre, Trivandrum, to work as master-craftsman at its workshop. Even though his years at the Centre were more in the nature of gaining experience—Appukuttan is thankful for the opportunity he had to develop his individual style.

In 1958 the All-India Handicrafts Board at Bangalore appointed the young artist as a master craftsman in the Regional Design Centre at Bangalore. There is a quiet distinction in his work which places it in a class by itself. He still regards every piece of work that he ·ves as taking him nearer his goal of perfection.

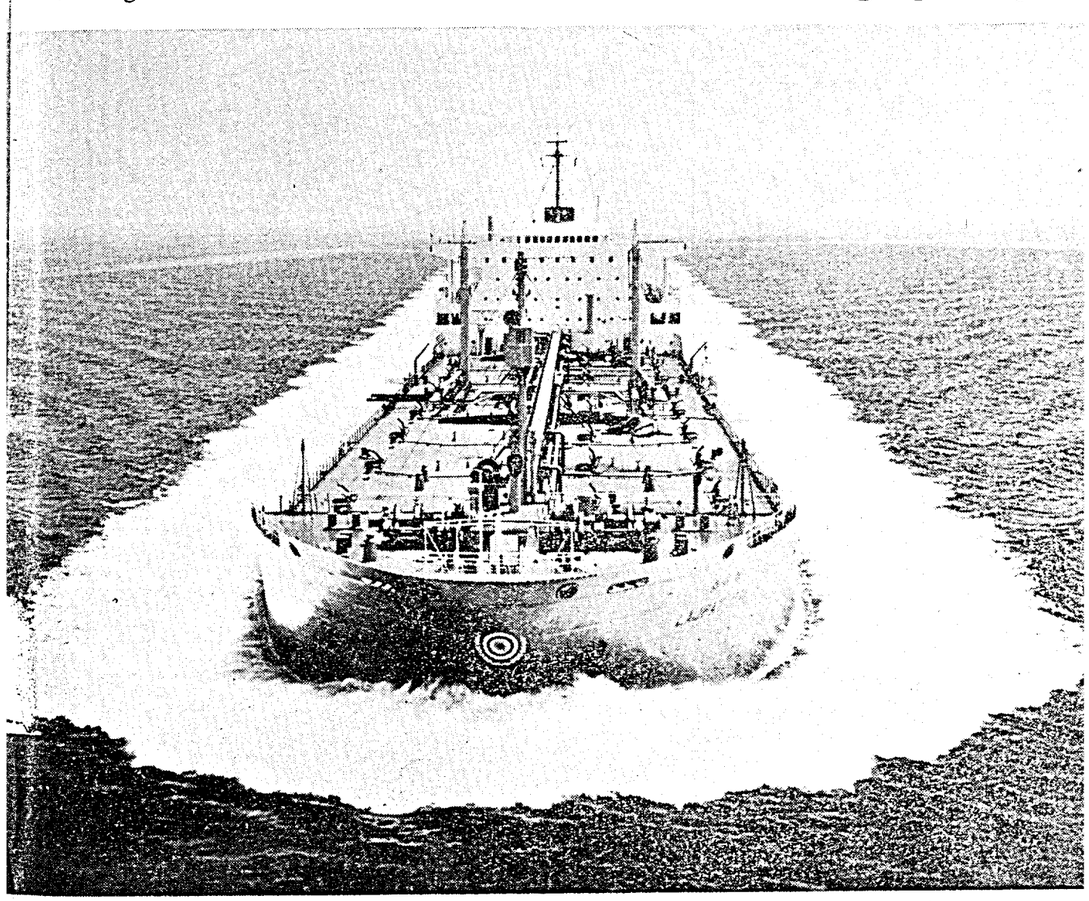


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YOJANA

Named for the great freedom fighter, M.T. Lajpat Rai can carry 46,000 tonnes of oil and will earn Rs 5 million worth of exchange yearly

See Report on Page 4



Also in this issue:

New Rice that Will Double Yields

Big Response to the Loop

NINTH YEAR

16

August 15, 1965

25 PAISE

ABOUT YOJANA

YOJANA seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion on problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

The Advisory Board of the journal consists of the Minister of Information and Broadcasting, Minister of Community Development and Co-operation, Minister for Agriculture, Mr T. N. Singh, Mr Shriman Narayan, Mr Akshaykumar Jain, the Secretary, Ministry of Information and Broadcasting, and the Secretary, Planning Commission.

Although published on behalf of the Planning Commission by the Ministry of Information and Broadcasting, *Yojana* is not restricted to expressing the official point of view.

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(The feature on pepper research, announced for this issue, will be published in the next issue.)

NEXT FORTNIGHT

Urban Land Values
by K, A. Ramasubramaniam

*

Drinking Water from the Sea

QUOTATION BOX

Foreign countries have been greatly impressed by the visits of Dr Rajendra Prasad, Mr Lal Bahadur Shastri, Mrs Lalita Shastri and Dr Zakir Husain, but none of them would be found fit for appointment in the Foreign Service.

—Mr J. P. Chaturvedi in "Mainstream"

Indians have a habit of taking foreigners too seriously.

—Dr John Gallagher of Oxford

It is a land whose leading industries are steel, motor cars and Shakespeare. It is an island made of coal, loam, chalk, litter and senior officers' surplus pants. *—About U. K. in an advertisement in 'Punch'*

Planning Interruptus.

—Heading of note in "Now"

Unplanned planners.

—Heading of note in "Economic Weekly"

Mr Masani said the First Five Year Plan was good but the Second and Third Plans were rotten. Deficit financing, he said, was nothing but legalised counterfeit. The first thing to do was to postpone the Fourth Plan for two years, and carry on with the Third Plan to make it a seven year Plan

—P.T.I. report

The growing demands of national and international "entertainment" placed on diplomats are a real menace...In bygone days an ambassador was an honest man sent abroad to lie for his country; today he stands up for his country, often in narrow, confined and crowded spaces, to the detriment of his health, temper and judgement.

—Sir George McRobert

Delhi has become an example of what we have not been able to do.

—The Prime Minister, quoted in "The Hindustan Times"

Our economy is passing through an interesting phase.

—"The Hindu"

There is certainly more of discipline in public life (in Madras than in Calcutta). For example, the successful conduct of an examination is not the examinee's choice in Madras as it is in Calcutta.

—From a letter in a newspaper

It is unlikely that the theme of unity and united effort has ever been discussed anywhere with such an exhibition of disunity and partisanship.

—The Editor of "The Times of India" on the Bangalore AICC session

Jamnagar, July 25. The fire brigade was summoned here yesterday to remove from the municipal meeting hall a councillor whose remark was considered "a great insult to the house" .....The member (who had said that the majority sometimes consisted of fools) apologised for the remark and the fire brigade was asked to withdraw.

—A Press Trust of India report

A bright career awaits you if you have a good personality, photogenic appearance, aptitude for acting and willingness to work hard. You should be between the ages of 16 and 26 years...Apply immediately on plain paper.

—From an advertisement of the Film Institute of India

Is the time spent in Cabinet time wasted? A lot of it certainly is. The process of reaching decisions in committee increases more than proportionately with each member added to the committee's strength. Many of the 23 Cabinet members intervene very rarely indeed—perhaps because they have nothing useful to say, perhaps because they are too old or too sleepy to pay much attention. Others go on and on and on.

—"The Economist", London

I asked one Chief Minister recently whether with all the difficulties the country is having in the balance of payments position was he not talking completely in the air in asking for a bigger plan? He readily agreed he was. "But", he asked, "what do you think can I do about it? Everybody else is doing the same thing and I do not want to commit political suicide with the elections 18 months away."

—The Editor of "The Hindustan Times"

The cut in the import quota for books to 37½ per cent of last year's imports betrays thoughtlessness as well as an illiterate habit of mind in the Ministry of Commerce. In the absence of quality control, imports of books of scientific and literary merit will bear the brunt of the cut while fast-selling cheap fiction will continue to be sold in heaps on our pavements. Apparently the latter constitutes the staple reading of our policy makers.

—"The Economic Weekly"

Dr Ramaswamy Mudaliar was particularly severe on the Planning Commission which he described as a "conglomeration of individuals with no knitting ties between them". He said the members were "irresponsible, not amenable to the discipline of any parliament."

He attacked the Planning Commission's ways of making allocations of Plan funds to the States on the basis of the "crying baby getting more milk".

—Report in "The Hindu"

YOJANA

Vol. IX No. 16 Fortnightly Journal Published on behalf of the Planning Commission Sravana 24, 1887

FREEDOM AND GROWTH

On Independence Day 1962 we were in the midst of a great debate on national integration. On Independence Day 1963 the thought uppermost in our minds was that of building up the nation's strength. The Chinese attack in the preceding winter had provided an answer to our doubts of the previous year about our devotion to the ideal of national solidarity, but had shown the extent of our unpreparedness, psychological, economic and military. Both the suddenness of the attack and the abruptness with which the action was halted were calculated to accentuate the feeling of unpreparedness. If the fighting had been prolonged a little more, the proceedings would certainly not have been so one-sided.

On Independence Day 1964 our thoughts were all about the man we had lost. But, as the new Prime Minister stood on the wall of the Red Fort amidst pouring rain and reaffirmed the nation's resolve to go ahead, along the path shown by Gandhi and Nehru, there was reassurance that adversities could not damp our spirit. Soon after, the President could say, with justifiable pride: "That these democratic instincts have got firmly rooted in our mind is illustrated by the way in which the transition was effected after he passed away—so smooth, so quiet and so democratic. The whole world was stirred deeply by the way in which we effected that transition."

Another Independence Day comes, and it finds the nation in a mood that is certainly not buoyant. There is anxiety all round, not anxiety about national security, or about the future as in past years, but about prices. It is a nagging, daily, domestic worry to find things for the household and pay more for them. The people are told there has been a record harvest; and they are puzzled why prices should still go up. They hear a number of theories advanced to explain the paradox. One is that cultivators keep back more for self-consumption and thus higher production does not mean that the extra that is grown is brought to the market. Another is that the limited volume of goods is being chased by higher incomes, generated by defence and development expenditure. Many people are ready to concede the truth of these theories; they are ready, also, to concede that the welfare activities taken up, in the years of freedom and planned development, and the readiness to go to the ends of the earth to bring food, have made the old kind of horrid famines and mass deaths a thing of the past. But they will say, and rightly, that what has been done isn't good enough. There is a tendency to blame the Plan itself for the rise in prices and other difficulties.

The size, shape and strategy of the Fourth Plan have now become the staple of vigorous public debate. Must we have a big Plan or a small Plan? If big, how big? What further burdens, if any at all, can our people bear? Is it prudent to go ahead the same way as we have been, or shall we pause for a while and then gallop? Shall we have consolidation before further advance? How much more are we likely to get from lending countries and is it right to depend so much on them? Since agriculture is our main weakness, isn't it better to concentrate on it? Wouldn't industry grow at a greater rate if controls were relaxed?

These and other questions are being asked and being examined as much by the policy-makers as by the people at large. The Prime Minister, who is himself Chairman of the Planning Commission, called for a thorough examination of the problem when he did some "loud thinking" in an address to the National Productivity Council. There have been intensive discussions in the Planning Commission, and the National Development Council will meet early next month to take decisions. Ours is a democratic system, in which decisions are taken after the widest possible discussion. Open discussion is the essential element of democratic planning. It is the business of the Plan to provide what the people want.

While the decisions of the National Development Council are awaited, it is necessary to realise that popular debate sometimes oversimplifies issues. "Concentrate on agriculture" is unexceptionable advice. But can we achieve higher agricultural production with a standstill in power production and transmission, or in fertiliser production? To what extent in fact does money for industry compete with resources for agriculture? "Consolidate". A sound rule, again. But can we mark time in family planning or education? Would the people or their elected representatives tolerate a situation in which no new school or college or clinic is opened for a couple of years? Indeed, isn't consolidation the very basis of balanced planning instead of being in any sense antithetical to planning?

Right when we embarked on planned development, it was realised, and stressed, that several five-year plans would be needed for some noticeable change to be brought about in our life. We are now at perhaps the steepest point of our climb. Our determination, rather than our stamina, is on trial. Often in the life of a nation valour is the better part of discretion.



New Rice With Big Promise

Plan To Bring 12 Million Acres Under Dwarf Variety

G. V. Chalam

Deputy Agricultural Commissioner

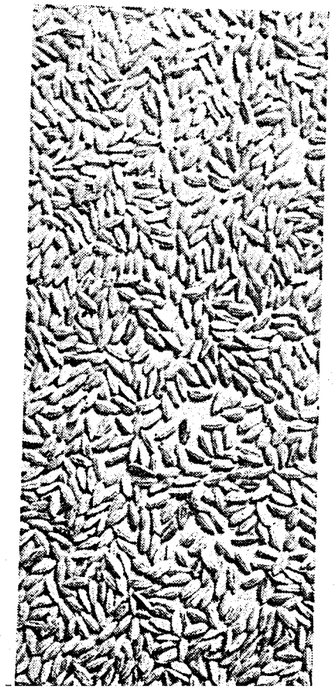
Speaking to

Kali Biswas

of Yojana

THE bulk of our people are rice eaters, and increase in the yield of rice is an imperative for our country. The Agriculture Departments are on constant look-out for high-yielding varieties of rice and for methods of cultivation that will increase production.

As an agricultural technologist I had read about the outstanding work done by the International Rice Research Institute in the Philippines and the phenomenal increase in rice production in a brief period of 15 years after the Second World War. An opportunity to visit the Institute and see for myself the work done there occurred in December last year. I went there on my way back from the Seed Testing Seminar organised in New Zealand by the Colombo Plan.



In the top picture from an Andhra Pradesh farm, the short Taichung variety is seen in the foreground. At back is a taller, lower-yielding local variety, whose stalks lodge under the weight of the ear. At right is a sample of Taichung paddy known for heavier grains.

It was indeed heart-warming to see the achievements of the International Rice Research Institute at Los Banos, Manila. But rarely have I been so moved as when I saw the large area under Taichung Native-One. The yield, I gathered, was as high as 7,000 to 8,000 lb per acre (or 7,000 to 8,000 kg per hectare) though on the field it did not appear so high.

Taichung Native-One is a variety of paddy from Taiwan (Formosa), which has had some remarkable accomplishments to its credit in agricultural production. At the close of the Second World War the production of rice was 1,000 lb per acre (1,000 kg. per hactare) which is almost our present average. Today it is 2,750 lb per acre (2,750 kg. per hectare).

The first increase in yield came within two years of adequate supply

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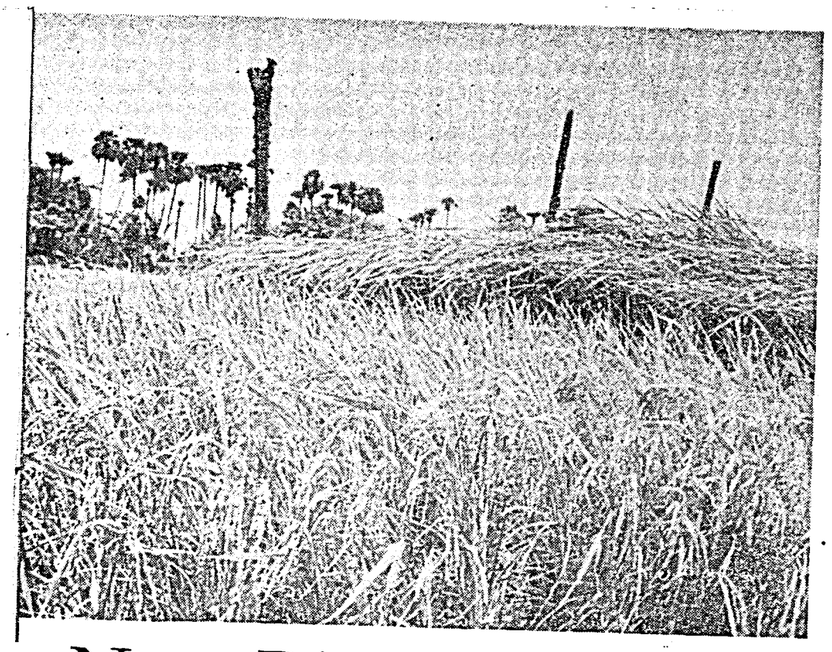
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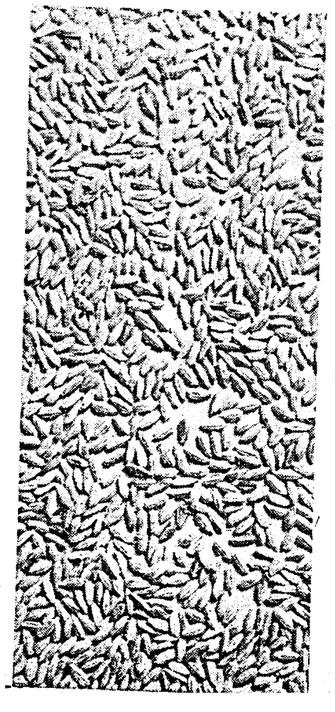
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The first increase in yield came within two years of adequate supply of fertiliser. The second came from the rapid distribution of high yielding varieties resistant to blast, a disease which usually accompanies the application of heavy doses of fertiliser. The final stage of development came through a rotational system of irrigation which economised water for cultivation. Thus the rice revolution in Taiwan was the result of first, fertiliser; secondly, improvement of seed variety and thirdly, scentific use of water.

Outstanding among the high-yielding varieties has been Taichung Native-One. It is this that the Philippines Institute has been trying elsewhere in Asia, and it is that we are planning to introduce in a big way in our country.

Taichung Native-One is shorter than our varieties. Its stalks do not lodge. It is possible to raise even three crops a year, provided from the stage of flowering to maturity it enjoys a period of good sunshine. What is specially important is its wide adaptability in our country. With adequate irrigation facilities it consumes 500 lb of nitrogenous fertiliser (100 lb N) per acre as against 100 to 200 lb by our local varieties.

Taichung Native-One has yet another advantage. Being a highly productive variety, its rate of multiplication is high. It requires 25 kilograms of seed for cultivating a hectare. The only thing I wanted to be sure was whether it would be acceptable to the Indian tastes: I tested rice cooked from this variety and was satisfied on that score. Unlike some Japanese and other East Asian varieties, Taichung Native-One was not sticky.

Here was a fine combination of virtues—high yield, short stature, good ability to respond to fertiliser, quick growth, and acceptable taste. So when I saw the performance of Taichung Native-One at Manila, I was keen on introducing it in India. I brought a kilogram for trial in our country. When Mr B. Sivaraman, then Development Commissioner of Orissa and now Secretary in Union Ministry of Agriculture, came to know of it he showed keen interest and took ½ kilogram of the seed for trial cultivation on the farm at Sakhigopal. The balance was taken by Mr D.V. Reddy, then Director of Agriculure, Andhra Pradesh Government, and now Extension Commissioner, Directorate of Extension in the same Ministry, for experiment on the farms as Rajendranagar and Maruteru.

At all the three farms, seeds were sown on December 24 & 28,1964, and the crop harvested in May this year. The results were impressive: Sakhigopal—6,000 lb an acre; Maruteru—7,388 lb, as against 4,672 lb with a local variety: Rajendranagar—7,672 lb as against 4,780 (RDR—7), 5,001 (SLO—16) and 4,557 (RK—70). The rate of multiplication was high—1 kg.=300 kg.

Impressed by the results some progressive farmers in Andhra Pradesh have taken the seed from these farms. They hope to produce three tons per acre from this strain and have set up "Three-Ton Clubs".

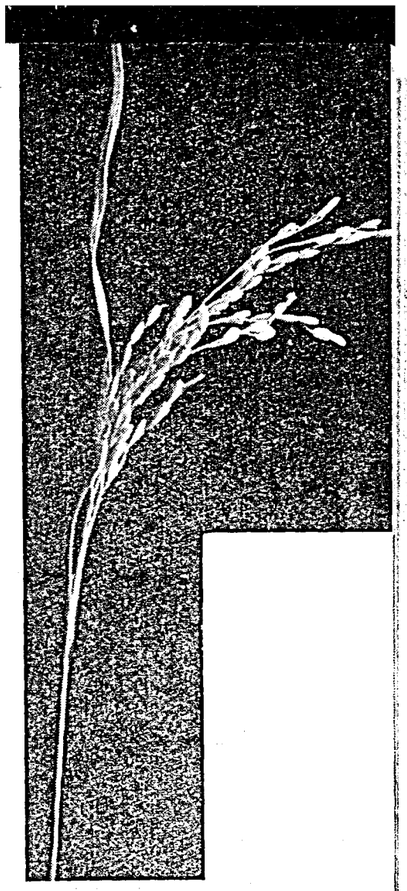
What roused the general interest of Andhra farmers was the fact that the results of the trial at Maruteru were first published in *Andhra Jyothi*, a Telugu daily of Vijayawada, on May 10. They were later featured in other English and language newspapers also. Queries and requests for supply of the new variety began pouring into my office from all parts of the country. A farmer from Mysore wrote to me: "I am anxious to give a good trial to this variety next season... Please arrange to to reserve for me 40 kilogram of seed". Another letter, from a farmer of Andhra Pradesh, says: "I am interested in joining the "Three-Ton Club." I shall be watching with interest about the performance of this first crop, the seed of which you have already distributed." A more recent letter says: "I have read an account of the new variety of paddy known as Taichung Native-One in the *Free Press Journal* dated 26th July, 1965... As I have about 50 acres of land where I cultivate paddy, I would request you to send a quantity of seeds to me. I am prepared to bear the price."

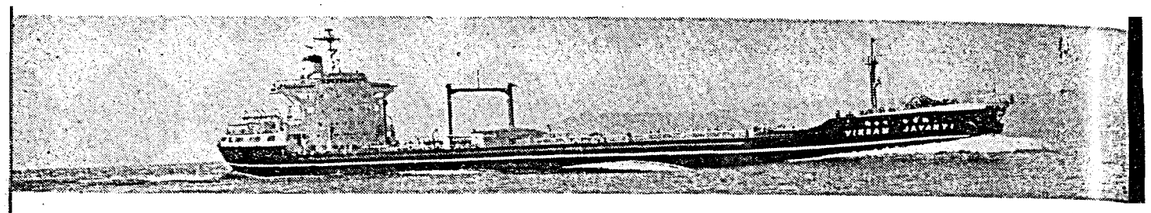
Since the results of trials were so encouraging, we got a ton of Taichung Native-One with the help of the Rockefeller Foundation. We have distributed the seeds, along with those multiplied earlier, to 46 selected agencies, both Government and private, throughout the country for *kharif* cultivation this year on 66 hectares of land. Some 12,100 hectares (30,000 acres) are also proposed to be brought under the new strain for the second or the *rabi* season.

These would still be small beginnings compared to our needs. If Taichung Native-One is to make a difference to our rice map, we have to undertake a major scheme of distribution of the seed throughout the country. Fortunately, the high multiplication rate of Taichung Native-One is in our favour. We are thinking of some Central organisation

(*Continued on Cover iii*)

"TAICHUNG NATIVE-ONE" CAN DOUBLE OUR YIELDS





Jayanti Shipping's *Vikram Jayanti* which is our largest tanker

THE BIG OIL SHIPS

HOW TANKERS DIFFER FROM OTHER SHIPS

By Rosscote Krishna Pillai

ONE more merchant ship, the supertanker *M. T. Lajpat Rai*, was added to the Indian fleet last month. The 46,000 dwt (dwt means dead weight tonnage which corresponds to the weight of cargo the ship can carry) oil tanker is named after the great leader whose birth centenary was celebrated recently.

The ship, built and delivered in Japan to the Shipping Corporation at a cost of Rs. 2.56 crore, is its 32nd ship. It has been chartered to a British company for ten years and is expected to earn for the country foreign exchange of about Rs. 50 lakh a year.

In addition to this new tanker India has three more ocean-going oil tankers, *Deshbandhu*, *Adi Jayanti* and *Vikram Jayanti*. The last two belong to the Jayanti Shipping Company, the country's largest ship-owner now.

The 54,000 dwt *Vikram Jayanti*, which is India's largest merchant ship now, was also built and delivered in Japan last year at a cost of Rs 3.25 crore. It has been chartered to an American oil company. Orders have been placed by the Jayanti Shipping Company for a giant oil tanker of 150,000 dwt to be built in Japan.

Among ships which carry bulk cargo, tankers have a very important place. Dry cargo vessels, like bulk carriers and ordinary freighters which are used for carrying coal, ore, grain, sugar, cotton and copra, are not suitable to transport petroleum or other liquids. Tankers with shapes specially designed to suit each bulk liquid cargo have to be used to carry oil, molasses, caustic soda, other liquid chemicals and semi-liquid cargoes like asphalt (crude oil residue) and even gas in liquid form.

Demand for oil is rising all over the world. Tankers have become very essential to carry it in bulk to the refineries or important oil markets which lie far away from the major oil fields of the world. The transport of oil by tankers is now a special branch of the shipping industry. At present there are about 3,700 tankers in the world representing a third of the total tonnage of mercantile marine. Among the principal tanker-owning countries are U.S.A., U.K., Japan and Norway, who among them own 60 per cent of the world's total.

The Chinese are considered to be the first to build tankers. In the eighteenth century they carried oil in junks which were about 17 metres long and had a capacity of 50 tonnes. Sailing tanks appeared in Europe during the 1860s in which oil was carried in barrels and tubs stowed as general cargo in their holds. But towards the end of the nineteenth century the oil trade expanded so greatly that methods of transporting it had to be revolutionised.

The first steamer designed exclusively to carry oil in bulk was built in U.K. in 1886 for a German company. Called the *Gluckauf* she was, in fact, a mobile oil tank—a "tanker". Her hull (the frame of the ship in contact with water) was designed to be the oil container, a sort of vast, sub-divided barrel. There were eight tanks in it. Her engine was placed in the after (hind) part minimising the risk from fire. In other cargo vessels the engine room is invariably located amidships (in the middle). *Gluckauf* was 90 metres long, weighed 2,387 tonnes, and was the prototype of the modern tanker.

In the period between the two world wars the large tanker was usually of 10,000 to 15,000 tonnes dead-weight. Its speed was about 11 knots.

After 1945, when the demand for oil became greater, tankers with much larger carrying capacity were called for. A class of ships, which came to be called supertankers, began to be built. *Vikram Jayanti* and *Lajpat Rai* belong to this class. *Vikram Jayanti* is about 230 metres long, 33 metres broad and has 20 tanks with a capacity of 52,000 tonnes. It has a speed of 16.5 knots. *Lajpat Rai* is about 215 metres long, 32 metres broad and has 24 tanks with a carrying capacity of 45,000 tonnes of oil. *The biggest vessel so far is Japan's 132,000 dwt tanker built in 1962.*

Explained in simple terms an oil tanker is nothing more than a floating oil-tight container divided into compartments and provided with pumping apparatus to take in and drive out oil and an engine to push it through water.

The holdspace of a tanker is divided into several tanks by fitting two or sometimes three longitudinal and many transverse bulkheads (partitions). These bulkheads restrict the movement of the free surface of the bulk liquid cargo stowed in the ship which might otherwise upset the stability of the vessel when it rolls in the sea.

Oil is loaded into the tanks through pipelines by using either steam pumps or turbine pumps controlled by valves set at various points. About 2,000 to 3,000 tonnes of oil may be pumped in in an hour. Tankers are generally loaded deeper in the water than dry

(*Continued on Page 28*)

Challenge to the Co-operative Sector

Procurement of Jowar in Maharashtra

V. M. JOGLEKAR

General Manager

Maharashtra State Co-operative Bank

MONOPOLY purchase of *jowar* by the Maharashtra Government through co-operatives has aroused considerable interest all over the country. In this article, it is proposed to describe the main features of the system, how it has worked and the results achieved.

Maharashtra State has a food deficit of about 2.2 million tonnes. During 1964, the prices of millets rose to unprecedented levels entirely unrelated to the prices of wheat and rice. The price of *jowar* at one time was around Rs. 100 per quintal. The benefit of this high price went to traders, for the producers had already parted with their marketable surplus soon after harvesting at a price ranging between Rs. 28 and Rs. 32 per quintal.

The Government of Maharashtra was forced by these events to recognise the need of preventing further rise in consumer prices. Experience in India has amply shown that price control is not possible without control of supplies. The State Government, therefore, decided to undertake the control and the management of internal supplies of food grains and thereby prevent the supplies getting into the hands of the traders. Millets are more important in the food economy of Maharashtra than in any other State and the State Government had to think in terms of a scheme of procurement of and orderly distribution of the dominant millet, namely *jowar*. It decided in favour of monopoly purchase of *jowar* at a fixed price throughout the year at Rs. 45 (for the superior variety) and Rs. 43 (for the common variety) per quintal.

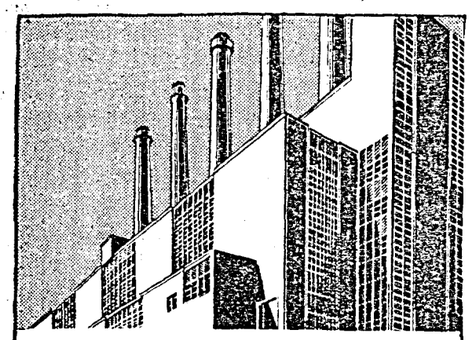
THE Government of Maharashtra then took a bold decision—to entrust this work of monopoly procurement to the co-operative sector. Although the Maharashtra State Co-operative Marketing Society was appointed as the sole procurement agent, it was visualised that all types of co-operative organisations would play their part in the total effort. It was understood that responsibility for all the transactions, starting with the purchase of *jowar* from producer and ending with its sale to consumer, would be taken over by one co-operative or another. In effect, therefore, it meant that the responsibility of managing the State-wide business was to be undertaken by the co-operative system as a whole.

The purchase operations involved opening of purchase centres and making arrangements for grading, weighing, packing and warehousing. The distribution operations involved transportation of procured *jowar* by rail or road to distribution centres in accordance with the Government's plan of distribution. Above all, these large operations involved substantial finances estimated at Rs. 15 crore and called for a detailed accounting procedure.

The vertical integration of the marketing system was of great importance. Nearly 800 purchase centres were opened covering all regulated markets and their sub-markets, traditional markets, *mandi* places and the like. The management of a centre was entrusted as far as possible to a local co-operative which acted as a sub-agent and to which was attached a trained grader of the State Co-operative Marketing Society. Godown space requirements were assessed in advance and classified under two categories, namely transit godowns and stocking godowns. Deficiencies therein were made good by requisition of adequate godown space through Collectors. Figures of daily procurement were reported to the State Co-operative Marketing Society by each centre, which, after consolidation, were quickly transmitted by the Maharashtra State Co-operative Marketing Society for the information of the Government. This enabled the Government to issue instructions for orderly distribution. Immediate transportation of *jowar* from procurement centres to the distribution centres within the district and outside was arranged, for which priority from the railways was obtained. *Jowar* was received at the consuming districts by appointed co-operatives which under the orders of the Collectors, issued the supplies to the consumer co-operatives and fair price shops, through which *jowar* was made available to the consumers.

These large operations needed elaborate arrangements of supervision. District procurement officers as well as divisional officers were appointed for that purpose.

AS mentioned earlier, the operations, which were carried on simultaneously throughout the State, called for large outlay of finances. All procurement centres had to be provided with sufficient money, continuously and at all times, so that cultivators bringing in *jowar* were paid immediately on weighment. The responsibility for finding the funds and remittances to the centres was undertaken by the Maharashtra State Co-operative Bank which operated through the district central co-operative banks and their numerous branches.



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DHUVARAN

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As a matter of fact, availability of a banking office at the purchase centre or near it facilitated supply of money for purchases, receiving sale proceeds and keeping accounts. This factor was also extremely important for setting up of the nucleus of a purchase organisation at short notice.

All the participating co-operatives, be it a primary marketing society or a consumer society or a service society or a branch of a district central co-operative bank or the institutions higher up, were conscious of their responsibilities. Failure to do the assigned job properly by a single co-operative meant failure of the co-operative system. In this context it must be admitted that for arousing such a consciousness, a certain minimum co-operative development is a pre-condition. This, fortunately, exists in the State. In effect, therefore, experienced leadership for conduct of operations at the lowest level was assured, which would be ready to accept the responsibilities in the new directions.

THE original procurement target was fixed by Government at 65 lakh bags of *jowar*, consisting of 29 lakh bags of *kharif jowar* and 36 lakh bags of *rabi jowar*. Subsequently, the target was reduced to 42 lakh bags. The actual procurement was, however, 24,90,070 bags.

It may be interesting to refer to the variety and the large number of co-operatives which participated in the scheme and subjected themselves to the discipline of co-operative system. To operate 387 centres and 452 sub-centres, as many as 257 co-operative societies were appointed as sub-agents. These consisted of nine district co-operative marketing societies, 220 primary credit societies, 27 service co-operatives and one co-operative processing society. Finances to these centres were made available at 300 bank branches through the respective district central co-operative banks.

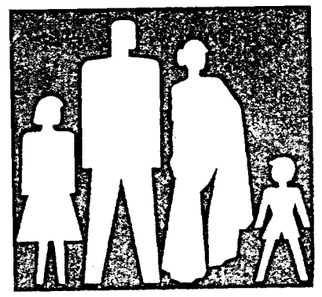
The Government of Maharashtra, in consultation with the State Co-operative Marketing Society and the State Co-operative Bank, worked out a schedule of costs which was added to the purchase price of *jowar* for arriving at the consumer price. *It was, therefore, possible to assure the consumers publicly that they were paying a reasonable price and that there was no exploitation of the situation.*

This markedly brings out the advantages of co-operative business over the private business. In a co-operative business, the consumers are entitled to call for clarification of the difference between the procurement or the purchase price and the retail price, while no such liberty can be taken with private trader who will not be inclined to disclose the details. It may, therefore, be hoped that the establishment of a social order in the trade is possible through co-operatives.

In this context, it would be worth while to reproduce the remarks of Dr. D.R. Gadgil, chairman of the Maharashtra State Co-operative Bank, when he reviewed the progress of the *jowar* procurement scheme. He said: "I have little doubt that in the long run, in the context of public operations of the nature and order of *jowar* procurement scheme, the co-operative system will not only prove to be able to operate in an efficient and responsible manner at all levels from capital to village but will also prove on an average to be less costly than any other."

3 MILLION IN TWO YEARS

THE LOOP GOOD RESPONSE



Interview with Col. Raina

As reported in *Yojana* of June 6, a Family Planning Information Week was held from July 15, its main theme being the popularisation of the Lippes Loop. Soon after the Week was completed a reporter of *Yojana* met Lt-Col. B.L. Raina, Director of Family Planning in the Central Government and had this conversation.

Question: How did the Family Planning Information Week go ? Was the response good ?

Answer: Yes. It has been very encouraging. But it is too early to tell you the exact number of people who came to the various centres. I can tell you about Delhi. Here, in twelve days, 32,000 people visited our exhibition. Women were most interested and more than 1,200 men sought guidance from us to go to clinics for sterilisation or to take their wives to be fitted with the intra-uterine contraceptive device (I.U.C.D.).

Question: Is I.U.C.D. becoming popular ?



Answer: Of course. For instance, in Delhi over 2,000 insertions were done during this week.

Question: What were the methods that you adopted to spread the message of the loop ?

Answer: All the media of mass communication were made use of—radio, press, cinema slides, exhibitions, hoardings, posters, leaflets, handouts. Three million folders on family planning including five lakh on the loop were issued in different languages. Two lakh posters were distributed and advertisements were put in newspapers of all languages.

Question: Have you made any film on I.U.C.D. ?

Answer: We have produced an instructional film-strip to train doctors. But among women news of the loop spreads effectively by word of mouth.

Question: In which part of the country was the loop most well received ?

Answer: It is too early to say. But from among the 356,400 loops distributed by us throughout the country the maximum off-take was by Mysore (60,000), West Bengal (55,000), Gujarat (36,000), Maharashtra (35,000) and Kerala (20,000).

Careful Check-up

Question: It was reported that in certain places, for instance in Kerala and West Bengal, a few women were turned back because they were 'unclean'. Is it true ? *I suppose it has nothing to do with untouchability.*

Answer: What! Too late in the day to speak of untouchability. And can anyone accuse women of Kerala of being unclean? That State is well known for its personal hygiene. Kerala women bathe at least twice a day. So there could be no question of bodily uncleanliness. If the news that they were turned back is true at all, there must be other reasons. You know, I.U.C.D. insertion has to be done by a doctor trained in the job. Before a woman is fitted with the loop she is carefully examined. In case she suffers from any vaginal disease, for instance some inflammation or cervical erosion, she is first treated for it and only afterwards fitted with the loop. Such cases are refused immediate insertion. So, please note this. Among all contraceptives I.U.C.D. alone has this advantage of providing for its recipient a medical check-up of the womb cervix, perhaps in some cases for the first time. If the person has any complication, treatment is given.

Question: Is the treatment given free ?

Answer: Yes, yes. In Hooghly district, where we had a campaign in April, the doctors told me that they detected several cases this way and that they treated them.

Only by Doctors

Question: You say that the loop can be fitted only by a trained doctor. Have you any training programme?

Answer: We do have a programme to train doctors, specially lady doctors, and we make the loop available only to those areas having trained doctors.

Question: What is the training?

Answer: Apart from talks and discussions the programme includes at least five insertions of the loop by the trainees under expert supervision.

Question: How many doctors have been trained so far ?

Answer: Several hundreds. Exact figures are yet to come. In Delhi about 100 doctors have been trained already.

Question: What is the duration of training ?

Answer: About a week, but it depends on the case load. Each doctor must get five cases. That means for 20 doctors there must be 100 cases. So it all depends on the number of women coming forward for the loop. In Delhi and other urban areas the case load is good.

Question: But it is the villages which have to be flooded with loops?

Answer: No doubt about that. But as in the case of any innovation, we have to start with cities and towns where expert attention is available and cases can be easily followed up. You must have noted that a change in social habits, a new fashion in dress, the use of a modern appliance, all these are first introduced in towns. From there the vogue spreads to the villages. So also in the case of the loop or any other family planning method. We have to go by stages. Generally social change occurs first in skilled groups, then in semi-skilled groups and then among the unskilled. We should expedite this process of transition. First, through education. That is, we must make them feel the necessity for a small family. Then, they must know the methods of control. Thirdly, the methods must be placed within their easy reach.

Other Methods

Question: You have more than 15,800 family planning clinics. Do all of them have the facilities for loop-fitting ?

Answer: No, as I told you, only where trained doctors are available are loops given.

Question: Then do they have other contraceptives ?

Answer: Yes, all of them have the conventional contraceptives like the condom, the diaphragm and so on. You see, I.U.C.D. is no doubt the most important addition to the methods now available for family planning. But we do not relax our efforts in extending our programmes of sterilisation and distribution of other contraceptives.

Question: But don't you think that the loop will be the most popular weapon for birth control ?

Answer: Yes, yes. There will surely be a swing towards I.U.C.D. in the same manner as we had a shift from sterilisation of women to sterilisation of men.

Question: How was that ?

Answer: When men found that vasectomy (sterilisation of men) was much easier and less complicated than sterilisation of women, the number of men volunteering for that increased very much. In the year 1956, something like 1,950 men and 4,853 women were sterilised. In 1964 the numbers were 195,018 and 69,091 respectively. You see the shift. In the same manner there may be a swing from sterilisation to I.U.C.D. because of its advantages.

20 Million by 1971

Question: How many women do you expect to have the loop in the next five years ?

Answer: This year we propose to do one million insertions, next year about 2 million and 2.3 million in 1967-68. By the end of the Fourth Plan we expect 20 million women to have I.U.C.D. We need not go very far. By that time, I believe, some new device may come up which may supplement or even replace the I.U.C.D. Technological progress is so fast, you know.

Question: But do you have enough doctors and other medical personnel to meet this snowballing demand for the loop? Have you calculated the number of doctors that will be needed?

Answer: The number of doctors in India is limited, more so women doctors. There are only about 12,000 women doctors now out of 100,000 practising doctors. As you know, we are dealing with a sub-continent. Theoretically it is easy to make calculations. But in practice one cannot go by simple arithmetic. To say, one doctor can do 20 insertions a day or 5,000 insertions in a year; so how many doctors are required to do 3 million insertions? You can calculate that a man carries so many bricks a day and so a dam will be built in so many days. But in this case we have to consider the distribution of doctors, specially women doctors in urban and rural areas, the urgent need for treatment of many serious diseases of the people and the non-availability of clients for the I.U.C.D. at certain seasons of the year. We can't have a regular stream of women throughout. I think with even the number of doctors available the proposed targets can be attained. Roughly in 1966-67 we must have 1,200 lady doctors for fitting the loops. Anyway all available doctors in maternity hospitals will have to be mobilised. When the demand rises, everyone who can help must lend a hand. At least 50 per cent of women who deliver in maternity hospitals must be fitted with I.U.C.D. In addition, the camp technique has to be adopted in greater measure.

Question: As in the case of vasectomy ?

Answer: Exactly. I.U.C.D. camps are even more popular than vasectomy camps. They are cheaper and easier to manage. In Maharashtra during the Family Planning Week and earlier several I.U.C.D. camps were organised and in one camp more than 400 insertions were done in a day. Before a camp is set up a good lot of mobilisation has to be done so that women flock to it.

Question: Are you employing retired women doctors for this programme?

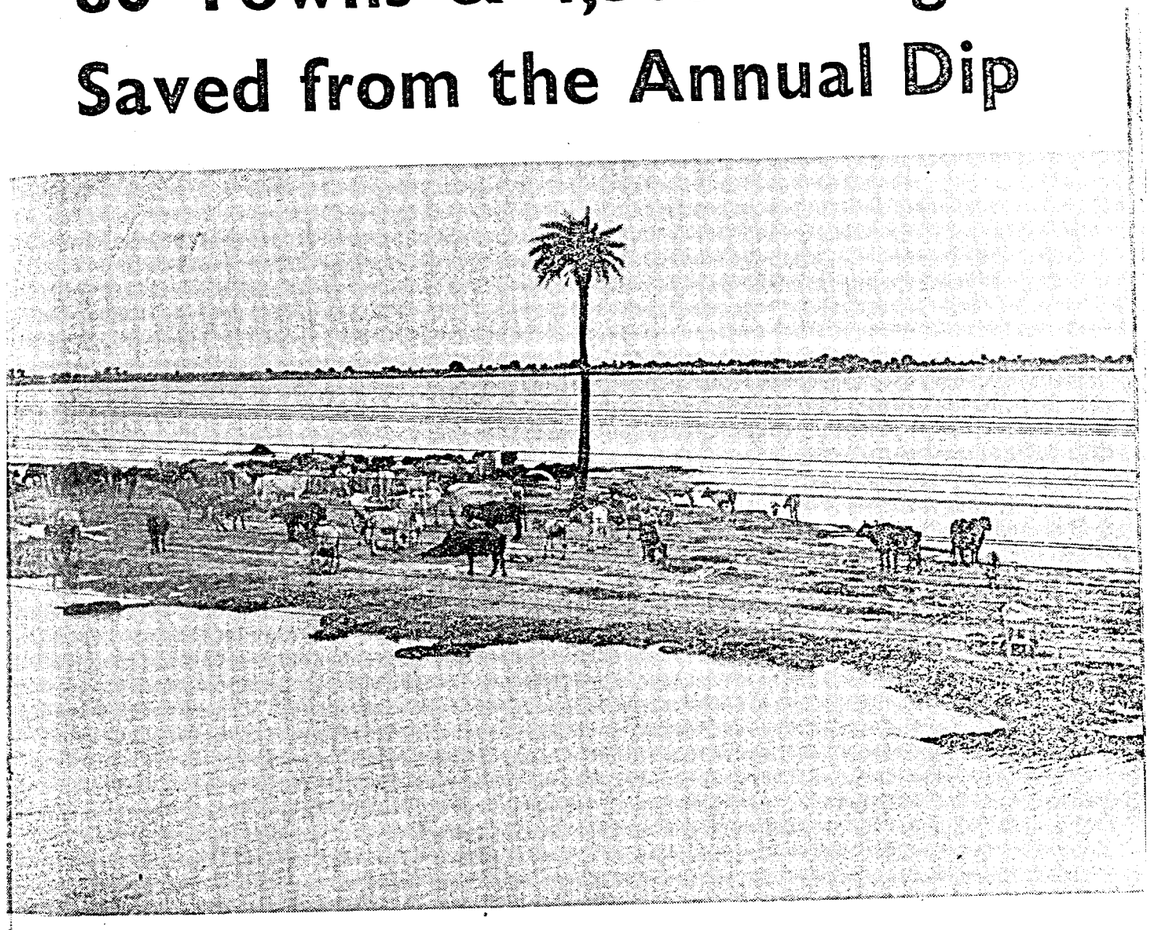
Answer: Not only retired women but even post-graduate students and fourth-year medical students can attend to these camps after usual training. And I feel that it should be incumbent on all those who pass from medical colleges to do a certain number of I.U.C.D. insertions before being awarded their degrees.

Question: Can't para-medical personnel be trained to handle loops ?

Answer: We considered that question carefully and concluded that it should not be done. You know why? As I told you, before fitting the loop,

(*Continued on Page 16*)

80 Towns & 4,300 Villages Saved from the Annual Dip



Whoever rules India, kings or elected governments, India's life is ruled by one autocrat—MONSOON. He is not a resident ruler, but an annual visitor. His arrival is awaited with prayer and trepidation. He is capricious. He is proverbially unpunctual, and he is partial in his favours. Whom he likes he smothers in a flood of bounty. But he is as loved as he is feared, for without him there is no renewal of the earth.

YOJANA REPORT

PROGRESS OF FLOOD CONTROL

MONSOON-TIME is flood-time in India. Floods, it has been estimated, cause destruction worth Rs. 68 crore and take a toll of 500 lives every year on an average. Millions of acres are submerged (although the farmer is able to retrieve his losses somewhat, because of the fresh, fruitful earth that floods often bring).

No nation has been able to eliminate floods, for man is yet to conquer rain and wind. But every nation tries, and tries hard, to control them. Countries with great rivers have had long histories of flood control.

FLOOD CONTROL : Rs 150 CRORE SPENT

BUT THREE-FOURTHS OF WORK LIES AHEAD : RS 1,000 CRORE NEEDED

The problem of monsoon countries like India is that most of the rain is concentrated in a few months instead of being spread over the year. The flood protection works that we need to build, bunds and walls, have to withstand greater thrust and pressure. We have to take care of points which are specially vulnerable.

As part of the national plan of integrated development a flood protection policy was evolved in September 1954.

That year had witnessed great destruction from angry waters. Thirty million people and 27.49 million acres were affected. Some 889 people died and 77,600 cattle were washed away. Crops valued at Rs. 78 crore on 15.35 million acres were harmed. More than 1.73 million houses were damaged.

In the last ten years, as a result of the National Flood Control Policy, over 4,300 villages normally marooned in the monsoon season have been raised above flood level, and 10 million acres of area usually subject to flood damage is now partially protected. Eighty town protection schemes have been completed. Nearly 4,300 miles of flood embankments have been built and 4,900 miles of drainage channels dug.

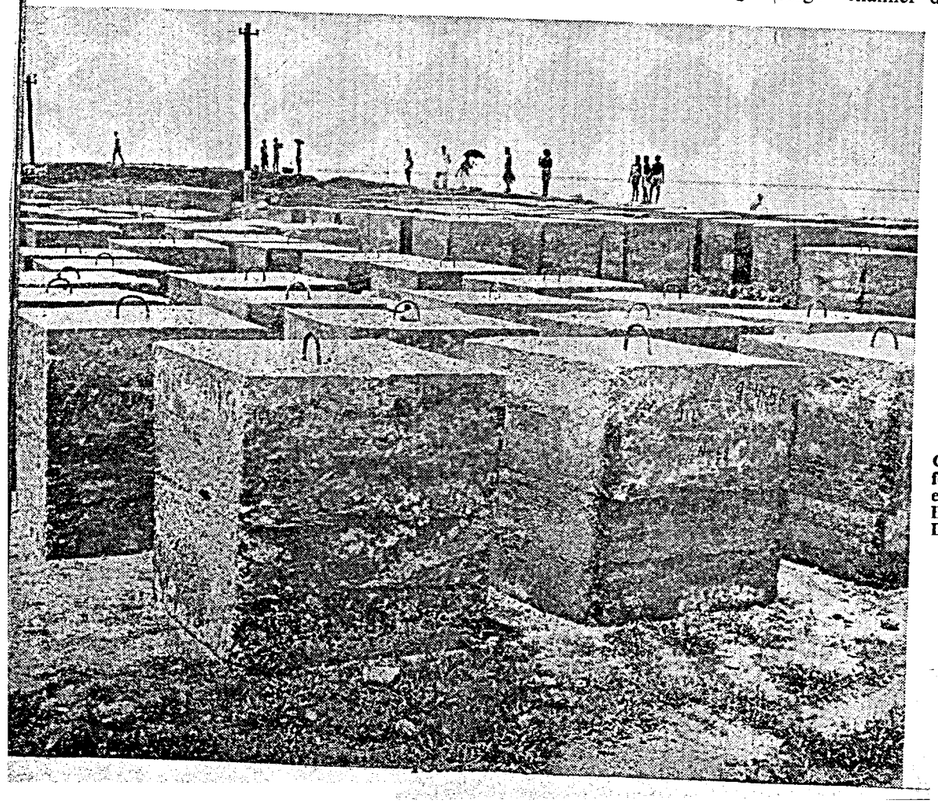
Two major river projects, with flood control as one of their important objectives, namely the Hirakud and the Damodar Valley projects, have been completed rendering some protection to eastern India.

The National Flood Control Policy had three phases: (1) the immediate; (2) the medium-term; and (3) the long-term.

The immediate phase extending over the first two years was devoted to collection of data and construction of urgent embankments and works to protect important towns.

The medium-term phase consisted of building channel diversions, raising villages, constructing more embankments and protecting more towns. This phase was completed by the end of the Second Plan period.

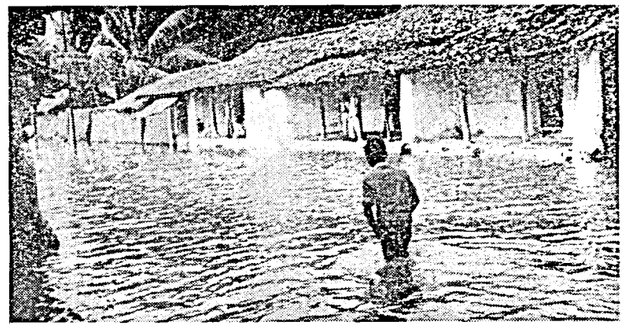
We are in the long-term phase now. It consists of building storage reservoirs, detention basins and additional embankments and digging larger channel diversions.



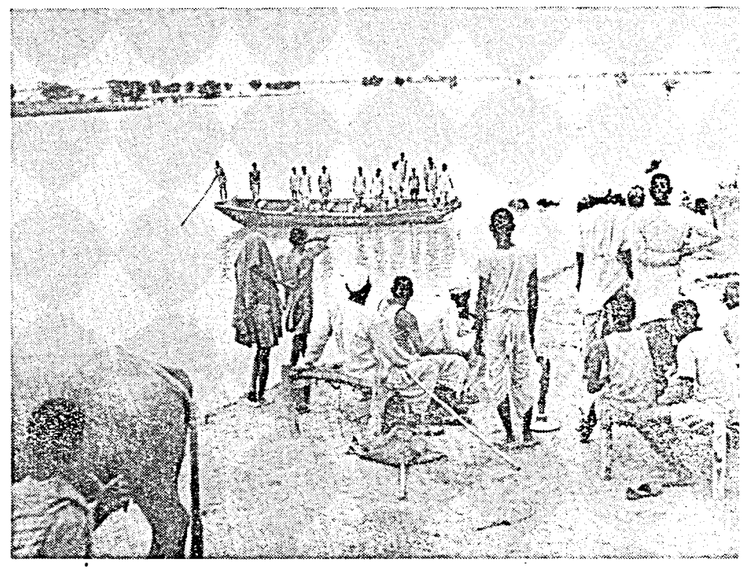
Concrete blocks made for building an embankment along the Brahmaputra near Dibrugarh, Assam

In the last ten years roughly Rs 150 crore have been spent on flood control, Rs 14 crore in the First Plan, Rs 50 crore in the Second Plan and Rs 84 crore in the Third Plan. The results achieved, enumerated above, were assessed by a Committee of Ministers a few months ago. The Committee has said that whatever was undertaken until now was the simpler part of the work, easier to accomplish, less demanding of money. Three-fourths of the task lies ahead. The long-term phase is more costly and complicated. The works now taken up, or contemplated, will require at least Rs 1,000 crore. The Fourth Plan has tentatively allocated Rs 125 crore.

When all this money is usefully spent, lives and valuable assets will become less vulnerable to deluge. But it is important to remember that floods can only be moderated, guided and controlled, not *eliminated*. Natural phenomena do not have to give an account of themselves to man. Rain and rivers will continue to be unpredictable. But man pits his skill and knowledge against them.



A boy wading through knee-deep water in Sosale, a Mysore village flooded by the Kaveri and Kapila rivers. Below: A boat arriving to rescue the marooned villagers near Delhi to a safer place.



Studies Taken Up

RIGHT now, the newspapers and the news bulletins on the radio are full of news of angry rivers and swirling waters. Memories go back to what happened last year—for the havoc in 1964 was almost as bad as that in 1954.

Last year's floods had some special features. There was more rainfall in the plains than in the hills. There was continuous downpour in July and August in some parts of the country, specially Punjab and Delhi. Even the small rivers like the Sahibi Nadi, the Ghaggar and the Kamla Balan were in high floods. Parts of Rajasthan were affected. Heavy rains occurred in Andhra late in September, flooding the Krishna and washing away parts of a bridge below Nagarjunasagar Dam. A swollen hill stream caused a breach in a tank and a wave of 10 to 15 feet passed through the town of Macherla.

The big rivers of the land—the Ganga, the Yamuna and the Brahmaputra—also had floods. The yearly woe was repeated in Assam, Bihar, West Bengal and the eastern districts of U.P. In all 28,477 villages were affected last year, and 639 lives were lost. Crops worth Rs 40 crore were damaged.

Even as the floods subsided, the Union and State Governments undertook an examination of what additional measures needed to be adopted, specially as part of the long-term phase of the National Flood Control Policy. Expert committees have been going into these measures, and their studies are in an advanced stage.

The areas and problems which are being studied are: the Upputeru area and the Krishna-Godavari deltaic region in Andhra Pradesh; erosion by the Brahmaputra; the Adhwara group of rivers in Bihar; and the Ujjina, Kaman Pahari and Govardhan drainage schemes of Rajasthan, Punjab and Uttar Pradesh. A report on the drainage problem of Delhi has already been submitted to Government.

The Central Flood Control Board and four River Commissions examine the inter-state aspects of flood control and the Central Water and Power Research Station at Poona conducts model experiments for finding remedial measures for flood problems. Two special problems it

has been studying are the erosion of the south bank of the Brahmaputra at Neamati. and the erosion of the Majuli island.

Four Flood Regions

INDIA can be divided into four flood regions covered by: (1) the Ganga, (2) the Brahmaputra, (3) the north-western rivers, and (4) the Central Indian and Deccan rivers. This hydrological classification is based on a broad regional similarity of the areas in respect of their meteorology, geology and topology.

In the Ganga basin, the major rivers having flood problems are the Yamuna, the Ghaghra, the Rapti, the Gandak, the Kamla, the Bagmati and the Kosi. This river basin covers a part of the Punjab, the States of Rajasthan, Uttar Pradesh, Bihar, West Bengal and the Union Territories of Delhi and Himachal Pradesh.

The problems in this river basin arise mainly from inundation, erosion and inadequate drainage of the countryside. Rivers like the Kosi and the Kamla change their courses frequently and cause enormous damage. In the prematurely reclaimed areas of the Sunderbans in West Bengal, tides sometimes synchronise with high floods, breaching embankments. In Punjab, parts of Uttar Pradesh and the southern part of West Bengal, floods are aggravated by drainage congestion.

In the Brahmaputra basin, apart from the Brahmaputra itself, floods are caused by the Barak, the Teesta, the Torsa and the Raidak. As Assam lies in a seismic zone, earthquakes have an influence on the flood problem of the region. The severe earthquake of 1950 brought about a big change in the regime of the Brahmaputra. The Teesta and the Torsa, in northern Bengal, like the Kosi in Bihar, change their courses frequently and cause considerable damage.

In the north-western basin, the major rivers are the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej. This basin covers the States of Jammu and Kashmir, parts of the Punjab and the Union Territory of Himachal Pradesh. In the Kashmir valley, the Jhelum is unable to carry the flood discharge. In the Punjab, the problem is mainly due to lack of adequate drainage. In some areas, "choes" or hill torrents change their courses abruptly and deposit silt over large areas, rendering them barren.

In the Central India and Deccan rivers basin, the major rivers causing flood are the Mahanadi, the Brahmani, the Baitarni, the Godavari, the Krishna, the Kaveri and the Tapti. In addition in Andhra Pradesh, the Kolleru lake submerges vast areas along its fringes. In Orissa, a difficult problem is created by the widespread inundation as a result of spills from the Subarnarekha. Drainage is inefficient, and the mouths of rivers such as the Mahanadi and the Baitarni are blocked by sand-bars.

Policy Reviewed

THE committee of ministers appointed last year to review the official action taken in pursuance of the National Flood Control Policy and to suggest future policy as also ways of financing flood control schemes, made its report in December 1964. The report is in three parts: Part I deals with all-India problems and policies; Part II gives a review of the flood situation in the different States; and Part III is a volume of maps of the States showing flood control works.

On the findings of the committee; its convener, Mr. M.P. Sinha of Bihar, said: "Our assessment shows that flood control work done in the country since 1954 has helped to solve only about 25 per cent of the problems, leaving, thus, a balance still needing vigorous attention in the future. Much more remains to be done than has already been done, before it can be said that protection from floods to the extent it is technically and economically feasible has been afforded to large numbers of our people."

As stated earlier, the committee found that a total length of 4,300 miles of new embankments had been constructed, about 4,900 miles of drainage channels excavated, eighty town protection schemes completed in different parts of India, over 4,300 marooned villages raised above flood level, and about 100 lakh acres of usually flood-affected areas partially protected from such damage.

Main Suggestions

The main recommendations are:

More care should be shown in maintaining large embankments. Gaon Sabhas or Zila Parishads might be entrusted with day-to-day responsibility.

More attention should be paid to methods of flood control other than embankments, such as minor, medium and major storages, inter-basin diversions, building canals and systems of flood warning, flood forecasting, flood plain zoning and flood insurance.

Flood control projects should be better co-ordinated with other water uses like irrigation, power and multi-purpose projects.

Individual, annual and successive five-year plans should be fitted into a general perspective plan which will further the objective of flood control.

Central and State Governments should arrange for training a greater number of technical personnel in flood control.

Flood Control in the Fourth Plan should receive a higher priority than in the preceding Plans, and as high a priority as agricultural production.

An outlay of the order of Rs 300 crore would be required if a reasonable advance is to be made in the various States and in the country as a whole for providing a fair degree of flood protection by the end of the Fourth Plan period.

State organisations for planning, investigation, design and maintenance of flood control works should be strengthened and streamlined.

Separate full-fledged flood control departments should be created at least in the major flood-affected States.

A Flood Control Board should be set up in Bihar on the model of the ones in Assam and Jammu & Kashmir.

Anti-sea erosion schemes should be regarded as falling outside the purview of flood control schemes. As coastal protection is beyond the resources of the States, the entire financial responsibility should be taken up by the Centre.

Foreign collaboration should be sought in matters of technical know-how and equipment and specialisation in the subject by Indian technical personnel should be encouraged.

MIXTURE NOT AS BEFORE

THE recent meeting of the Central Committee for Food Standards transacted serious business, but light relief wasn't wanting. The Committee had to give an opinion on whether camel's and donkey's milk could be drunk. The verdict was 'yes', although there is little likelihood of city milk supply schemes based on these two dependable animals.

The Committee was also worried about the use of coal tar dyes in vegetable sauces, and about the fact that what was sold as tomato sauce was not made from tomato at all but from pumpkins etc.

The filthy conditions in which ice-cream is made was another of the subjects discussed by the Committee. A sub-group came up with the suggestion that "suitable rules must be framed".

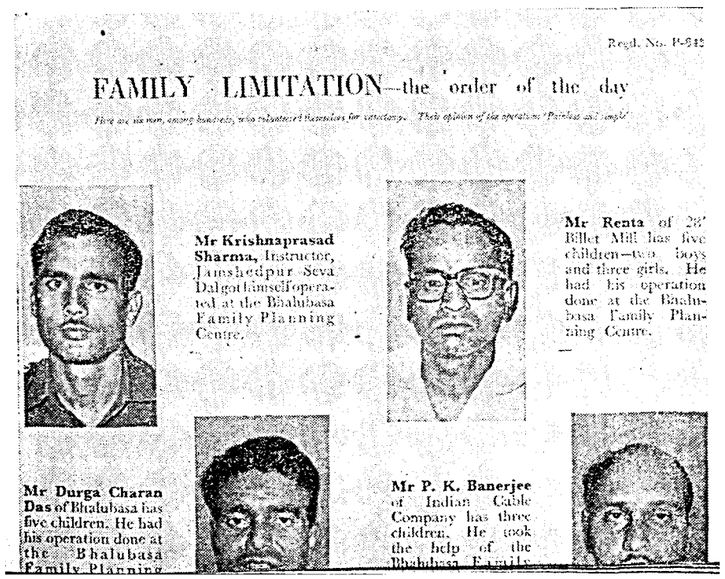
Rules have to be framed *and* administered. But it is well known how under-staffed the food inspection agencies of our municipalities are. Even if they are expanded ten times, can we cure our people of the habit of eating cut fruit and fly-kissed food?

Habit, we said. But the habit itself is rooted in poverty. The first question our people ask when buying a thing is not "Is it good stuff?" but "Is it cheap?" For the sake of the all-important price margin we are ready to buy disease and death.

A writer in "Capital", Calcutta, said that we are at a stage when talking rubbish isn't enough, we have to be eating rubbish too. The ultimate deterrent is the consumer's ability to say no. As we saw, empty pockets make it very hard for people to say no.

The United States is proud of its food purity. A recent article proclaimed that "nowhere in the world do people buy with so little hesitation". This is due partly to the way consumers assert their right, partly to the enlightened self-interest of the manufacturers themselves and partly to the thorough laws the country has for food and drugs. President Kennedy could speak of the citizen's right to safety, right to be informed, right to choose and right to be heard in respect of food and drugs.

By calling adulteration a heinous crime we are not going to solve these problems. Those who have no conscience cannot be appealed to. Punishment helps, it if is harsh. But it is only when more people earn more that foul food and adulteration can be done away with.





IGNORAMAN
Wants to Know

if Government is permitting prices to rise so as to force family planning

They Lead

MOST big industrial establishments have house magazines. Some of them tend to get too arty-crafty; others give a little too much about the big men. One house magazine that we find always interesting, because of the way it describes the achievements of the small men, is *Tisco News*. Whenever any worker of Tata Iron and Steel does something notable, like devising an improvement or effecting a saving of time or money, we can be sure of seeing a short account of it in *Tisco News* with a picture of the person.

The picture alongside shows a page from a recent issue of the journal. It is a fine idea to honour the workers who have undergone vasectomy, and to hold them up as those who show the path. An important thing in the family planning campaign is to dispel the sense of hush-hush and create the feeling that it is the done thing.

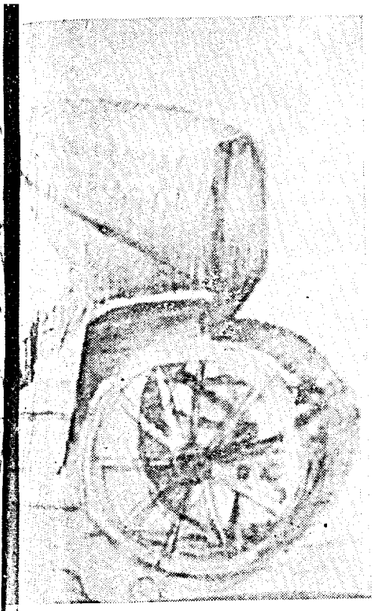
Collector's Item

From an article on monkeys in *Life* magazine:

"Dr Phyllis Jay also uncovered one minor but fascinating piece of langur information. All north Indian langurs carry their tails looped over their backs; all south Indian langurs loop their tails in the opposite direction."







HUMAN BOMBAY

Sketches:
V. B. Dholekar









Essay : N.V. Murty

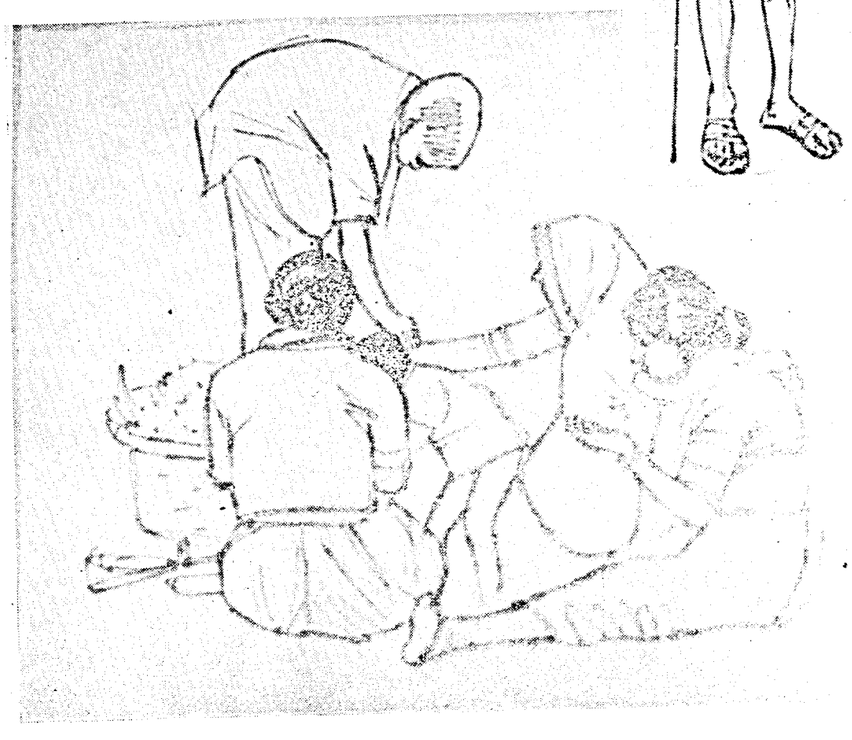
WHICH is India's first city ? Between Bombay and Calcutta there is always an argument. Bombay is listed first by the Census report; but the Greater Calcutta complex has at least a million more people than Bombay's four and a half million.

Both towns grew up about the same time and under the same foster-mother—British trade and ambition.

The seven rocky fishing islands that were once a princess's dowry are now a republic's ransom. For long Bombay has been India's gateway to the west. It claims to be India's most active, most businesslike, most cosmopolitan city.

Bombay is *teji* and *mandi*, cotton and shares, banks and Irani restaurants. To the visitor, Indian and foreign, Bombay is the Gateway of India, the Taj Mahal Hotel, Elephanta Caves, Atomic Energy, oil and milk. To some, it means week-end shacks in Juhu and high life on Malabar Hill, a pin-cushion stuck with multi-storeyed buildings. To the young, Bombay means films, hot dancing, cool fashions and even casual attendance at college.

But to a Bombay-born artist, 34-year-old Vasoo Dholekar, Bombay means human beings. The working people of Bombay have come from North, South and East. They have come from long distances, but have



made Bombay their home.

There are the Victoriawallas—alas, a dwindling group. Most Victoriawallas of Bombay city originally came from far-off Channapatna in Mysore State. But they are firmly rooted in Bombay. They are a pathetic picture now, even as their *gharries* are shabby. But they carry on, clinging to the only way of life they have always known and loved.

Then there are the Kamatis, the building workers from Andhra Pradesh. The tall proud edifices which make, I almost said mar, the skyline of Bombay are their handiwork. Living from one construction to another, these hard-working people are today an integral part of Bombay, and the centre of the town is called after them.

The ubiquitous *chanawallas*, originally from Uttar Pradesh, are perhaps next only to film stars in their popularity. They are true socialists. If all Indians are equal before the law, all Bombayites are equal before the *chanawalla*. The rich and poor alike patronise him and he is impartial to his patrons.

Then there is the *dubbawala*. He is an institution by himself. The distribution of thousands upon thousands of lunch boxes, day after working day, with unerring accuracy, is perhaps one of the most highly organised private enterprises in the country. The job seems to call for special talents, which are found in plenty among the people of Satara and Marathwada.

The advent of plastics may be a boon to the modern housewife. But plastics are certainly not popular with the good old bucket-repairer. There are fewer metal buckets in use and this may account for the smaller band of bucket repairers, with their compact but effective set of tools, carried in a small bundle on their heads.

These are only a few who go to make the colourful mosaic of humanity in Bombay. These are the people who keep the heart of the great metropolis ticking.

Bombay is human beings: even its streets are made of them.

The artist, Vasoo B. Dholekar, is an alumnus of the J.J. School of Arts and works in the Animation Department of the Films Division. An exhibition of his sketches was held recently in the Soviet Union.

LOOP AROUSES INTEREST

(Continued from Page 8)

a preliminary medical check-up has to be made. Then the fitting also must be done properly and by a trained doctor. Otherwise all sorts of complications may arise. In any case para-medical personnel should not insert the device at the present stage.

Question: But how will you prevent para-medical personnel from doing it ?

Answer: The local health administrative machinery will take care of any misuse of the I.U.C.D.

Question: Have all your clinics women doctors ?

Answer: No, but I have encouraging reports from some places that women are accepting male doctors for I.U.C.D. insertions.

Caution

Question: Some foreign doctors were reported to have said at a recent Seminar held at Bombay that the reuse of the plastic inserter for the Intra Uterine Device carries the risk of spreading hepatitis infection because it cannot be heated. What do you say to that ?

Answer: If the inserter is properly washed and kept for 24 hours in an antiseptic solution recommended for the purpose, the chances of infection are very, very remote. Anyway to allay such unfounded fears about the inserter, we are devising a metal inserter which can be boiled and sterilised thoroughly.

Question: Will V.D. be transmitted by the reuse of the inserter ?

Answer: There is no chance, if cases are examined before insertion by a doctor.

The Moral Question

Question: There is a general belief that a woman who has had no children cannot be fitted with the loop.

Answer: In the case of a woman who has had no baby, the incidence of expulsion of the loop or of pain after insertion may be more. That is natural. But sometimes such women insist on having the loop. I saw a case in Buffalo in U.S.A., where a young, newly married woman insisted on insertion and Dr Lippes inserted it.

Question: Don't you agree that the popularisation of the loop will encourage pre-marital relations ?

Answer: I don't. Social mores in our country are such that family planning practices will not affect morality.

Question: You have the factory at Kanpur manufacturing the loops. What is its production capacity ?

Answer: Ten thousand a day. But we are not releasing them for general use. The trial samples have been produced. Regular production will start soon. For the present we are distributing imported loops supplied by the Population Council of New York.

Question: Does the factory get any foreign aid ?

Answer: No foreign aid as such. It has only Indian resources. However, consultant services, the thread which is tied to the device, and the mould have been provided by the Population Council.

Question: It was reported that co-operatives are to be entrusted with the work of stocking and entrusting contraceptives.

Answer: Yes, that might form the topic for an article later.'

Books Received

Management of Public Debt in India. Published by National Council of Applied Economic Research, New Delhi. 158 pages. Rs 18.

Soil Testing in India (Second Edition) by Gilbert R. Muhr, N.P.Datta, H. Sankarasubramoney, V.K. Lele, Roy L. Donahue. Published by United States Agency for International Development Mission to India, New Delhi. 120 pages.

The Indian Year Book of Education 1961. 420 pages. Rs 17. *Working with Village People* (A Collection of Case Studies) by Sushila Mehta. National Council of Educational Research & Training, New Delhi 111 pages. Rs 1.25.

Nepal's Finances. Published by His Majesty's Government, Ministry of Finance, Khatmandu. 67 pages.

Agricultural Universities

They Meet Rural India's Special Needs

K.A.P. STEVENSON

In the last five years agricultural universities have come up in seven States of the Indian Union. There is a growing demand for at least one such university in each State. What is the role of these universities? How do they differ from agricultural colleges affiliated to the traditional universities? Can there, in fact, be a university which lays so great an emphasis on a single discipline—agriculture? How are the new universities functioning? These and several other related questions have been raised on university campuses since the day the first agricultural university opened in the very heart of what was once a deserted swamp jungle but is now one of the most progressive and prosperous farming areas in India —the Terai of Uttar Pradesh.

The need for an agricultural university stems from the basic need of the country—the development of agriculture. The vision of the future is the removal of poverty and assuring to the masses of our people the opportunity to lead a good life. If the vision of the future is to become a reality, the rural economy, the base of which is agriculture, has to develop and progress.

The main purpose in establishing the agricultural universities was to foster this spirit of transformation by bringing science to the door of the farmer, both through the activities of the universities themselves and also through the knowledge, drive and initiative of the students who, on graduation, will carry the message to the field.

Action–Oriented

The needs of agricultural education differ considerably from those of other subjects. Teaching must be action-oriented, must emphasise the practical and be associated with existing problems in the field. This was, however, not always possible in colleges affiliated to existing universities where course contents, curricula and teaching methods were determined by relatively fixed syllabi and were aimed at enabling students to pass external examinations.

There were other barriers, both in time and procedure, set in the way of change. In some of the traditional universities, the departments of agriculture and veterinary science had been linked to faculties of law, commerce, civil engineering, natural science and the like—faculties far removed and intrinsically different from agriculture. It was extremely difficult under these conditions to adapt agricultural teaching and research to our changing needs. Agricultural colleges needed autonomy to shape their own destinies and to link their basic approach to the needs of farmers. They had somehow to be free from senates and academic councils dominated by eminent *litterateurs* and scientists totally uninterested in agriculture and its problems and often relatively condescending in their approach. Many existing agricultural colleges were Government colleges, controlled largely by State directors of agriculture. It is virtually impossible for educational institutions to function if day-to-day matters have to be referred to departmental officers or the Secretariat.

The answer, therefore, lay in an autonomous university solving its own problems, responsible only to the needs of the people themselves—the large agricultural community which forms 70 per cent of our population.

Many Faculties

One of the most frequent criticisms levelled at the agricultural universities is that they cater for a single discipline as distinct from the multi-disciplined traditional universities. If that were true, it is indeed a valid criticism, for no student can claim the privilege of a university education unless he has been subjected to disciplines other than the field of his specialisation.

The criticism, however, is based on a misunderstanding of the present position. For instance, on a single campus, the U.P. Agricultural University has today faculties of agriculture, veterinary medicine, agricultural engineering and basic sciences and humanities, and hopes to start within the Fourth Plan a faculty of home science. It teaches, besides the professional courses, languages, economics, sociology, physics, chemistry, mathematics, botany, zoology, and several other subjects. All students live within the university campus and are subjected to all disciplines.

The agricultural universities should and do provide service courses in the arts to train their students to be good citizens with a knowledge of our past and a proper sense of values. On the other hand, those who criticise the agricultural universities as being single-discipline universities are often unmindful of the lack of facilities for inter-disciplinary contact in existing colleges of agriculture and veterinary medicine in the traditional universities themselves. These colleges were established long after the arts and science colleges and are mostly located in cities far distant from the main university campus. Their students have little contact with students of other colleges and are often subjected to one discipline only—either agriculture or veterinary medicine.

Apart from such comparisons, it is obvious that if the agricultural universities are to prosper, they

must encourage the growth of strong departments or indeed colleges of basic sciences and humanities. When some of the new agricultural universities have been established by taking over existing institutions, this has not been possible except to a very limited extent. Strong faculties in the pure sciences are necessary condition of the growth of agricultural science and no agricultural university can be without them. This has been clearly recognised and, in these agricultural universities which have started post-graduate education, master's degrees are being given in pure science subjects also.

Another criticism is often levelled against agricultural universities. Farming conditions and problems in the U.S.A., it is pointed out, differ considerably from those in India; yet the new universities have modelled themselves too closely on American patterns. This too is really a misunderstanding of the real position. The agricultural universities have certainly not tried to adopt American solutions to solve the problems of Indian agriculture—they have merely introduced certain methods which would help them find solutions to Indian problems. Their aim is to bring higher education closer to the farmer by associating the staff and students of the university with current problems in the field. The staff, besides its teaching duties, has the added responsibility for research which extends beyond the laboratory and the university must, through its extension service, take the results of this research to the field, and, at the same time, bring back to the research workers new problems from the field.

Agricultural research in the past has tended to be too pedantic—aimed at the publication of a paper in an academic journal rather than solving the problems of the farmer. Very often, these problems were largely unknown to the scientists working in ivory towers. This has led to a wide gulf between the farmer and the research worker with a lack of trust that has made it difficult to convince the farmer that agricultural research has been undertaken for his benefit. The new university must try to inspire confidence in the scientific approach by demonstrating to the farmer that there is no dichotomy between research and practical farming.

Vast Potentialities

It is still premature to evaluate the contribution of the new universities. In the realm of teaching, they have made a good start. The new curriculum, broken down into courses on a trimester system, provides scope for teaching the latest techniques. Its flexibility permits instruction on current problems and the latest solutions to these problems. The fact that the various faculties are represented on an Academic Council that is primarily associated with the development of agriculture has facilitated the process of change. The students have benefited by this new approach to teaching and have been able to play a more active role in the wider context of agricultural development. Many of the students of the universities, with the help of organised placement services, have found openings in fields which were formerly denied to agricultural graduates. They have secured positions of responsibility in industry associated with agriculture, such as the management of tea estates and medicinal plant farms and other such organisations which are based on agricultural produce. The average pay of graduates from the new universities is considerably higher than those from the old colleges of agriculture.

The mushroom growth of agricultural colleges affiliated to the existing universities has, in some States, created a surplus of agricultural graduates. There is still some confusion as to the role of the University Grants Commission with reference to the agricultural universities. At present they are State universities co-ordinated somewhat loosely by the Indian Council of Agricultural Research which provides grants. It is really necessary that they should, as they develop, come within the aegis of the University Grants Commission.

In the field of research, the position of the new universities is still fluid. Some agricultural universities are closely associated with all research conducted in the State whereas others are denied this privilege. Historically speaking, almost all agricultural research in a State has been under the direction of the department of agriculture. The department is jealous of its rights and is besides not convinced that the university can adequately take over agricultural research for the State as a whole. There is considerable force in this argument as the universities are new and are still in the process of establishing their teaching departments. There are also personnel problems such as the transfer to the university of the services of Government servants engaged in research. At the same time, it must be recognised that agriculture can truly prosper only if research and teaching are linked.

Extension Work

Similarly, in the field of extension, the staff and students of the agricultural universities must be associated with the problem of carrying science to the door of the farmer. The universities have to be in a position to know the problems of the field in order to be able to suggest possible solutions. At the same time, many of the States are too large for all extension agencies to be controlled by the university. The problems of extension today are still very closely linked with the supply of material inputs such as fertilisers, seed, pesticides etc. all of which are service problems which really do not belong to the sphere of the university. They are organised today by the departments of agriculture and, in any set-up, will continue to be so managed. The university can never be a distribution agency for these material inputs.

A workable solution consists not in thinking in terms of control by one agency or the other, but in terms of a closer association to the mutual benefit of both. When the universities grow in experience and stature that mutual trust will flourish and a solution to this problem will emerge.

The nation today faces the crucial problem of meeting the food requirements of our growing population. The escalation in food prices which so dominates the current scene has brought into sharp focus the deficiencies of our agricultural production programmes. It poses the challenge of finding new ways of increasing agricultural production and encourages us to make every effort to push forward the farmer's frontier.

Mr Stevenson is a former Vice-Chancellor of the U.P. Agriculture University and is now Joint Secretary in the Planning Commission. The article was published first in the Journal of University Education.

Books

Clean People, Unclean Country

Clean People and An Unclean Country by N. R. Malkani. Harijan Sevak Sangh, Delhi. 144 Pages.

Gourish Kaikini

MOTHER INDIA, that greatly maligned book by Miss Mayo, was anathematised as "a drain-inspector's report" by Mahatma Gandhi. Were he living today, how would the Mahatma describe this book by Prof. N.R. Malkani, one of his direct and intimate disciples? In fact, this is such a report—or is based on such reports—in the best and widest sense of that famous phrase. We can say without much exaggeration that Gandhiji would have called this book "the Bhagavad-Gita of Bhangi Mukti."

This excellent book deals at length with the problem of scavenging and scavengers of our country. It is a most opportune and a never-too-soon eye-opener for us; assuming, of course, we have eyes to open.

Prof. Malkani has compressed in this small volume of 16 essays and 129 pages a wealth of experience gained as a Harijan worker and as chairman of the committees on scavenging conditions. As far back as 1934 he was joint secretary of the All-India Harijan Sevak Sangh. Even before that, he had worked for the Harijan cause at the Sabarmati Ashram in 1925. There cannot be a more authoritative treatise on this festering problem of "Clean People in an Unclean Country", nor can there be a better trained and qualified author.

Every aspect of the problem—the individual, the social, the municipal, the governmental and the national, the historical as well as the psychological—has been dealt with in a frank, practical and scientific way. It is thorough without being laborious. A point of view is put forth without argumentativeness. The book is recommended for all those who work for what is called social engineering, whether officers, volunteers or citizens, keen on improving slums and uplifting the Bhangi from the filth to which he has been consigned by history in our country.

Despite the innate sordidness of the subject matter, the book is of absorbing interest. The exposition pulsates with deep humanity, and every page has a subdued eloquence which springs from a social faith.

The fact that the book is a compilation of papers written at different times does not hurt the essential unity of its theme and argument. But the chapters lack organic continuity. For not only the matter, but also the manner of exposition repeats itself. This would not have been so had the author written it at one stretch as a book.

Gandhiji once wrote: "The task of redeeming the Bhangi from his present plight and redeeming society from its terrible insanitation is work enough to satisfy the highest ambition of one who has the spirit of service in him."

Prof. Malkani confesses he is not a model Bhangi, although he says, "I am almost free of instinctive and irrational repulsion of the common Hindu for night soil."

Here lies the crux of the problem—in this "irrational and instinctive repulsion of the common Hindu." This book is addressed to the intelligent Indian on a subject about which there is great ignorance and greater prejudice.

The second chapter is of great interest as it gives some reminiscences of Gandhian cleanliness. Gandhiji's closet was well known as his "library". He did his reading there. He was, according to Prof. Malkani, the cleanliest Mahatma that the world has ever known. (But how can the Professor be so very sure? Does he know anything adverse about the cleanliness of, say, the Buddha, Christ, or any other Mahatma, old or new?) The Mahatma's intense preoccupation, verging on obsession, with the commode, human excreta and defecation ought to be studied psychoanalytically too. It seems to be a curious aspect of the saint complex. The Gandhian Professor is silent on this point.

And so is he on our alleged cleanliness. He calls us a "clean people" and calls our country unclean. But as he himself has so eloquently and elaborately proved, the Bhangi is the peculiar product of our civilisation. God-made country is always clean. The title should be the other way—"Unclean People in a Clean Country". The author says that much of our cleanliness is ritual. It is then really a dirty holiness, which the author could have discussed at greater length.

The fifth and the sixth chapters describe "what happens to a Top Priority", namely schemes of urban water supply and drainage, in our five-year plans. He has laid bare the shameful fact that in Plan after Plan large sums are allocated for these priorities and actual implementation falls far too short of the target.

Chapters 13, 14 and 15 deal with the sanitary and scavenging conditions—filth and flies as well—obtaining in Tamil Nad, Punjab and Maharashtra. The documentation is useful. The sixteenth chapter sums up the life and lot of the Bhangi in India. We have reduced him to the state of the filth he carries.

It is worth the trouble to get the gist of the other chapters that are more germane to the subject. In chapter I Prof. Malkani points out that there are 3,000 or more castes (and 500 or more kinds of *out* castes!) in India of which the Bhangi is the lowest. Even the sweeper thinks he is superior to the Bhangi. We give impressive new appellations to the Bhangi to mollify our conscience. We call him 'Mehtar', 'Balmiki', 'Lal Begi' and what not

Gandhiji added one more word—'Harijan'. Muslims call him 'Halalkhor', rather correctly. Whatever the high-sounding name, the Bhangi smells as foul as ever, because of the work he does.

The author advocates adoption of a scientific attitude and eradication of our ritualistic outlook. "Sanitation should be cultivated as an art of life," he says. According to him, "the depth of degradation of scavenging is due to its unseeability, unapproachability and untouchability."

In the third chapter the author discusses the tools required for the work and the standard sanitary type of a closet. The different types of latrines in vogue in India are described, testifying to the study of the subject made by the author. Indignation at the indignity suffered by the Bhangi and the apathy of the public and officialdom makes the author remark: "A few strikes against the existing practice may create new tensions and help to find healthy solutions. Five per cent of Bhangis might be replaced by 5 per cent of caste Hindus, preferably Brahmins....Things would change if the Hindus have much less and Bhangis much more repugnance for night soil."

The author has much to say about the public latrine. A public latrine being everybody's is looked after by nobody. Yet it is a dire necessity, as 50 per cent of houses have no latrines. So it must be built in the most crowded place and preferably kept underground as in Europe—but kept scrupulously clean. It should be in charge of a special scavenger living in a hut on the spot to keep it well flushed. For a water-borne latrine without water is much worse.

Prof. Malkani suggests three alterations to the standard type of latrine:

1. The scavenger must have direct access to the latrine like the user. This will bring about a basic change in the attitude of the users.

2. The washing seat should be separate from the easing seat—so that night soil, urine and water do not get mixed up.

3. Regulation iron pans 16"×8"×4" exactly under the seat and so fitting in a sort of a socket as a drawer in a table, with a few perforations to drain the water, should be in use. This must be supplied at the cost of the municipality every six months and made obligatory. (A wooden lid should be hinged to the seat to cover it after every use.)

The author says a latrine should give one the sensation of squatting in an enclosed jungle and must not be a dark, choking den, cramping and abhorrent. But why does the public allow its latrines to become such foul dens? Is it merely mental sloth? Or is it something deeper, a sub-conscious urge? Has it anything to do with the anal-eroticism that Freudians mention? Otherwise why should our *lakshanikas* find an established place for *beebhatsa* as a prominent *rasa*?

The sixteenth chapter traces the history of the Bhangi caste and that of the efforts for its uplift in this century. The author avers that science and technology in the domain of public health can only be a positive good. In this connection he suggests that priority must be given to underground drainage schemes in all towns above a population of 25,000 and along with it the erection of water-borne latrines in every house.

The author has given careful thought even to the problem of the idle Bhangi. Scavenging is an easy, filthy job for three hours (often got done by the Bhangi through his wife or children) and no work for the rest of the day. Most of the social evils in this caste can be attributed to this habit of idleness. The author strongly recommends supplementary cottage industries like poultry farming, silkworm-rearing and Ambar spinning.

A precious book, and the publishers don't seem to have fixed any price. Why not order your copy and read it today?

PEPPER EXPORT PROBLEMS

Export Prospects of Pepper. Brought out by the National Council of Applied Economic Research, New Delhi. 105 pages. Rs. 10.50.

THE monograph of the National Council of Appplied Economic Research presents a careful analysis of the trends in the pepper export trade. A key point not often known is that the bulk of Indian production is available for export and the U.S.A. remains the best or the chief market. The crop, grown mainly in Kerala and Mysore, is still a small cultivator's speciality though some coffee estates usually retain some area under pepper cultivation. The high prices ruling in the past led to the levy of an export duty but the more important change seen is the sale to Eastern Europe including Russia instead of the U.S.A. This is not really a benefit. In Western Europe, India's keen rivals are Sarawak and Indonesia. India has no place in the French market supplied by the Madagascar Republic, the source of supply for North Africa also.

How far high prices ruling since 1960 are check to exports is not examined fully but speculation in the commodity accentuates price fluctuations and the whole issue of expansion may rest on the stricter control of speculative trading in spices which only rises as the import curbs increase. Hints on grading, packing and grinding are furnished by the analyst (Dr. P.C. Jain) who argues that more publicity for Indian pepper should be undertaken as in the case of cashewnuts which have been selling better of late in North America. The way to get higher yields by proper manuring and replacement of old vines is another aspect of local agricultural development related to the export trade. Nothing is said as to the efforts of the State Trading Corporation's entry into the export trade in pepper also. Nor is notice taken of the trade organisation that lends itself to sudden or excessive speculation in Singapore (and in London too in the past). The Pepper Pool Crash of 1936 was only a rude reminder of what gambling in spices implies.

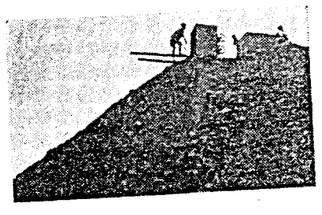
A useful study of a commodity though nobody hopes that pepper exports will go up greater because the foreign appetite is limited. The trade statistics assembled are impressive though the inferences cannot be now described as very encouraging.

M. K. R.

ENERGY

Experts See 3.5 Times Rise in Need over 20-Year Period

ONE of the more remarkable developments in our country is the increase in the production of electricity. As much apacity for power production is being newly installed *every ear* as had been put up in the first 25 years of this century.



BETTER USE OF COAL AND FORESTS, MORE RESEARCH IN EQUIPMENT, LESS RELIANCE ON OIL IMPORT SUGGESTED

Yet electricity meets only 4 per cent of the energy needs of the country. *Energy* is that which provides heat and light and runs numerous kinds of machines. Coal, kerosene, petrol, diesel oil, electricity, firewood, charcoal—and, *yes*, even cowdung—all these are our sources of energy.

The bulk of energy in our country does not yet go into industrial production but into domestic use—for cooking and keeping warm. The biggest single source of energy is *firewood*. Forests provide a full 40 per cent of India's energy needs; cowdung and waste products another 15 per cent; coal 22 per cent; and oil 19 per cent.

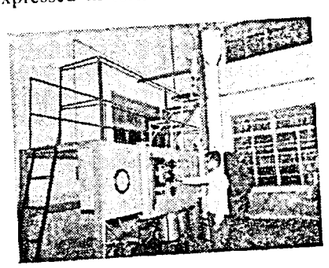
A running man needs, and uses up, more energy than a sleeping or sitting man. A growing economy requires more energy than a stagnant economy. A higher level of technology means that more electricity and oil are consumed. The importance that Lenin attached to electric power as a means of modernising the Soviet Union is well-known. Every modern nation has to keep thinking about power resources and power supplies. Energy planning is one of the crucial components of all planning.

Because progress is so dependent on energy, and because it is so important to have a clear idea of the energy requirements at successive stages, the Government set up an Energy Survey Committee in 1963. Its report has just come out.

The Committee had on it very distinguished experts and administrators, from our country and abroad. One of the four foreign members, and the main author of the report, was Professor Austin Robinson of Cambridge. Prof. Robinson knows India well, having been tutor to the Maharaja of Gwalior forty years ago, and has had vast administrative experience as adviser to the Ministry of Production of Wartime Britain and the British Board of Trade. He has also been chairman of the European Energy Advisory Commission for thirteen years. Two distinguished American consultants, Mr A. E. Bush and Mr H. Tauber were also associated with the work.

Assuming that the Indian economy should grow by 7 per cent every year and industrial production by 10 per cent, as proposed by the Perspective Planning papers of the Planning Commission, the Energy Survey Committee says that our energy needs, with 1960-61 as the base, will grow 1.8 times by 1970-71, about 2.5 times by 1975-76 and 3.5 times by 1980-81.

The total demand for energy, expressed in terms of the equivalent



in coal, was 242 million tonnes in 1960-61. In the coming five years this will have risen to 439 million tonnes. By 1981 the need will be 857 million tonnes.

To pick out the main recommendations from a 450-page document into which so much insight and care have gone would be doing it an injustice, but the Committee's advice to India is on the following lines:

The forests are being denuded at an alarming rate. See that as much firewood is grown every year as is taken away. Supply soft coke and lignite for domestic use, so that firewood is conserved, and cowdung is used as manure. Promote research in domestic cooking stoves.

India has limited resources of good coal and only "exiguous resources" of oil but is relatively rich in water power resources. Therefore make the fullest use of water-power. Shorten the period required to complete a project which now is nine years for a hydro-electric project and five years for a thermal project.

Give as much attention to transmission as to generation, as investment in transmission is less dependent on imports and can also save considerable amounts of investment in generation. Go ahead with manufacture within India of power equipment with low imported content. As for thermal stations, build big. In regard to rural electrification, apply the test: How much of this social service can the nation afford ?

Coal: Reconsider pricing policy so as to promote use of low-grade coals by industries. Extensive research is needed in boiler design and in use of high ash content coals. Promote deep-shaft mining.

Oil: The present rate of oil consumption will mean that soon, a third of the total import bill will go to oil. It is essential to discourage use of diesel and other "middle distillates". All industries must be made to economise in their use of oil.

In sum the advice is: Plan your energy growth on self-reliance, not on imports.

THE FINDINGS

The main suggestions and arguments of the Committee are given in its own words in the following pages :

Vigorous measures should be taken to see that the growth of wood for use as firewood replaces the annual cutting of such wood. The responsibility for this should be placed unambiguously on the Ministry of Food and Agriculture. The use of firewood, particularly in the towns, should be discouraged, possibly through taxes, and the substitution of commercial fuels should be encouraged.

Since it is unlikely that India will be able to afford the very large oil imports that would be implied in a widespread substitution of kerosene for firewood, all possible encouragement should be given to the further expansion of already existing policies of building low-temperature carbonisation plants and of production and distribution of soft coke, bri-



quettes and similar domestic fuels based on coal or lignite. Research should be conducted urgently into the use for domestic purposes of any grades of coal likely to be surplus, and to improve the efficiency of domestic cooking.

Future Planning

Our estimates of electricity consumption are lower than those used by the State Boards in planning their new developments. This will mean that by 1970-71 there will be more adequate gross margins between scheduled capability and peak load than have recently existed, although there will be a rapid growth of demand between 1970-71 and 1975-76. It is recommended that the over-investment not be continued.

In view of the very great importance to India of making steel cheaply and competitively and at the same time of conserving coking coal and reducing the surplus of coking coal by-products, we think that the steel plants should be given very strong encouragement to reduce the coke-to-pig-iron ratios. This is technically feasible.

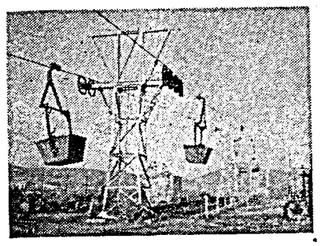
The steel industry will have to absorb in its payments for washed coking coal a substantially larger portion than at present of the total cost of mining coking coal and delivering it to the washery. There are possible dangers in basing the longer-term plans, particularly for electricity development, too confidently on the hopes of higher washery yields and reduced by-product yields.

COAL

India is simultaneously short of higher grade coals and in surplus of lower grade coals, slack and by-products. The problem can be solved, if at all, only by providing more powerful incentives than yet exist to induce not only power station operators, but also all other industrial users of coal to install the suitable boilers and equipment to make use of the lowest grade coals, in preference to higher grade coals. The incentives must be sufficient to justify the not inconsiderable extra costs, in many cases, of using lower grade or high ash content coal.

That will require drastic re-thinking of pricing policies for coal. If the lowest grades will be unsaleable the washed coal will have to bear all, or almost all, of the costs of mining, transportation to washeries, washing and delivery. By 1970-1 some 15 per cent of the raw coal washed is estimated to be blendable coal rather than parent coking coal and by 1980-1 it is hoped that this can be raised to 25 per cent in order to conserve the limited supplies of parent coking coal. The Government should encourage steel plants to use more blendable coal than parent coking coal.

More deep-shaft mining has to be adopted as better qualities of coal are required to satisfy the metallurgical and other special needs. There is little room for expansion of non-coking coal production in even the most favourable case in the near future.



Mechanisation of the coal industry is still in its infancy in India and the problems of a very large number of small and fragmented holdings have contributed to the static level of productivity. The physical problems of expanding coal mining could be greatly reduced if labour productivity could be increased.

Even if the fullest use of low-grade coals is made for electricity generation, brick making and manufacture of cement, we see no complete solution unless a satisfactory method can be evolved for enabling these coals to serve the growing domestic market that we expect. We recommend that the Central Fuel Research Institute be asked to study and report on all possible ways in which the needs of the domestic market might be served by briquetting, coke making, gasification or otherwise. We believe the problem should be capable of solution at prices competitive with other forms of domestic fuels.

Our estimates for the demand of coal for use in thermal plants are considerably less than those usually set forth in India and we recommend simple but rigorous calculation, relating coal use to kilowatt-hours generated rather than to the level of installed capacity.

The present rate of recovery in Indian coal mining is only about 40 per cent. It will be necessary to make careful studies of possible ways in which the rate of recovery may be increased and more coal may be removed from pillars in existing mines. With stowing, it will be possible to raise the recovery ratio to about 75 per cent.

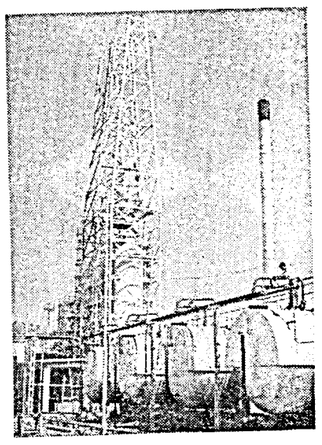
The Government of India is understood to be giving thought already to the possible advantages of importing relatively small quantities of coking coal to meet the needs of steel plants in the south of India. If coke made from imported coal, with around 8 to 11 per cent ash content in the coke, be substituted even at considerably higher cost for the Indian coke 23 per cent ash content, the increased through-put of furnaces, the decidedly lower coke rate and lower limestone costs might give a net economy to the whole operation. This bears careful study by the Government of India.

OIL

If the present pattern of demand regarding oil develops as we expect it to, India is likely to be short of middle distillates and long of light-end products. It appears wise policy to put less emphasis on the use of middle distillates in road transport and transfer this demand to gasoline products.

Encouragement of diesel pushes up initial cost of vehicles which use the scarce forms of oil products; it may in fact be easier to provide larger quantities of motor spirit than smaller quantities of diesel oils. Further consideration of substitution of fuel oil for coal in locations remote from the coal fields and near to oil refineries is also advisable. There need not be severe pressures to reduce the use of fuel oil since that product may become more plentiful in the neighbourhood of certain refineries.

If nothing is done, the motor spirit and naphtha surplus will increase. It appears necessary to find new uses for naphtha. This problem is already being actively examined in order to find outlets, either in the



iron and steel industry or in the manufacture of fertilisers.

There is a danger that India's dependence on imported fuels will progressively become greater than the limits set by the Indian balance of payments can permit. At the present rate, India will depend for something approaching 30 per cent of her commercial energy supplies on the goodwill and political stability of her oil suppliers. Secondly, India must find each year around 1975-76 some Rs 200 crore to meet these imports alone, almost one-third of her total import capacity. Increased pressure will have to be put on industries capable of using indigenous fuels to economise in their use of oil products. In determining the location of new industrial developments, increased preference should be given to sites where indigenous rather than imported fuels can be used.

Exploration and development of proved oil reserves must be vigorously pursued.

It is clear that in recent years the limitations of electricity supply have not only caused interruptions from time to time to industrial production, but also have involved refusals of electricity supply, which, if available, would have made possible greater increase of industrial production. It is currently a matter of great urgency to remove these limitations. Backward areas in regard to electricity consumption, like Uttar Pradesh and Madhya Pradesh, must have better facilities.

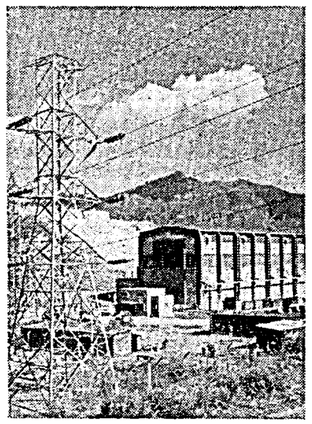
The average period of construction of a hydel project in India is currently about nine years and that of a thermal project about five years. It is important to do all that is practicable to shorten these periods. Meanwhile the length of these periods of construction make it very important to plan more than normally far ahead.

HYDEL POWER

While India has limited resources of good coal and, so far as is yet known, only exiguous resources of oil, the country is relatively rich in water power resources and in the ultimate industrial development of India, these must play a large part A considerable part of India's hydro resources lie on the rivers which

form the boundary between India and one of her bordering countries. These further resources could only be exploited by agreement with one of the countries concerned. But it may well be in the interest of both countries to do this.

In most of the advanced countries investment in transmission and distribution is normally equal in scale to the investment in generation. It should become so in India too. Investment in transmission can save very considerable amounts of investment in generation. The investment in transmission now has a high indigenous content and a low import content. The reverse is true and likely



for some time to remain true, of investment in generation.

We think it is desirable for State Boards to aim to finance a considerable part of their investment out of their returned earnings and depreciation funds. We recommend that in the planning projects, a rate of return of 10 per cent should be made on the basis of all calculations. We believe that interest at that rate, as reflecting the opportunity cost of using capital in India, should be incurred during the period of construction as well.

It is necessary to give preference to equipment which can be secured from Indian sources. We suggest that the desirable preference will be secured by adding a tax of 33 per cent to the import element to the cost of any capital project.

In the neighbourhood of Bengal-Bihar coalfields and the coal washeries serving them, it will be possible to produce very cheap electricity if the by-product prices are reduced to secure their full absorption. In areas where coal must bear a high transport cost and hydel is not available, there is clearly likely to be scope, even at present cost, for nuclear energy. The longer-term place of nuclear energy in the Indian energy economy must await the development of the economic methods for using thorium.

It is necessary to examine the question whether it is likely to be more economic to carry the energy in the form of high-ash-content by-products by rail to generating stations to be built near the consuming stations, or to generate near the washeries and carry electricity by extra high voltage transmission lines to the points near the consuming centres. The real opportunities will present themselves in the later years of the fifth plan. But there is a danger that short-sighted short-period policies may become an obstacle to the best long-period planning. It may be desirable to invest in limited network of EHV lines during the next ten years which will only justify themselves fully in a longer period, but which will permit a beginning to be made with the washery-located generation in long-distance transmission.

A closed-circuit operation should be fairly investigated for certain large-scale power plants that are now in being or under construction. Such operation may provide an economic outlet for the surplus by-product coal of the Bihar-West Bengal area.

Because coal is relatively cheap, coal mining labour is not scarce and in particular by-products and slack coals that can be used for electricity may well be in surplus, we believe the right course for India is to be bold in respect of pure size of thermal units but cautious in respect of pressures and temperatures. The right policy is to advance in size as rapidly as is consistent with a low-import content of plants built in India.

Rural Electrification

Rural electrification has undoubtedly provided a real and valuable service. But the extension of electricity to these areas is scarcely ever a paying commercial proposition. It imposes excessive financial handicaps on the industry. The test of the rate of further rural electrification should be the same sort of test applied to a social service—health, education or welfare generally: How much of this service can the nation afford at its present income level?

We are convinced that slightly lower standards of construction for rural areas might be accepted without danger. Specifications used hitherto have been unnecessarily high and expensive. Everywhere, or almost everywhere, in India the expensive three-phase system has been used. Elsewhere in the world large areas have been electrified using much cheaper single-phase construction. The tasks of system planning, of fitting of large hydel, thermal and nuclear plants into the system as a whole, require very full collaboration on a basis which will increasingly be wider than either the State or the region. Thought must be given to the best ways of organising this collaboration.

In any reorganisation of the structure of the electricity industry for wider regional or national interests, effective decentralisation of day-by-day operations will be absolutely essential.

Personnel

We emphasise the need for more and better training. The industry, growing as rapidly as it has been, is very seriously short of well-trained manpower, equipped with knowledge and experience to take over responsibility for some of the new larger units that are coming into service. We think that very careful thought should be given in advance to the personnel who are to take charge and to operate a new station. Where comparable units do not exist in India, arrangements could be made abroad for some of those apppointed to take over to obtain experience on identical or very similar units and plants in those countries. Consideration should also be given to the employment of experienced foreign experts to assist on-site training during the first five to ten years of operation of new projects.

We have attempted to estimate the capital required to cover the

(*Continued on Cover iii*)

Neyveli Will Produce More Power

THE Neyveli Lignite Corporation has signed a contract with the Technopromexport of the Soviet Union for the preparation of a project report for increasing the capacity of the Neyveli thermal power station to 600 MW from 400 MW during the Fourth Plan period.

The project report will be submitted to the Corporation in four months.

Sixth Furnace At Bhilai

An agreement has been signed with the Soviet Union for building the sixth blast furnace at Bhilai steel works. The furnace, having an annual production capacity of 5 lakh tonnes of pig iron, is expected to be completed in 1967.

Fourteen States have announced new loans amounting to Rs 101 crore, at an interest rate of 5.5 per cent, and redeemable after 12 years.



Transport Survey

The Union Government and the World Bank will jointly finance a survey of all modes of transport in the eastern region of India in order to enable the Government to formulate integrated transport plans for the Fourth and the Fifth Plans. The survey will be undertaken by the Planning Commission.

* A consignment of 10 tonnes of heavy water manufactured at the Nangal Heavy Water Plant has reached Belgium for peaceful use of nuclear energy.

Bright Spot

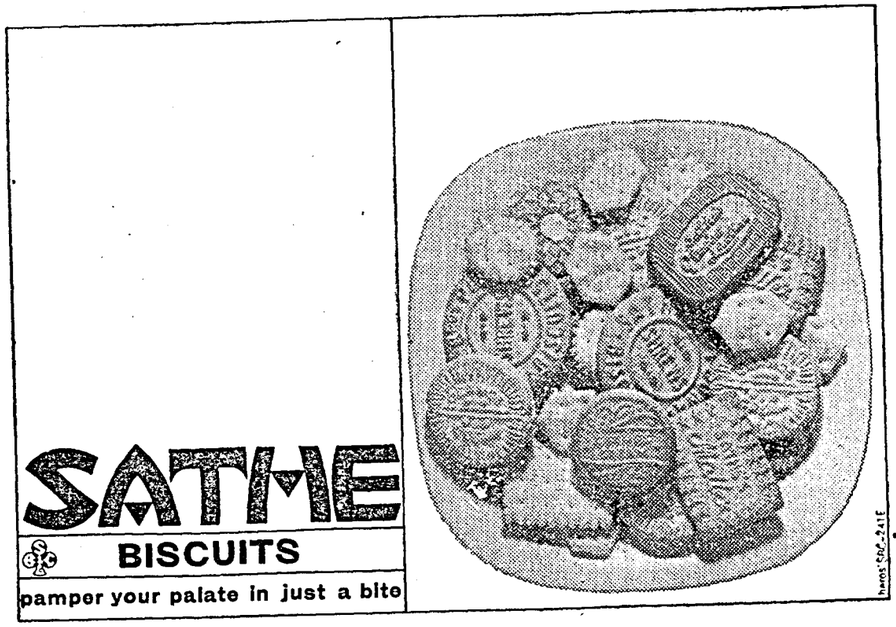
KRISHI-PANDIT 1964-65

Mr A. K. Nirgudkar of village Mandhal in Nagpur district of Maharashtra has been awarded 'Krishi Pandit' in the All India Paddy Crop Competition for the Kharif season 1964-65. His yield was 3,664.9 kilograms per acre.

Mr D. A. Naik, also from Nagpur, stood second with his yield of 3,345.1 kilograms. The third prize went to Mr. J. Nabi Saheb of Kurnool district in Andhra Pradesh for his yield of 2,124 kilograms.

I. T. I.'S RECORD SALE

The Indian Telephone Industries, Bangalore, recorded sales of Rs 10 crore in 1964-65, about one crore of rupees more than in the previous year. It produced 1.55 lakh telephones and undertook production of 26 new items in the year.



MORE INCOMES, HIGHER SKILLS THROUGH

RURAL WORKS PROGRAMME

Bigger Role for Village Organisations

UNDEREMPLOYMENT in the rural areas is one of the big problems India faces. With the expansion of irrigation facilities, multiple cropping and application of scientific methods, the seasonal character of our agriculture is gradually changing to provide fuller employment to peasants all the year round. However, it is estimated that by 1981 there would be 60 million more people than our agriculture can sustain.

A rural manpower programme has been launched during the Third Plan to meet this problem. Under the programme, rural works are undertaken in the needier parts of community development blocks to provide employment to farmers in months when there is not much agricultural activity. At present the programme covers about 1,000 C.D. blocks. Besides, a variant of the programme has been working on pilot basis in six districts of eastern U.P. and three districts in Madhya Pradesh; the variant is based on a system of part payment of the wages in kind.

The programme is to be enlarged in the Fourth Plan. An inter-State Conference held in April made detailed recommendations on the way in which the expanded programme was to be organised. It suggested that 500 to 1,000 more blocks should be covered in the Fourth Plan to provide 100-day employment every year to about 5 million people by 1971 at a cost of about Rs 100 crore. However, the Planning Commission has tentatively earmarked Rs 50 crore for the programme.

The annual conference on Community Development and Panchayati Raj held in Srinagar from July 24 to 26 discussed the programme on the basis of the recommendations made by the Inter-State Conference in April. The recommendations made by the Community Development Conference were later endorsed by the State Ministers' Conference on Community Development and Panchayati Raj held at Srinagar on July 28 and 29.

C. D. Conference Suggestions

Mr Asoka Mehta, Deputy Chairman of Planning Commission, who inaugurated the Annual Conference on Community Development, referred to the programme and suggested the creation of a development corps, or Vikas Fauj, which would be a nationwide organisation of rural youth enlisted and put on development projects.

Besides the rural manpower programme, the subjects discussed by the Srinagar Conference included: Panchayati Raj, welfare of tribals and other weaker sections of the village community, applied nutrition programme, organisation of village youth and women, training and education, and Community Development in the Fourth Plan.

A summary of the discussions is presented here.

RURAL MANPOWER PROGRAMME: A new dimension was added to the programme by introducing the concept of improving the skills of the people. Providing supplementary employment to those who are unemployed during the agricultural season continues to be the chief objective of the programme. But in future it would be formulated with a view to *imparting job training* to workers. The training would cover simple skills in afforestation, land and water management and building and construction.

The provision of Rs 50 crore in the Fourth Plan, the conference felt, was inadequate for the programme and should be increased. Besides, additional funds should be provided for creating training facilities.

The following criteria were suggested for selecting an area for the rural manpower programme: (1) density of population; (2) value of output per acre; (3) wage rate of agricultural labour; (4) per capita cultivable area and percentage of double cropped and irrigated areas; (5) employment in organised industries.

The schemes should be labour-intensive and should make the maximum use of local resources. They should also contribute to the stepping up of agricultural production or creation of community assets.

The working of the existing programme should be reviewed so that ineffective blocks could be eliminated. The review should be completed by October.

The conference reiterated that loans should not be given to individuals under this programme. Although public contribution was necessary for this programme, it should not be insisted upon if the execution of work was likely to be delayed without it. The practice of paying labourers less than the prevailing rate and treating the difference as public contribution should be discontinued wherever it existed.

The Panchayati Raj institutions should be fully involved in this programme and labour co-operatives and voluntary organisations should be encouraged in the planning and execution of these schemes.

PANCHAYATI RAJ: The discussion on Panchayati Raj was lively and several objections were voiced against the recommendations of the Santhanam Committee which formed the basis of discussion. It was the agreed opinion of the conference that the Panchayati Raj system should be strengthened. But doubts were raised about the legal implications of developing the Panchayati Raj institutions, by convention, as units of self-government within the meaning of Article 40 of the Constitution. The States would be further consulted before taking any final decision in this regard.

Yojana Report

by M. K. Pardhy

The conference accepted the recommendation of the Santhanam Committee that Members of Lok Sabha and State Assemblies should be members of the Zila Parishads and Panchayat Samities, but their right to vote and hold office was disputed. Co-operatives, it was felt, should be given institutional representation on Panchayati Raj bodies. Voting in Panchayat elections should not be compulsory and the ability to read and write should be an essential qualification for becoming a Sarpanch.

It was the consensus of the conference that some kind of code of conduct should be evolved for the members of Panchayati Raj institutions against misuse of their powers as well as for the proper implementation of the schemes entrusted to the Panchayat institutions. A group of experts, both official and non-official, should be constituted to suggest ways of ensuring effective implementation of development schemes by Panchayati Raj institutions and to prescribe criteria for efficiency in performance.

A prize competition was suggested as an incentive to Panchayat institutions. Performance in agricultural production would get the first priority in the competition. A number of measures were suggested to augment the financial resources of the Panchayat institutions.

WELFARE OF WEAKER SECTIONS: According to the conference, the programme of tribal welfare should be intensified in the Fourth Plan and the working of the programme watched more vigilantly so that direct benefits went to the tribal people.

At present 300 development blocks are working in the tribal areas. They were set up three years ago on the recommendation of the Elwin Committee. The number of these blocks will be raised to 500 by the end of the Fourth Plan.

It was stated at the conference that the tribal blocks had so far not made much impact on the tribal people. The present provision of 25,000 population for a block was too small for introducing the various amenities and services for the people. Secondly, even after opening 1,000 blocks, a fourth of the tribal population would still remain uncovered.

The conference therefore suggested the area approach, and an integrated plan for the entire area. An area would include contiguous tribal development blocks and small pockets with concentration of tribal population. The pattern of planning should be flexible enough to suit the needs of the local population.

The conference recommended that socio-economic surveys in the pre-extension stage of a block should be given greater attention, and the pockets of tribal population should be considered as 'sub-blocks' if the population exceeds 10,000 in a compact area.

The conference wanted co-operatives to be the pivot of organising the economic life of the tribal people, and suggested the setting up of a tribal development co-operative corporation in each State as Andhra Pradesh had done. Four types of co-operatives, namely service co-operatives, forest labour co-operatives, labour contract societies, and primary marketing and processing societies should be formed in each tribal block. Stress should be given on associating the tribals with administration and on the management by tribals of their community activities and schemes.

As for other weaker sections, it was noted that the definition had been enlarged to include, along with the scheduled and backward classes, agricultural labourers, landless labourers and sub-marginal cultivators and tenants. Some States felt that this definition was too wide. For instance, in Madhya Pradesh, 75 per cent of the population would have to be regarded as weaker sections and it would be impossible to make any significant impact on such a large population with the meagre funds allocated for the purpose. The State felt that it was more appropriate to concentrate effort on a selected section instead of spreading the resources so wide and thin. It was, however, explained that where such a large population came under this head, attention should be given to the hard core of weaker sections.

APPLIED NUTRITION: The progress of the applied nutrition programme, it was evident, depended on progress in the organisation of village youth and women.

The applied nutrition programme was launched in 1959, as an experiment, in co-operation with the U.N. Food and Agricultural Organisation and the Children's Emergency Fund. It is in operation in 183 blocks in Andhra Pradesh, Kerala, Madhya Pradesh, Madras, Mysore, Orissa, Punjab, Uttar Pradesh, West Bengal and Himachal Pradesh, besides 40 expanded blocks in Uttar Pradesh. Fourteen more blocks in Maharashtra and Delhi will soon adopt the programme and other States are preparing for the programme.

The discussion on the programme was on the basis of the recommendations made by an inter-State conference held in May last. Some States expressed the view that several activities under the programme were covered by schemes already in operation, such as poultry and fishery development schemes, and that there was therefore a duplication of effort. But it was pointed out, as a counter-argument, that the programme aimed mainly at educating the people in the nutrition values, and the production of nutritive food was only a subsidiary aim, unlike other schemes.

The conference was of the view that the programme should be made self-sustaining, so that it need not depend on foreign aid for a long time. Again, care must be taken to see that the people's interest in it was maintained even after the expiry of the specific block period.

Youth clubs and Mahila Mandals, the conference felt, were the most suitable agencies for promoting the programme. It recommended that land should be given to those organisations, and to schools, for growing vegetables and for other schemes under the programme. Panchayats should be associated with the programme. The agricultural production programme also should take into account the nutritional requirements of the people.

The conference suggested that 1,000 more blocks should be opened during the Fourth Plan. The national policy on nutrition should be dovetailed with the programme of agricultural production.

YUVAK MANDALS AND MAHILA MANDALS: It is important to organise village youth and women for creating plan-consciousness and carrying out development schemes in the rural areas. So far 1,19,718 Yuvak Mandals with 23 lakh members and 61,624 Mahila Mandals with 13 lakh members have been organised all over the country.

The conference recommended that this programme should be expanded in the Fourth Plan so as to have a Yuvak Mandal and a Mahila Mandal in every village with a population of 500 or more.

These Mandals should take up economic programme besides recreational, cultural and social activities. The conference felt that Panchayati Raj institutions should give these Mandals definite programmes for implementation and also provide necessary financial resources and supervision. The Mandals could raise their own resources through economic activities. More opportunities should be created for training young farmers in agriculture, horticulture, pisciculture and poultry.

The conference urged that there should be a national policy for child and adolescent care and protection.

FAMILY PLANNING: Family planning was given an important place in all the discussions although there was no separate debate on it. It figured in the discussions on Panchayati Raj, and the conference felt that Panchayati Raj institutions should give it high priority, next only to agricultural production. This was also mentioned during the discussions on the organisation of youth and women and the applied nutrition programme. The conference recommended that it should

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Mr. S. K. Dey narrated an incident in a C.D. block. He was told by a B.D.O. that the people had made remarkable progress in his block. Previously the slogan for the people was Government's programme with people's participation. "They have changed the slogan. Now they say—People's programme with Government's participation."

Mr. Darbara Singh, Minister of Punjab, speaking on Panchayat elections said, "Our villagers have to vote in too many elections. National elections, State elections, bye-elections, Panchayat elections, co-operative elections, and so on. Now let the people have some respite from elections."

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form part of the programme for the rural youth and women's organisations and the applied nutrition programme would not achieve the full measure of success unless it was connected with family planning.

FOURTH PLAN: By the end of the Third Plan, the entire country would have been brought within the fold of Community Development and Panchayati Raj established in almost all the States.

The conference recommended that the Fourth Plan should take the next step in Community Development, namely the promotion of systematic and integrated planning at the local level, to help realise to the maximum the development potential of each area. An overall assessment of the requirements of the rural sector as a whole at the national and State levels has to be made for this purpose.

The States should, while formulating their Plans, indicate separately the outlays on certain basic amenities and services for the rural areas, and these should be intimated to the Panchayati Raj institutions to enable them to set for themselves a target for local resources mobilisation.

SUMMING UP: The Community Development conference this year assumed special significance because the Fourth Plan is in the making. The decisions taken at Srinagar will form the basis of the provisions and programmes in the Fourth Plan so far as Community Development and Panchayati Raj are concerned.

The Prime Minister said in his message to the conference: "I think the biggest work that lies before this army of workers from our Panchayati Raj institutions and Community Development blocks is to ensure the optimum utilisation of our vast rural manpower. They must mobilise the people and join with them in taking up the big tasks that lie before us in giving our villages a better and happier life. First and foremost, I would like them to concentrate at this moment on the task of raising our agricultural production".

Mr Asoka Mehta emphasised that agricultural production had to become the supreme goal of all our efforts, more so of the Community Development movement. He suggested six objectives for the programme, namely (1) much more concentrated effort in the field of agricultural production, (2) harder work to provide certain minimum amenities of life to the rural population, (3) more serious attention to helping the weaker and more vulnerable sections of the community, (4) improvement in the training and technical skill of the village level workers, (5) more effective utilisation of the seasonally idle rural manpower and equipping its younger elements with new and varied skills, and (6) developing Panchayati Raj institutions into 'effective instruments of area planning'. He envisaged 'an increase in the size of a village. Villages with a population of, say, at least 2,000 people would make for viable units for bringing about the social change.

Dr Karan Singh, Governor of Jammu and Kashmir, who inaugurated the State Ministers' Conference, said that block development officers and village level workers were the agents of the social change to which the Community Development programme should be oriented. 'More food and less people' could be a good slogan for the Fourth Plan, he said.

Tanker: Special Design (From Page 4)

cargo ships and consequently they have less freeboard (portion above water).

Generally there are three superstructures in a tanker, the raised forecastle (fo'c'sle), the centre-castle (also called the bridge) and the poop (a high deck at the back portion). These superstructures look like three islands when the lower part of the hull is hidden behind the horizon and so the ocean-going tankers are usually called the three island ships. In the recent super-tankers the centrecastle is replaced by a deck-house.

The tankers are generally driven by diesel engines, steam turbines or turbo-electric power. In the medium sized modern tankers the diesel engine is the most commonly used and in the larger tankers the steam turbines. Now atomic propulsion is also being tested for driving them.

The engine room in a tanker is aft (near the stern or back) to reduce the fire risk. As there is less freeboard in tankers access between the various parts of the ship is provided by the fore-and-aft-gangways known as 'flying bridges' or 'catwalks'. These gangways carry the steam and exhaust lines, water and gas lines, telegraph and electric cables and other kinds of machinery.

Because of the great risks involved in the handling and carriage of oil, special fire-fighting equipment and life-boats made of steel or aluminium alloys are provided.

The navigational equipment in tankers is not different from that of other ships. The tankers have less speed than passenger liners but among tankers the larger ships are faster than the smaller. A 12,000-tonne tanker has generally a speed of 11 to 12 knots (one knot is roughly 1.8 kilometre) and a 18,000-tonner has about 14 knots. A super-tanker attains a speed of 15 to 20 knots.

The crew in a tanker consists of 40 to 80 officers and men. All modern tankers provide air-conditioned accommodation to their officers on board.

YOJANA BHAVAN DIARY

A fourteen member Co-ordination Committee on Planning Forums has been set up by the Government in the Planning Commission. Mr. C.R. Pattabhi Raman, Deputy Minister for Information and Broadcasting, will be its chairman and Mr K.A. P. Stevenson, Joint Secretary, Planning Commission, will be its member-secretary. This Committee will co-ordinate, guide and review the programmes relating to Planning Forums.

The Planning Commission met on August 3 to consider the Export Policy Resolution.

A five-member World Bank team of experts studying transport problems in eastern India had talks with Mr Asoka Mehta, Deputy Chairman, Planning Commission, on July 30. The team consists of Dr Ralph J. Watkins, an American transport economist, Mr Rex S. Anderson, an American highway expert, Mr Mathew A. Cameron, a British railway expert, Mr Johannis A. Jansen, a Dutch expert on ports and shipping, and Mr Heinz Zeigler, an Austrian economist.

Mr P.S.N. Prasad, Director, U.N. Asian Institute for Economic Development and Planning, Bangkok, met the Deputy Chairman on July 22.

Other visitors Mr Asoka Mehta had were: Dr Gustav F. Papanek, Acting Director, Development Advisory Service, Centre for International Affairs, Harvard University, July 23; Professor Everett Kassalow, Professor, Wisconsin University, and Mr Charles Kiefer of the U.S. Department of Agriculture on July 26 and Dr Millidge Walker, Associate Professor, American University and his wife Dr Irene Walker, July 27.

Mr L. Katagyira, Secretary, Ministry of Planning, Uganda, met Mr G.R. Kamat, Secretary, Planning Commission, on August 4 to exchange views on planning in the two countries.

The Study Groups of the National Planning Council met on July 30 and 31.

ENERGY SURVEY

(Continued from Page 24)

expansion of the energy-supply industries during the period 1965-6 to 1980-1. Right decisions on type and location would save some investments in other sectors like locomotive building and the iron and steel industry. It is important that India shall as rapidly as possible reduce the dependence on imported equipment to a minimum, so as to reduce also the necessary foreign expenditures below those that we have estimated.

Part of the large dependence on imports appears to result from the desire to progress in respect of installation of types of equipment rather more rapidly than Indian capacity is likely to be able to progress in respect of their manufacture. It will be necessary to hold the balance and to put heavy emphasis on the manufacure in India of types of equipment which at each stage can be produced with a low import content.

The Energy Survey Committee was appointed on January 3,1963 to study the probable demands and supplies for energy in all forms and the problems of planning development in the various fields of energy.

The Committee consisted of the following:

Chairman: Mr M.R. Sachdev, formerly Secretary of Irrigation and Power, and Lieutenant-Governor of Goa; he was succeeded by Prof. M.S. Thacker, Member of the Planning Commission.

Members: Mr Walker Cisler, President, Detroit Edison Company, U.S.A., Joint Chairman; Prof. Austin Robinson, Professor of Economics, Cambridge University, Joint Chairman; Mr Louis de Heem, Directeur General du Ceatie d'Etude de Energie Nucleaire, Brussels; Mr Jacques Desrousseaux, Directeur General des Etudes Economiques aux Charbonnaqex de France, Paris; Prof. V.K.R.V. Rao; Dr P.S. Lokanathan; Mr K.R. Damle; Mr V. Nanjappa; Mr C.S. Krishnamoorthi; Mr K.P.S. Nair, Member, Central Water and Power Commission; Mr P.R. Nayak, Chairman, Oil and Natural Gas Commission; Mr A.B. Guha, Adviser, Planning Commission; Mr S.S. Kumar, Director-General of Technical Development; Mr S. Bose, Chief Engineer, D.V.C.; Mr M.N. Chakravarthi, Project Administrator, Tarapore Atomic Power Plant; Mr B.S. Nag, Adviser, Planning Commission; Dr M.S. Randhawa; and Mr Pitamber Pant, Chief of the Perspective Planning Division of the Planning Commission.

NEW RICE

(Continued from Page 2)

which can take up the responsibility for multiplication and distribution of the seed. Of the 87.6 million acres (35.3 million hectares) of our area under rice we hope to bring 12.5 million acres (5.04 million hectares) under this new variety in the next six years.

As I said, Taichung Native-One consumes heavy doses of fertiliser. In the initial stage, therefore, we have also to keep in mind the adequate supply of fertiliser. And as in all high-fertiliser cultivation, we have to take great care in the matter of plant protection and use adequate pesticides.

This year, which is the last year of the Third Plan, we are confronted with the paradox of rising prices despite harvest which has been larger than ever before. This only means that the "record" food production is still not enough. We are dependent on imports. And imports of rice are specially difficult.

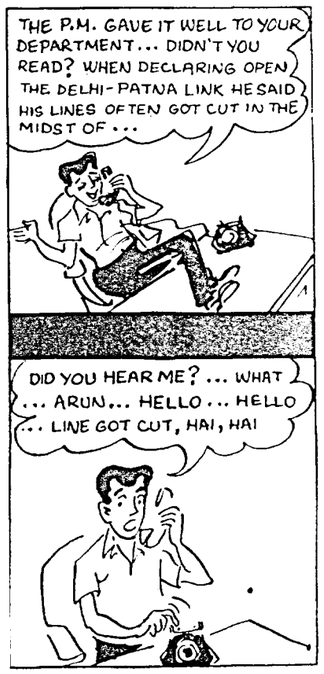
The gap can be filled in two ways: (1) by bringing more land under rice and (2) by increasing the rate of yield. Since there is severe competition from commercial crops to gain more acreage, there is little scope for bringing more land under rice. It is thus necessary to concentrate on how to increase the rate of yield.

Japan is known for her high rice output and her collaboration was sought for increasing our production. The Japanese method of cultivation has been introduced in various parts of our country. Pioneering work was done by the demonstration farms at Arrah (Bihar), Chakuli (Orissa), Ranaghat (West Bengal) and Vyara (Gujarat). Such Japanese varieties as were responsive to higher dose of fertilisers were cross-bred with Indian strains in States and the Central Rice Research Institute (CRRI). The results proved encouraging, some yielding 30 per cent more (Asahi×R2-16/19, Hy 68, Hy 76, Norin 8×Latisail and (R-132×GEB-24)-2246 than local varieties in a number of States during trials in 1963-64. They are under further observation. An all-India hybridisation programme has also been taken up by the CRRI and the new varieties have responded well to fertilisation and yielded more than 3,500 to 4,000 lb per acre of paddy in some regions where the average production hardly exceeded 2,000 lb per acre. In spite of all this research, however, the average yield of rice in the country has remained low, the produce in 1963-64 being 918 lb per 0.45 hectare.

From the results achieved so far Taichung Native-One can play an important role in substantially increasing the rice output in our country. But we should be cautious. This strain is responsive to high doses of fertiliser. It is no use growing this variety where farmers are not familiar with fertiliser practices. Nor will this be of any use where there are no irrigation facilities. In fact, only by following scrupulously the instructions that have been prescribed for Taichung Native-One can we hope for the right kind of results.

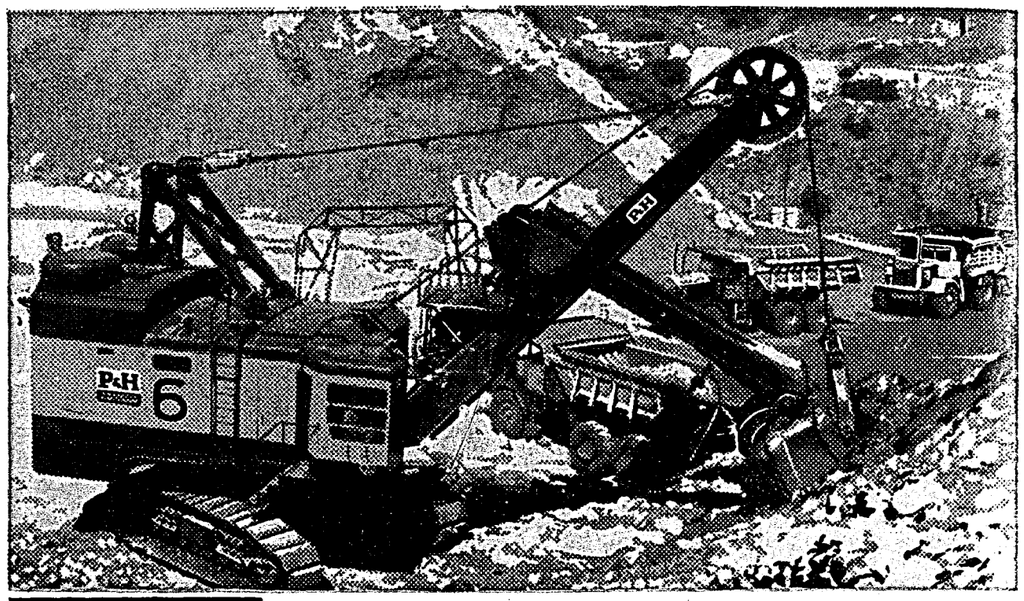
Secondly, we should not be too optimistic. It would be wrong to expect from our cultivators as high yield as was available from our trials on Government farms.

SHAMBU by Malinda Topa



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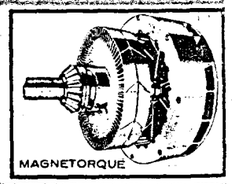


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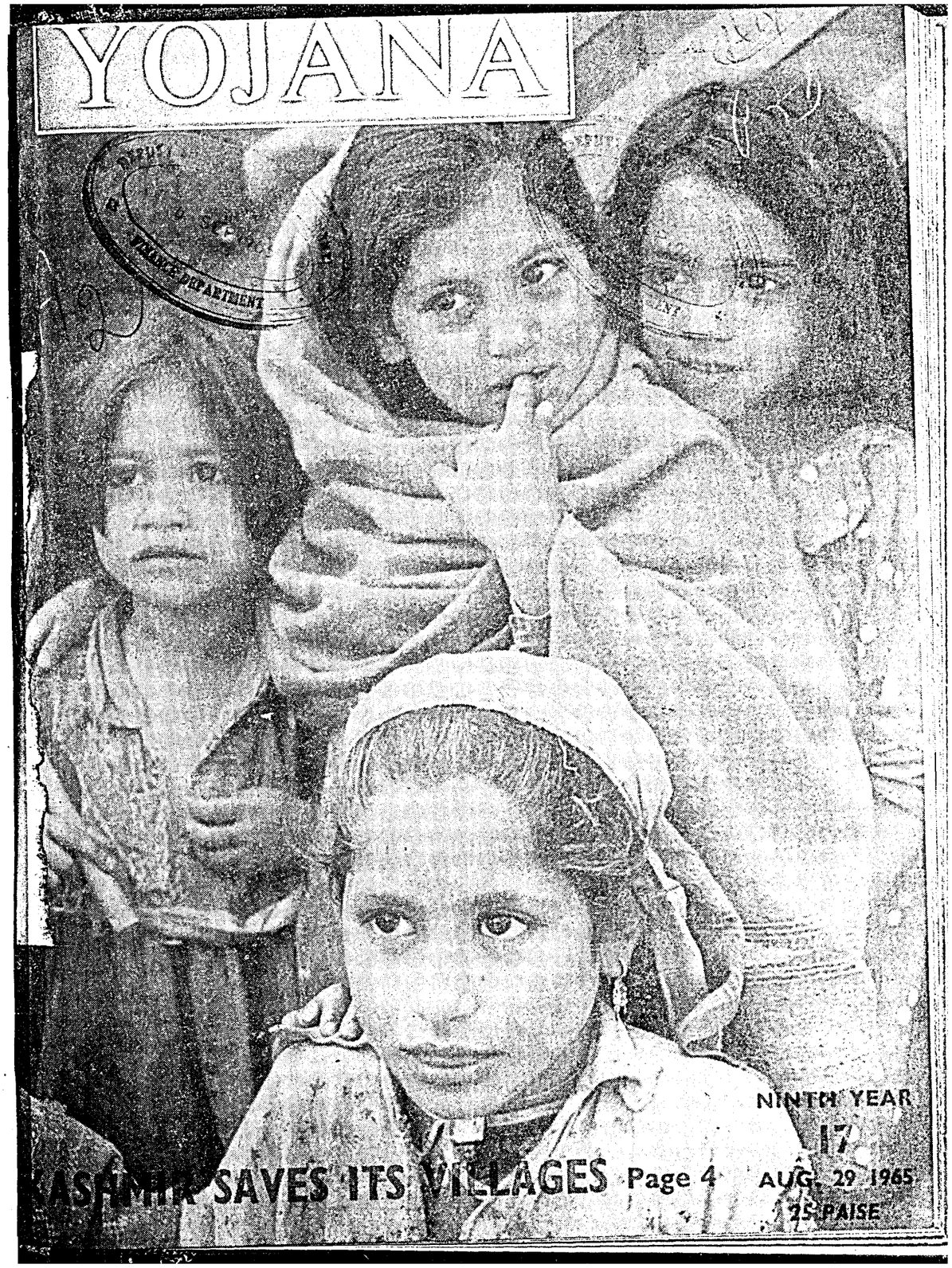
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YOJANA seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion on problems of social and economic development.

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Cover: Children of Kashmir—To give them the chance of prosperity and peace is the endeavour of Government of the State and the country (See article on a reclamation project in the State on Page 4).

Over to You

Village Service

Good Houses Will Attract the Young

It is often stated that medical men and teachers do not like to take up service in villages. Such apathy is partly due to faulty upbringing, the error being mostly passive and unconscious. Generally, young people like to spend their spare time blabbering in the company of their friends or in seeing pictures. They are not trained to appreciate occasional solitude, own thinking of a constructive kind, systematic study of an improving nature, and so on.

But things being what they are, service in villages could be made more congenial if an attractive house in its own grounds and a field, a few acres in extent, always go with the job. These should not be very difficult to provide in most villages. Electricity should also be available; and that too would not be asking for too much in most villages of moderate size.

The incumbents should also be encouraged to play an advisory part in local life and progressive activities like co-operative endeavours, library, organisations, etc. Taking sides in local politics should, however, be discouraged—at any rate, in the early years.

M. S. KALYANASUNDARAM
Kodaikanal

Writing Lack

I read with interest the letter from an M.A. student that you published in the issue of July 14, under the caption "Necessary". I give some more examples of poor writing that I have come across.

Recently I received a communication from the Punjab Government and on the cover were these words: "Printed four lacks".

I bought a copy of the *Punjabi Bodh* in order to learn Punjabi language. The book has been printed by the Education Department of the Punjab Government. It has 220 pages and in the Errata are listed 250 mistakes. They are elementary mistakes, showing that the book could not have been written by an educated person. Scores of mistakes have been left uncorrected. Even the Director's Preface is not mistake-free.

New Delhi — DES RAJ BHATIA

Lead Somewhere

"Exchange and the Plan" (*Yojana* July 18) is another poor leader—poor in language, poorer in content.

"Points up" is no English idiom and that double use of *in* (first sentence) !

A leader should lead somewhere. "Exchange and the Plan" is just waste of words. Who wants pious platitudes ? If you have no ideas, better keep mum, sir.

Meerut — M. L. TRIKHA

Great Fight

The editorial dated August 1 is interesting and educative. The figures will show the magnitude of the problem the country has to face. As stated by Mr Asoka Mehta, the family planning campaign is a movement much bigger than freedom fight.

For success of the family planning campaign, the workers connected with the task should have missionary zeal. The best medium for popularising the campaign is the cinema.

Koppal (Mysore) — G. RAMANNA

One Language

There can be only one person to lead a nation. In history he is known as the king. In case there are kings more than one the nation passes through chaos and confusion.

In the interest of welfare of the Indian nation let there be only one official language. The English language is understood by all the States. Let it not be disturbed so that peace and order may prevail.

Tanjore — R. V. IYER

YOJANA

Vol. IX No. 17 — Fortnightly Journal Published on behalf of the Planning Commission — Bhadra 7, 1887

CLARITY ON THE FOURTH PLAN

The importance of stepping up the rate of economic development was explained in compelling terms by the Prime Minister on two occasions this month—in his Independence Day address from Red Fort, and at the meeting of the Planning Commission a few days earlier.

The force of what the Prime Minister said should move the nation better to understand, support and participate in the strategy of the Fourth Plan.

In the years since Independence we have made considerable progress in achieving economic swaraj and endeavoured to improve the lot of the people. Great beginnings have been made in machine manufacture and in the metal and fertiliser industries. In agricultural production, despite a large increase, what we grow is still insufficient. Hence the need to give maximum attention to agricultural production.

The results we desire can come only through a decisive stepping up of economic effort. It is with this view that a Fourth Plan of Rs 21,500 crore has been decided upon. Although the range of Rs 21,500-Rs 22,500 crore proposed by the Draft Memorandum in November last has now been given up, the outlay now fixed is what would be described as 'large'. But, however large and ambitious a Plan, it will still be short of the requirements of the people.

The question will be asked: Will not an increase in outlay of this order lead to higher prices? The Prime Minister explained at length how this possibility was proposed to be prevented. In the first place there will be no resort to deficit financing. Secondly the fullest effort will be made to provide the needs of the people in greater quantities—food, cloth, shelter and medical aid. It is only when these needs are met that the common people can feel that a change is in fact occurring. It is shortage in food grains that starts the chain of price increases. Mr Shastri has rightly described agricultural production "as the biggest question before us".

Our objective is to build a socialist society in India and eliminate poverty and disparities. The process of change has begun, but it needs to be given greater momentum. In addition to the inescapable duty to provide the people what they need, there is yet another reason why we should go in for a big plan—namely the external threat. As the Prime Minister put it, our enemies are trying to divert us from our objective of giving our people the opportunities of a fuller life; and the best way of thwarting their designs is to refuse to be so deflected but go forward along the path of economic development with courage and determination.

Two key points in this determination should be to introduce the strictest economies in administration and improve the efficiency of public sector enterprises. The basis of financing the Rs 21,500 crore Plan has assumed that a good part of Rs 650 crore, which is the difference between the proposed outlay and the resources of Rs 20,850 crore now in sight (even after collecting Rs 3,000 crore more through additional taxation), will come through greater administrative efficiency.

When we speak of an outlay of Rs 21,500 crore in the Fourth Plan, it is important to remember that a third of it, or Rs 7,000 crore, will be in the private sector. The public sector outlay is to be Rs 14,500 crore. Even this is contingent on raising Rs 3,000 crore by additional taxation and Rs 650 crore by other means of resource mobilisation. This sum must naturally come from the comparatively better off but small sections of the people. It will be hard for them, no doubt. Most of them would claim that they are already being overtaxed. But they should learn to look not at their peers in other countries but at the large mass of the people of our country who for centuries have borne the biggest burden of all, the burden of hunger.

Mobilising these resources is the joint responsibility of the Union and State Governments. The States will now, as a result of the report of the Fourth Finance Commission, get a larger share of the national revenues. These must be spent on work that will ensure the nation's welfare and strength. Also, as in Union Government so in the State Governments, there has to be a resolve to enforce the maximum economies. The investments we shall be making will have to be balanced by savings mobilised from the people. Deficit financing has been strictly ruled out. The Union Finance Minister and the Deputy Chairman of the Planning Commission are having special consultations with the State Chief Ministers, who have already assured the Prime Minister of their readiness to fulfil their responsibility, on the methods of resource mobilisation.

It is evident that it requires a gigantic haul to realise the tasks set before the country by the Prime Minister and the Planning Commission, but the country can shirk these tasks only at its peril.

K. A. RAMASUBRAMANIAM *Director, Town and Country Planning Organisation*

HIGH LAND VALUES HINDER URBAN PLANNING

The values of land in areas within and adjoining towns and cities have been going up fast, causing immense problems to plans of urban improvement. The very proposal for planned development of an area pushes prices up. The community should not be asked to pay prices which are higher than the fullest values that would have obtained if there had been no such proposal. In well-conceived planning, each project should be able to get land most suitable for it.

THE problem of high urban land values is having a disastrous effect on house prices and on the acquisition of land for all urban planning purposes. Successful urban planning requires large-scale acquisition of land at prices that permit the developer to build the kind of living environment the community needs. High cost of land acquisition reduces the amount of money which the developer will spend on amenities such as proper layout of land for beauty, adequate open spaces around dwelling units, elimination of through traffic and community facilities. This encourages cheap development and leads to less healthy growth.

Every city has within its present limits vacant land and under-utilised land which with planned development, combined with redevelopment of blighted areas, could accommodate all its population at densities that would provide adequate recreation space, attractive neighbourhoods and a decent living environment for all its citizens. The prohibitive expenditure involved in acquisition of vacant land and built-up areas in the core of the city stifles at their very inception many schemes of urban renewal which could in the long run be productive.

High land costs drive the developer—both public and private—to peripheral lands resulting in waste of money and materials in extending and maintaining public utility lines like water-supply, sewerage and electricity, and of human and mechanical energy in traversing between residence and place of work. When population flees to the fringe areas, the core of the city is denied the benefits of healthy growth and at the same time housing problems are created for the future. The walled city of old Delhi is a typical example.

Moreover, in the fringe areas of the city, the outlying lands are snapped up by speculators who hold on to them for several years till their speculative hopes are realised. The only workable method by which abnormal rise in land prices can be checked is for the development authority or the local authority to bring into the market, at reasonable prices, adequate developed land as demand develops. The price at which the public authority can make land available to individuals and co-operatives will, however, depend on the compensation it has to pay for the acquired land. Under the existing land acquisition law, compensation has to be based on "market value" as on the date of preliminary notification and over and above this a solatium of 15 per cent has to be given.

*

THE value of a particular piece of land consists of two parts: (i) its existing use value, which is the price that the land would fetch in the open market if it continues to be put to the same use;(ii) its potential development value, which is the likely price which it could fetch in the market if put to its most profitable use.

For example, land which is at present used for agriculture may be worth no more than 8 annas per square yard, but because of the likelihood that this land can profitably be used for building purposes, particularly for commercial use, it might either immediately or in the near future fetch as much as 15 rupees per square yard in the open market. In such a case, the existing use value is Rs 2,240 per acre while the potential development value is Rs 72,600 per acre.

The prevailing market value of urban land and of land likely to be urbanised in the near future represents not only the existing use value but also the appreciated potential development value which has been caused not by the efforts of the owner of the property but by the efforts of the entire community. It is therefore proper that the benefits of this appreciation should be shared by the owner with the entire community.

Well-conceived land use planning implies that there should be a place for everything and that everything should be in its place. This requires that the most suitable land should be selected for the particular purpose irrespective of its existing value. If the price of land is to be dictated by the most profitable use to which it can be put, the less profitable ventures would be deterred from acquiring it, even if the requirements of good land use planning suggest that such ventures ought to be accommodated there. For example, a particular plot of land may have a high building value for residential or commercial development; yet it may be in the public interest to prohibit building there as it might be required for street-widening or for parking or for use as public open space. It does not seem logical that the public authority should always pay that price which reflects the highest potential value of the land—commercial if it was already commercial and commercial if it is to be commercialised in the future. A rational system will be one in which there is no loss to the community beyond the cost of physical redistribution and disturbance involved in reorganisation of land use.

In some areas, the mere fact that a plan is under preparation may lead to agricultural lands on the fringes acquiring market value greater than they could ever have but for the decision to prepare a plan. In such cases, there is no reason why the landowner should be paid compensation at a rate which is considerably higher than the fullest value which could have been obtained for this land immediately before a decision was taken to prepare a plan. If development authorities have to pay prices which their own planning has tended to inflate and, over and above this, incur expenditure in providing access roads, public utility lines etc., they will not be able to make even marginal profit unless the developed plots are sold or leased out at prohibitive rates. This will aggravate instead of solving the problem of urban land values. What is thus needed is a principle of compensation which will do rough justice, which will make land available for its appropriate uses at a price payable by the developing agency without burden and which would remove the excesses of speculative market in land.

ONE of the solutions recommended to the problem of high land values is that local authorities should acquire land extensively in advance of actual requirements. This may not always be feasible since the local authorities do not have funds for such advance acquisition on a large scale. Moreover if they acquire land far in excess of immediate requirements, they would evoke criticism for having entered the field of speculation alongside of private developers. Another solution suggested is that local authorities should collect betterment charges or development charges which would enable them to raise sufficient revenues to afford payment of fair market prices for the land they need. While it is certainly desirable that measures of taxation which would mop up unearned increments in land values should be adopted by local authorities, by the State Governments and even by the Centre, it is doubtful whether the yield from these sources would be sufficient to enable payment of fair market prices for all the land that is needed for urban development. Moreover, local authorities or development authorities have to make profit out of certain land transactions in order to be able to recoup losses on others or to finance capital works of improvement. It would be impossible for them to make profits unless there is considerable difference between the purchase price and the price at which they would be able to lease the land to the private developer.

The most objective analysis made so far of the subject of urban land values and the allied subjects of acquisition, compensation and betterment is contained in the Report of the Expert Committee on Compensation and Betterment set up in Britain in 1942 (Uthwatt Committee). Its main recommendations were :

(1) Immediate vesting in State of rights of development of all land lying outside built-up areas on payment of fair compensation.

(2) Conferment upon public authorities of powers of purchase much wider and simpler in operation than under the existing legislation.

(3) The imposition of a periodic levy on increases in annual site value with the object of securing such betterment for the community.

(4) Disposal of acquired land by way of lease only and not by way of sale and empowering the authority to impose such conditions in the lease as planning requirements make desirable and to enter the land in cases where there has been breach of such conditions.

(5) Empowering local authorities to acquire lands in advance of requirements compulsorily as well as by agreement without any stipulation that the land is expected to be required for a definite purpose within a specified period of time.

(6) Empowering of the acquiring authority to enter upon the land after giving 14 days' notice of its intention and payment of interest on the compensation from the date of intended entry up to the date of final payment of compensation.

Within our own country, the most objective analysis made so far is contained in the paper on "Urban Land Policy" prepared by the Town and Country Planning Organisation and circulated by the Ministry of Health. In this paper, the social objectives of a good urban land policy were laid down as follows:

(i) To achieve an optimum social use of urban land.

(ii) To ensure availability of land at reasonable prices to public authorities as well as individuals.

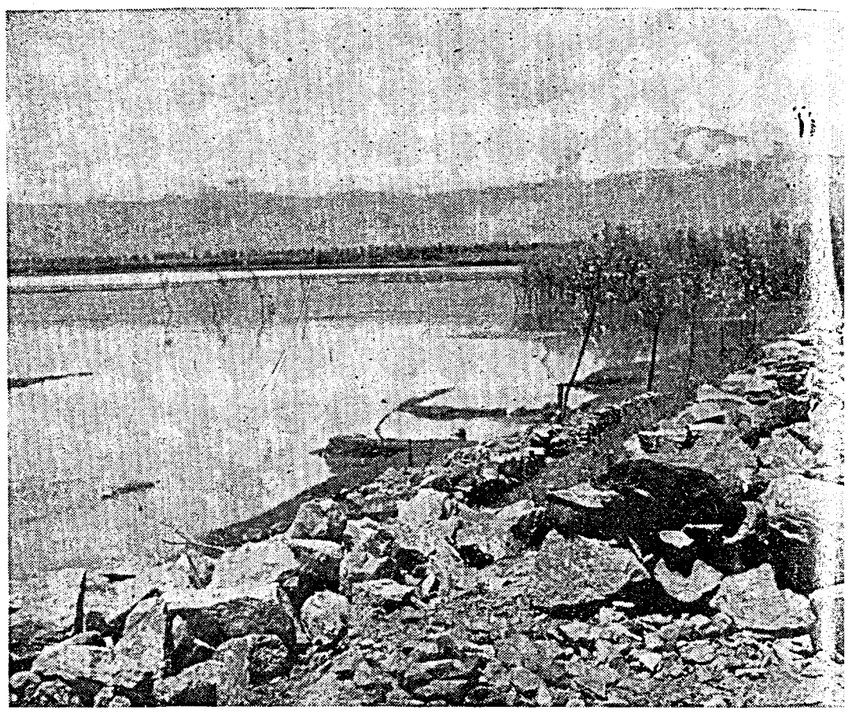
(iii) To encourage co-operative community effort and *bona fide* individual builders in the field of land development and housing.

(iv) To prevent concentration of land ownership in few private hands.

This paper recommended a bold compensation policy and a sound land disposal policy which would enable acquisition of land at rates which will give to the owner only a partial benefit of the socially generated appreciation in land values, and its subsequent disposal at discriminatory prices. The paper also recommended that compensation need not always be related to the market value as on the date of preliminary notification but to some ante-dated value. The ante-dating should not, however, be done in an arbitrary manner.

(*Continued on Page 28*)

KASHMIR TAMES



When YOJANA reporter went to Kashmir in the last week of July, the Wullar lake had spent its fury and shrunk back to size but stones were being collected for pitching the embankment.

YOJANA REPORT & Pictures by M. K. PARDHY

A TURBULENCE

WULLAR PROJECT WILL SAVE 87 VILLAGES

"OUR friend Wullar also acts as our enemy. Like Mao Tse-tung, he also doesn't seem to believe in coexistence. This year he has devoured 5,000 *kanals* (250 hectares or 625 acres) of our land. But we will not allow him to swallow it. We will recover it from him. We know how to fight with him."

It was Mr Kashyap Bandhu speaking. He is a veteran social worker of Kashmir and is chief project officer of the Sonawari project, some 30 kilometres north of Srinagar. The scheme, which aims at harnessing Wullar lake is part of the Sonawari project.

The Wullar lake, famed for its beauty, is only ten kilometres from Sumbal, headquarters of the project. The Jhelum, life-giver of the Srinagar valley, flows into it at one end and flows out at the other. In the rainy season and in the summer when the snow on the Siwalik mountains melts, the Jhelum and the mountain streams are in spate, resulting in a sudden fury of the Wullar. The waves leap up seven to eight feet high, often breaching the old embankment and flooding thousands of acres of cultivated land all round. Hundreds and thousands of people push to plug the breaches with sand-bags and rocks to save the 87 villages in the low-lying tract.

'The story repeats itself every year. The Wullar tyrannises the poor farmers of the area.

Mr Kashyap Bandhu has enough patience with the Wullar. He believes that the Wullar is primarily a friend of the people, although a terrible-tempered friend, and for ages the Wullar has made their lands fertile.

According to legend, Mr Kashyap Bandhu told me, the Wullar is a snake-god. He demanded more land from the sage Kashyapa, the forefather of the Kashmiri people. But Kashyapa invoked his powers to control the Wullar. Yet the irrepressible Wullar even now tries to rebel.

I went round the project with Mr Som Nath Khar, deputy chief project officer. On our way, he showed me the murky Jhelum before it flows into the Wullar, and in half an hour we reached the Wullar. Standing on the old embankment, I saw a vast sheet of emerald water. Mr Khar showed me the breaches plugged with sand-bags and exclaimed, "You should have come here two months ago. You would have seen an army of thousands of people, young and old, sweating and fretting, day and night, to prevent the Wullar from submerging their lands. It was a spectacular battle."

The May floods in the Wullar, I learnt, lasted as usual for about a month. And in the last week of July six hundred acres of land devastated by the waters still remained to be reclaimed.

There were stacks of stones, more than a metre high and three to four metres wide, all over the top of a stretch of the embankment, and more stones were daily coming by boats and trucks.

"The transport of stones is a very laborious and tedious job, but the people are doing it enthusiastically," said Mr Khar. He pointed out to boats in the distance and said "All those boats are bringing stones. The quarry is miles away in the hills beyond—that white spot you see in the hills is the quarry. The stones are transported from the quarry to the bank by trucks, and then boats bring them to the other bank. It takes three days for the stones to reach here. And this entire embankment will soon be covered with stones."

The stones will be used for lining the inside wall of the embankment. This is expected to be the permanent solution to the problem of the recurring Wullar floods as far as man can fight against the might of nature.

The scheme provides for strengthening the embankment over its entire stretch of thirty kilometres. The present height of two metres of the embankment will also be raised. A metre of its height has been added during the past ten years. Stone pitching of about 22 kilometres of the bund will be done this year and the rest completed next year.

I also saw thickets of *veer*, a kind of willow, half submerged in water near the bank. I was told these had been planted to give firmness to the banks.

The scheme will cost about Rs 26 lakh of which Rs 11 lakh have already been given by the Government.

Old Revolutionary

MR Kashyap Bandhu was regarded as a firebrand in his early years. At 65 years he has much of the fire. He has withdrawn from the public gaze to do quiet, but demanding, constructive work. His sturdy frame exudes energy, and on his face peace seems to have just an edge over power.

He is a man of few words. He speaks gently, softly and slowly.

He loves people. He perceives life even in inanimate beings—the Wullar, the *chinar* and the hill are his acquaintances.

Everybody is a friend or brother. The way he deals with young workers as head of the Sonawari project is a lesson in how to get the best of co-workers. He gave up his real name long ago and calls himself 'Kashyap Bandhu', which means brother of the Kashmiris, the descendants of the sage Kashyapa.

Son of a poor farmer of Kashmir, he could hardly study up to secondary stage. He was employed as *hezrakash*, a petty official in the land records department of the old Kashmir State. Later he found another petty job in the postal department at Quetta. He had to give up both jobs because he had been inciting discontent among labourers.

He went to Lahore and joined the group of revolutionaries headed by Bhagat Singh. After the execution of Bhagat Singh and the suppression of the group, he underwent an ideological crisis, at the end of which he became a convert to non-violence.

In 1936, he joined a group of Kashmiri youths who organised the national Congress movement in Kashmir. Some of the better known of this group, Sheikh Abdullah, Bakshi Ghulam Mohammed and Mr G.M. Sadiq are all younger to him.

When the first popular government was formed in the State, Mr Kashyap Bandhu was appointed as the Commissioner for Rural Development. Followed a period of oblivion. When Mr Sadiq came to power, he was offered the chairmanship of the State Khadi Board. But he preferred more active work and chose the Sonawari area where he had initiated the development work earlier.

It was with difficulty that I could make him speak of his colourful and inspired life. "This will be the last and the biggest task of my life to help my people," he said in conclusion. "And once this is done, I shall bid goodbye to public life and retire to my village to rest under my *chinar*."



A PLANNING COMMISSION SURVEY

Junior Technical Schools

THE Second Five Year Plan provided for a scheme of junior technical schools, which would train the students as semi-skilled workers and at the same time provide general education of the matriculation standard. Students in the age group of 14-18 years were to be admitted to these schools.

By the end of the Second Plan period, 32 such schools were opened on experimental basis in seven States. The Third Plan provided for addition of 96 schools. At present 88 schools are functioning in the country.

The main advantage of the scheme is that it provides for occupational training to needy boys. It also lightens the load on secondary schools and supplies the much-needed semi-skilled technicians to our growing industries. After completing the training, the student can also join a full-fledged technical institution like a polytechnic for advanced studies.

The training is imparted in eight trades such as turning, machining, fitting and smithy. The duration of the course is three years. Out of a total of 4,560 working hours in the school, 2,520 hours (55 per cent) are devoted to workshop training including specialisation in one of the eight trades. Of the rest, 760 hours (17 per cent) are given to engineering drawing and elementary mechanical and electrical engineering, and the remaining 1,280 hours (28 per cent) are spent in the study of humanities, languages, science and mathematics.

The general education given in the junior technical school is an advantage to these students over craftsmen trained in other institutions. The technical know-how obtained in this school would be an additional qualification for a student over a matriculate.

The scheme was prepared by the Union Ministry of Education in consultation with the Planning Commission in 1958.

Last year the Planning Commission conducted a survey of the existing schools, and the report has just been published.

The survey covered 40 schools with 7,319 students. Six of the schools were in Uttar Pradesh, 9 each in Kerala and West Bengal, 5 each in Madhya Pradesh and Andhra Pradesh, and 3 each in Madras and Punjab. (These schools are also known as secondary technical schools in Madhya Pradesh, and Uttar Pradesh). Among them, ten schools (5 in Andhra Pradesh, 3 in Madras and one each in Uttar Pradesh and West Bengal) were attached to polytechnics and one was attached to a central workshop; the rest were independent. Useful information was received, in reply to a questionnaire, from 39 schools and it covered 5,451 students.

The survey revealed that out of every 100 students admitted to the school, 36 students completed the three-year course successfully and of them only 18, that is less than a fifth of the total, took up industrial employment. The proportion of wastage was as high as 64 per cent; of them 42 dropped out during the course and the remaining 22 failed in the examination. Out of the 3,221 students admitted in the first two batches, 1,141 students came out successful, 715 failed at the examination and 1,365 had left the course half way. Statewise, the percentage of drop-outs (to the total wastage) was the highest (94.4) in West Bengal, followed by Punjab (75) and Uttar Pradesh (74), and the lowest (23) in Madras.

Post-educational career was studied in the case of 515 students who passed the examination in 1963 and 1964. Of them 250 (48.6 per cent) had taken up jobs in industries, 249 had joined polytechnics and colleges, and the remaining 16 had gone to other departments.

An analysis of marks obtained by the students at their qualifying examination before admission to the

(*Continued on Page 13*)

Five Parliamentary Committees on the Plan

PARLIAMENT is to set up five committees to study various aspects of the Fourth Plan.

These committees will deal with:

(a) Policy, Resources and Allocations;
(b) Industry, Power, Transport and Scientific and Technical Research;
(c) Agriculture and rural Economy;
(d) Social Services; and
(e) Education and Manpower Planning.

It is further proposed to set up a steering committee of the chairmen of all the committees. This steering committee will meet the Planning Commission and discuss the recommendations of the committees.

The Prime Minister will also constitute a committee to which the leaders of groups in Parliament are to be invited to discuss the Fourth Plan with him.

The Minister for Planning, Mr B. R. Bhagat, made these announcements in the course of a statement he made to Parliament on the progress in regard to the preparation of the Fourth Plan. Mr Bhagat said that after the Draft Memorandum had been presented to Parliament on December 2, 1964, the Informal Consultative Committee of Members of Parliament had considered it in detail at five meetings.

Meanwhile five sub-committees of the National Development Council had examined the sectoral programmes and the question of raising resources for the Plan. The Commission and the Finance Ministry had intensive discussions with a view to making a firm estimate of the size of the Plan and the resources available for its financing. Furthermore, the Planning Commission held a series of discussions with the State Governments on the magnitude, priorities and phasing of the States' Fourth Plans as well as the programmes for mobilising additional resources.

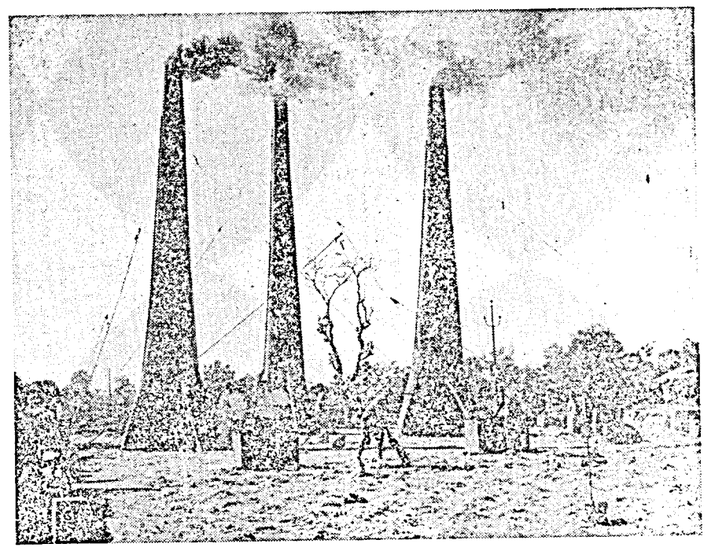
Mr Bhagat said that Draft Outline of the Fourth Plan would be placed before Parliament during the winter session and not in the present session as had been originally proposed.

The decisions of the Planning Commission on the size of the Fourth Plan (taken at the August 9-10 meeting) and on the agriculture programme will be discussed by the National Development Council on September 5 and 6.

Bricks from "Unsuitable" Soils

RESEARCH IN ROORKEE WILL HELP US TO MEET FOURTH PLAN NEEDS

G. S. BALAKRISHNAN



The three-chimney technique of brick-making evolved by the Central Building Research Institute, Roorkee. It will introduce saving in the use of coal.

IN the Fourth Plan, it is proposed to spend Rs 2,500 crore on building construction. This will require a doubling of the present rate of production of bricks, which is 1500 crore bricks a year.

If this has to be achieved, the brick and tile industries will have to be in a better position to meet the demands. There has to be an improvement in techniques as also an expansion of capacity.

Pioneering work in the field of improvement of techniques has been done by the Central Building Research Institute. Particularly notable is the development by the Institute of methods of manufacturing bricks from soils hitherto ruled out as unsuitable for production of bricks of good quality. The Institute has also striven to improve the efficiency of the traditional Bull's trench kiln. (This continuous kiln for firing bricks is common in north India and is named after Mr. W. Bull, an engineer of the old Oudh and Rohilkhand Railway, who introduced it in India about 1875).

Among the three major soil groups of the country, alluvial soils alone have been considered to have properties suitable for brick-making. The red soils of south India and the black cotton soils of central India have been regarded as unsuitable. The Institute therefore concentrated its attention on producing good quality bricks from these "unsuitable" soils.

The author works in the Central Building Research Institute, Roorkee. He thanks Mr L. C. Jain and Mr N.C. Mazumdar of the Institute for the information on which the article is based.

The experiments made with black soils gave encouraging results and a field trial on commerical scale was carried out at Indore in collaboration with the Madhya Pradesh Housing Board. Employing the technique developed at the Institute, 18 lakh bricks were manufactured there. They were fired in a Bull's trench kiln instead of in clamps using slack coal as fuel. The Institute has received requests for starting similar projects at Bhopal and Bangalore.

The investigations carried out on the Bull's trench kiln were aimed at improving its thermal efficiency and reducing the consumption of coal. The technique evolved by the Institute assures better combustion, a higher rate of fire travel and a considerable saving in coal.

Other problems studied by the Institute include the manufacture of engineering bricks, acid-resistant bricks, perforated bricks, coloured bricks and deep-frog bricks. (The depression on the face of a brick is called the 'frog'. Bricks that have a depression more than that found on ordinary bricks are called deep-frog bricks.) The difficulties in the manufacture of modular bricks and rationalisation of brick sizes are also being studied by the Institute scientists.

Tile-making is allied to brick-making. Indian tiles have a foreign market which, however, has been declining of late, probably owing to competition from other countries. A major problem of the tile industry is the cracking and warping of tiles during drying. A solution of this problem is essential to any plan to increase exports of tiles. The Institute has developed a process which reduces the losses during drying.

The measures necessary to increase the production of bricks and other clay products to meet the higher demands of the Fourth Plan were

discussed at a three-day forum on "brick and tile manufacture" at the Institute in July 1965. Brick manufacturers, representatives of the Planning Commission and the scientists of the Institute took part. It was felt that there was a case for reduction in the price of bricks without sacrifice of quality. Mass production of bricks in mechanised plants was discussed in detail and it was suggested that the economic feasibility of introducing partially mechanised plants similar to the one now being worked in the Institute should be examined. These plants can be set up with machinery produced within the country and with their help it will be possible to maintain round-the-year production of bricks. The multiplication of Bull's trench kilns in areas where bricks are burnt in clamps was also suggested. It was also urged that steps should be taken to train more skilled firemen and moulders as there was likely to be a shortage of such personnel in the Fourth Plan period.

As the brick industry today functions only as a humble cottage industry, there is little scope for the kiln owners to employ scientific methods and techniques. The provision of advisory and testing facilities to kiln owners is an urgent task to which the Government must address itself. The establishment of a co-operative research station financed on a 50-50 per cent basis by the Government and the industry is an imperative need. An exhaustive soil survey around cities is also urgently required. More work should be done on lime bursting which is a problem faced by the brick industry in many areas. Coal can be saved in large quantities if the operating practices in Bull's trench kilns are standardised. The three-chimney experiment of the Central Building Research Institute which promises a considerable saving of coal should be speedily adopted by the industry. Further research should be directed towards improving the quality of bricks made from the alluvial clays of the waste lands often allotted to brick manufacturers. Attempts should also be made to produce bricks from *kallar* soils in the Punjab declared unfit for cultivation. The most important step, perhaps, will be full-scale field projects by the industry in collaboration with research institutes like the C.B.R.I.

QUOTATION BOX

Gastro-enteritis on sale.
—Heading in "The Statesman" for article on hawkers of eatables

The first danger is a want of spirit... The second is a want of confidence... The third is the frustration of the young... The fourth is a crumbling of the sense of Indianness. The fifth is shortage of food and the continuous rise in prices. The sixth enemy is a growing isolation from the world. The seventh...is that India does not have a foreign minister with a deep knowledge of the scaffolding of international problems... The eighth enemy of Mr Shastri is his own party... The ninth is the run-down condition of India's universities. The tenth...is the want of a live political philosophy.
—Mr Chanchal Sarkar on "Mr Shastri's Enemies"

The four fallacies in the official approach to planning, according to Mr Masani, were: (1) that the country could spend what it did not possess; (2) that it was steel and machine-making and not agriculture that was India's basic industry; (3) that in each succeeding Plan the State was expected to produce more and more and the people less and less; and (4) that the Planning Commission and the Government had the right to dictate what should or should not be produced and at what price it should be sold.
—Press Trust of India

...telephones now perfected to impede all communication, motorcars to make urban movement impossible, entertainments devised to achieve boredom...media of information that leave one increasingly ignorant.
—Mr James Cameron

Cremating fee reduced.
—A headline in "The Hindustan Times"

At the higher levels of the civil service, I believe, our methods of work tend to make us one of the most uneducated groups of persons there could be.
—Mr Mongat Rai in "The Statesman"

In New York these days it has become socially unacceptable to take a bath.
—"The Times of India"

In the past, the Planning Commission has tended to identify planning with the book. But that is no longer good enough. As a spokesman for the World Bank said to me the other day, the Bank does not buy a book. It buys economic growth. If the book fails to produce growth, the Bank must ask for something else that will.
— Mr H.Venkatasubbiah in "The Hindu"

In India, millions of the aged and the unemployed go through life without succour or hope, and die in misery. In future, however, they will have the option to survive 65 years of hunger, poverty and disease, and then get a pension of Rs 20 a month.
— From A Ditcher's Diary in "Capital"

Two Swedish soldiers who say they prefer bread and butter to porridge will be court-martialled at Vaxholm soon for stealing less than half an ounce of butter...
— From "Time and Tide", London

Members of the (Madras) Legislative Council today wanted the State Government to see that when the fresh allotment of cars was made, legislators got their share. One member said Members of Parliament got a car within 30 days of their applying for it.
— "The Hindu"

Widespread cynicism has now taken away the popular appeal which targets were supposed to have; that does not make targets useless or meaningless but it takes the shine off them.
— "The Economic Weekly"

The pre-university student is treated to comparative literature and aesthetics, to spiritual biography and psychoanalysis, whereas he is yet to be taught how to make subject and verb agree.
— Prof. V.K. Gokak on the problems of teaching English

India has changed since my last visit in 1950. People even walk faster.
—Mrs Ruth T. Fry, an American psychologist

The U.S. Negro is basically pacifist and shows great temperamental submissiveness. But, unlike Gandhi-trained Indians, he does not take a fatalistic attitude and this accounts for his non-violent revolt.
— Dr Allan Nevins, U.S. historian

Instead of constructing gamma gardens, electron microscopes and IBM computers in agricultural departments, we in this country should establish factories for manure production in every State.
—A letter in "The Statesman"

There are in the world a variety of men of goodwill. Some of them are more dangerous than those who are selfish, ambitious, aggressive, cruel and cunning. The former see no evil where evil is manifest.
—Acharya J. B. Kripalani

The mother contributes only one type of sex chromosome, namely X, while the father can give either X or Y; it is the father who determines the sex of the child. Hence, in the case of couples who by chance have only daughters, there is no use blaming the mother and making her undergo fast and penances.
—Dr M. S. Swaminathan in "Home and School"

Role of Libraries in National Development

LET PUBLIC HAVE ACCESS TO COLLEGE COLLECTIONS

J. N. GIDWANI

POPULAR thinking about education suffers from two fond fallacies: that education is finished when a chosen course of study is completed, and that it could be had only at a fixed place like a school or a university. The former fallacy leads inevitably to intellectual stagnation and the latter leads to a divorce of the educational centres from home and society. It is now being realised increasingly that education is a life-long process of development by a variety of agencies and that universal education alone sustains society.

This ideal of continuous development of potialities has until now been within the grasp of only a few, chiefly the rich and leisured classes. The adult education movement endeavours to enlarge the province of these favoured few into the democratic domain of many. Libraries, which are primarily educational institutions for intellectual advancement, have a vital part to play in giving effect to this endeavour.

People's Universities

The concepts of "library" and "library service" have acquired new dimensions. Traditionally, a library meant a collection of books, and library service was thought of as a custodial function. Today libraries have not only books but a wide variety of materials, such as newspapers, journals, gramophone records, films, tapes, documents, pictures, paintings, microfilms, toys and what-not. At the same time, the librarian endeavours mightily to encourage their "use" and he mostly lends them out. To that end he provides "open access" and is ready to face a reasonable loss of material either by over-use or by theft. He promotes their use by providing guides to the use of the institution's resources, by organising periodical displays of newly acquired books, by making available subject-wise reading lists, and by keeping the library open from morning to night, and by giving the readers various types of advisory services. He strives to make the library a centre of intellectual activity by organising exhibitions, study circles, book review and discussion groups, poetry readings, concerts and playing of records and tapes. The plain custodial function of the past has been replaced by the many-sided functions of the contemporary library. The library is now a tool of research, a source of information and ideas, an agency for increasing vocational competence, a place for aesthetic development, a centre of pleasant recreation and finally an institute of education. The adult who seeks to pursue his education in any form finds the library the very best source of help.

Let us now review the relevance of the library in fulfilling the aims and programmes of the adult education movement. Andre Maurois affirms that "education is but a key to open the doors of libraries". Among the many agencies which participate in programmes of adult education, "few have the tremendous potialities of public libraries of providing great masses of people the opportunity of self education which they need and deserve". The fact is accepted today that the librarian must take the lead in stimulating and helping to shape the desire to learn on the part of the people.

Role in Adult Education

These potentialities have been fully tapped in the West in the cause of adult education. Public libraries in those countries are aptly described as "people's universities". The Scandinavian countries, U.K., Canada and U.S.A. possess first-class public library systems which enable every citizen to have free access not only to the available library resources in his immediate vicinity but even to the distant ones through inter-library loans. People in rural and outlying areas are served by book-mobiles and by post. The ailing, the confined and the children too are fully taken care of.

Some of the factors that have made public libraries there the focal point of the adult education movement are widespread literacy, reading habits imbibed in early age, shorter hours of work, vacations with pay, increasing longevity and the urge for self-advancement. The libraries are a free service which the community wholeheartedly supports on the basis of two axioms—that reading is good and everyone should read.

One can now appreciate the truth of the statement made in the *Encyclopaedia Americana* that "the principal agency for adult education in most U.S. communities is the public library", for it provides the best education possible at the lowest possible cost to those who are unable to attend the established educational institutions.

The paramount importance in all developing countries of "life-long learning for survival" and therefore of library services should be accepted. If our developing societies are to march ahead, they must take maximum advantage of the current explosion in knowledge. The compelling need of raising responsible leaders at all levels, of inculcating a national outlook, of developing rational attitudes among people and mak-

in agriculture, of controlling population—all this will be helped by giving this vital educational service its proper place in the national plan for development.

India is now on the eve of her Fourth Five Year Plan. After completing three Plans, the nation is giving incredibly little to public library provisions. According to the Report of Library Advisory Committee public libraries in India had, in 1954, "only one book for every 50 heads and as many as 20 persons between themselves read only one book in a year". This unfortunate situation has not improved in decade since.

One of the regrettable features of our educational scene is the high proportion of those who drop out. Crores of rupees that are spent yearly in imparting primary education are wasted because the large majority of beneficiaries give up their schooling in the middle. Even those who complete it have no libraries to sustain reading habits, with the result that they too soon relapse into illiteracy. Literacy has no meaning unless it is used rightly and continuously. We have 100 million literates in this country but their utilisation of literacy is poor because they do not have access to any properly stocked libraries.

Fourth Plan Allocation

It is therefore a matter of importance that up to 10 per cent of the expenditure earmarked for education be spent on the follow-up library services so that the fruits of education are continuous, increasing and permanent. The present position unfortunately is that we are spending less than 1 per cent on this essential service and that too in a haphazard manner. It is reported that a sum of Rs 21 crore is being provided for the public library set up in the Fourth Plan as against the total outlay on education of Rs.1,949 crore. This means that only 1.07 per cent of the allotment in education will be available for public libraries.

To a great extent this is due to apathy of all concerned. Today, excepting Madras, Kerala, Andhra Pradesh and now Mysore, no other State has a systematic public library set-up. It is appalling that a city like Bombay does not possess a proper public library. The blame for this has to be shared by both the librarians and the public. Librarians lack initiative and the public is utterly undemanding.

The Union Government woke up some time ago and cast a small pebble in the placid pool of public apathy by circulating in 1962 a "Model Library Bill". But the Bill does not seem to have graduated into law in any State.

The enactment in the near future of this Bill coupled with the apportionment of funds by the Government will give the public library movement a considerable momentum. We shall then need buildings, books and trained librarians in large numbers. However, centrally located sites and building materials are bound to be in short supply. An even more important need is for librarians who will regard themselves as adult educators.

Are we doing anything to study and solve these problems? With money, material and trained personnel in short supply, we shall have to devise new and unconventional methods to tackle the situation.

Unconventional Techniques

What "unconventional" techniques can we adopt in setting up a public library system? I suggest that we utilise the present library set-ups in schools, colleges and even in universities for developing the public library system. The buildings in which these are housed are mostly used during daytime. These libraries could be utilised by the public in the mornings and evenings. To solve the problem of accommodation we could even revive the idea of having libraries in temples. Given the spirit of genuine accommodation and shedding of the attitude of "possessiveness", the concerned authorities could be persuaded to permit use of a small portion of their building for this laudable service.

By implementing the suggestion outlined above we shall be taking the whole nation back to school.

By way of an example we may specifically consider how university libraries could discharge such a public function. Today they assume responsibility for the faculty and the students mostly at post-graduate level. What happens to all those students who leave the university after completing their courses of study? What way can they keep themselves intellectually alive and reasonably well-posted in their chosen field of specialisation? Where can they turn for their intellectual sustenance? This seems to be no one's care and responsibility. Libraries suitable for their needs do not exist. The number of publications is too large and individual items too costly for them to buy. The only institution which could come to their rescue is the university library, which at present denies them access. The net result is that they stagnate professionally and mentally. They are not encouraged in any way to carry on self-directed study for the rest of their lives for which the university is supposed to have trained them.

I anticipate objections to my proposals. But I plead that the problems are not insoluble. The entry of such serious adult readers from outside the university campus will, I believe, raise academic standards, for nothing generates an atmosphere of serious and scholarly study more than a collection of studious people in a library.

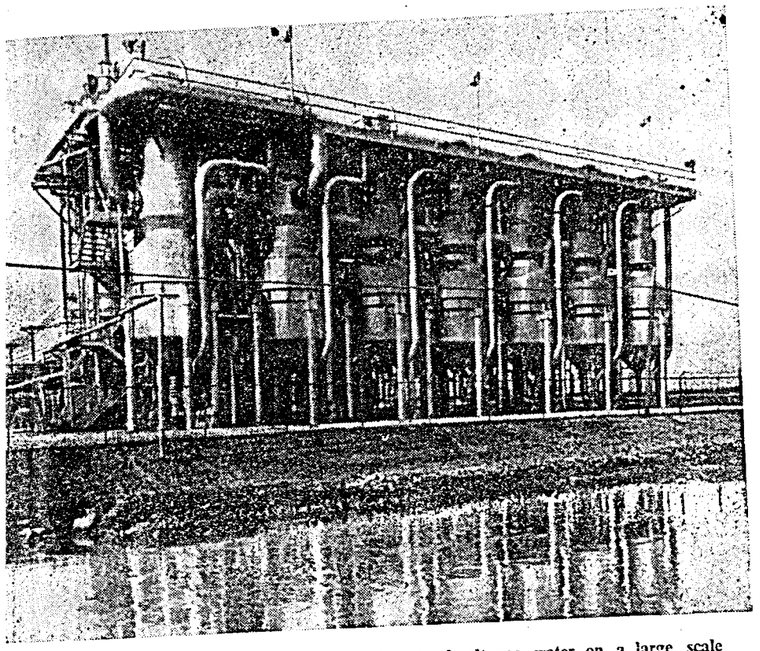
To conclude, there is a heightened awareness all round in our country as to the very important role that education plays in the life of a nation on march. If newspaper reports are any clue, both the educator and the student are highly agitated about their betterment. That the Government is alive to the major issues is clear from the Model Acts (whether for the universities or for the library set-up) and the appointment of an Education Commission. Amidst this activity we should not lose sight of the fact that an efficiently administered modern library constitutes the most universal, most accessible and economical source of self-education and that the more we have of such libraries, the swifter will be the tempo of development.

Mr Gidwani is Director of Libraries in the University of Rajasthan.

They Now Drink Sea Water

Making the Salt One Sweet

INDIA TO TAKE PART IN WORLD CONFERENCE



The plant at Texas, first American project to desalt sea water on a large scale

MAHARSHIS might have gulped down oceanfuls of sea water, like the sage Agastya, but man does not relish even a mouthful.

Human tissues are bathed in a saline solution closely resembling sea water and 71 per cent of a person's body weight is water. But intake of large doses of sea water causes vomiting, purging, thirst and even a disease called scurvy. Salts in drinking water should not exceed 1,000 parts per million.

Population growth, rapid industrialisation, frequent drought and settlements around oilfields mostly in arid regions are fast making natural fresh water scarce. There is such a shortage of drinking water in many parts of the world that man is now turning to the sea for his water needs.

SCIENCE NOTE

BY ROSSCOTE KRISHNA PILLAI

There are at present 200 plants in different parts of the world converting sea water into fresh water. Of this, 16 plants have a daily capacity of at least 3.8 million litres of fresh water. At Kuwait, a complex of five plants produces 25 million litres daily. Other large desalting plants are in Qatar, Italy, Israel, South Africa, Venezuela, Bahamas and the U.S.A. The world's largest single plant with a daily production capacity of 13.3 million litres is on the island of Aruba in the Caribbean.

Last month the New York State and a U.S. company signed an agreement to put up the first nuclear-powered desalinisation plant in the world. Using the Multi-Stage Flash distillation method with a nuclear reactor it will turn out electricity and cobalt 60 radio-active isotopes in addition to 3.8 million litres of fresh water from the sea. The by-products can be sold for 2 million rupees annually.

The first International Symposium on Water Desalinisation will be held in Washington from October 3 to 9 this year. Scientists and engineers from 114 nations, including India, are expected to participate and exchange information on desalting of sea water.

Although clean, wholesome drinking water is in short supply there is no shortage of water in the world.

Water covers three-quarters of the earth's surface. Of this, 97 per cent is sea water. Fresh water forms less than one per cent.

The major ingredient of sea water that makes it baneful as a drink is

common salt or sodium chloride. A litre of sea water contains about 35 grams of various salts (chloride, sulphate, bicarbonate, carbonate and bromide) of metals like sodium, magnesium, calcium and potassium. To make this potable, these salts have to be removed. The process of removing the salts is called desalinisation or desalting.

It is not known when sea water was first successfully used for drinking. In 350 B.C. Aristotle devised experiments to desalt sea water. Caesar's Legions about 49 B.C. also had a method. That was just to distil it. Distillation is thus the oldest method known for desalting.

In the eighteenth century a simple crude still was developed for use on board sailing ships. In steamships till the end of the nineteenth century the practice was to feed sea water to the ships' boilers and distil it. Now most oceanic vessels have both distilling apparatus to convert sea water and storage tanks for fresh water.

Distillation is the most widely used now among several different methods for desalting sea water. In principle, it follows nature's method of making fresh water from the oceans.

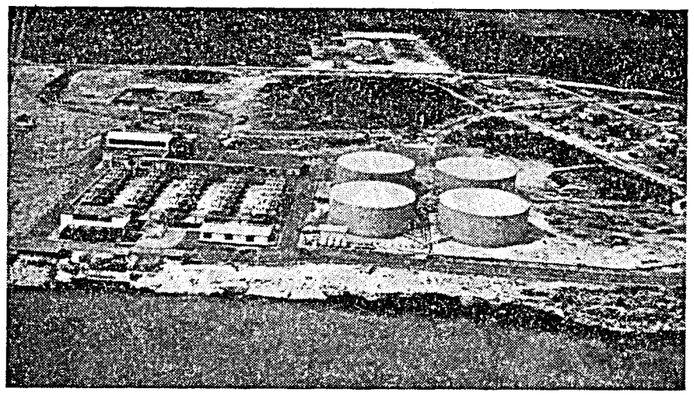
The sun warms up the oceans and water goes to the atmosphere as vapour. When cooled, this vapour comes back to the earth as rain. It joins the rivers or seeps underground and is used by man for drinking.

Similarly when sea water is heated, we get steam which is free from the salts. When the steam is condensed, we get pure water. This seems simple, but the real snag is the cost of fuel for converting water into steam.

This process adapted to local conditions is the basis of most of the large desalinisation plants. Among the many adaptations, one known as "Multi-Stage Flash" distillation is used in more than 100 plants.

This particular method is based on the fact that water requires less heat to boil under a pressure lower than the normal atmospheric pressure.

Heated sea water is passed into a chamber where the pressure is kept lower than normal and a portion of water "flashes" into steam. This steam is then condensed to pure water. The remaining water is passed to a second chamber where the pressure is still lower. Again a portion flashes into steam which is condensed. Thus more and more fresh water is made in a series of chambers (or multi-stages) with lower and lower pressures. A plant now in use in the U.S. naval base at Guantanamo, Cuba, has 36 such chambers.



The world's largest single plant at the island Aruba, Caribbean, producing 13.3 million litres daily. It shows four storage tanks, five lines of evaporators and the steam power plant. Below : These giant pipes in the U. S. A. transport fresh water over 858 kilometres to supply the needs of 66 California communities. Next page bottom : A resident of Kuwait drinks fresh water from the largest complex of sea water conversion units in the world. (*Pictures : USIS*)

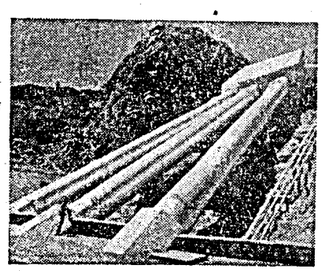
Further saving in heat is effected by pumping sea water through pipes running through these chambers. It enters the last chamber where the temperature is lowest, and then passes through hotter chambers one after another. It absorbs ninety per cent of the heat required for conversion from the condensing vapour in the chambers. Only ten per cent heat has to be supplied by a special heater.

Conversion of water into ice requires less energy than conversion into steam. So freezing is another method used to desalt sea water. But there again is a problem. Tiny irregular ice crystals easily trap salt crystals and require a lot of fresh water for washing them clean. The U.S. Office of Saline Water is trying a new freezing process which produces uniform, large ice crystals which trap less salt.

Another method akin to distillation and freezing is hydrating. Certain chemicals combine readily with water, but not with salt.

When propane gas is bubbled under very great pressure into sea water at 6.5°C, a crystalline solid is formed which contains only pure water and a small quantity of propane. Salt is left behind. When these crystals are removed and slightly heated, propane goes off leaving fresh water.

For small communities and industries, sea water can be economically desalted using what is called a "membrane" process. This makes use of the fact that salt dissolved in water splits into two electrically charged components—negatively charged chloride ions and positively charged sodium ions. When two membranes, to which an electric current is applied, are introduced into the salt water, the negative chloride ions pass through the positively charged membranes and the positive sodium ions pass through the negatively charged membranes. Fresh water remains.



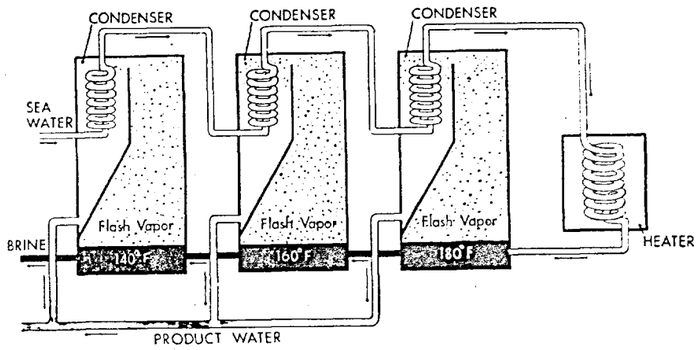
There are at present two such methods using membranes for desalting—electrodialysis and reverse osmosis.

In electrodialysis the amount of electricity required is so great that it is not very economical to desalt sea water. It is now used in several places in the world to purify brackish water containing small quantities of salt.

"Reverse osmosis" is one of the latest desalinisation methods using membranes. The University of Florida first demonstrated it in 1953. They have found a plastic membrane, namely, cellulose acetate, through which water passes but not salt. This is exactly the reverse of the process by which nutrients flow from our intestines into the blood streams.

A pilot plant is now in operation in California which produces 3,800 litres of fresh water daily by this process. Newer and cheaper plastic membranes are also under test.

One vital problem that faces these various methods for converting sea water to fresh water is their cost. Most of them are expensive but in places where water is scarce or fuels like oil and gas are plenty cost is no concern. The fresh water obtained from the plants that are working throughout the world costs not less than Rs 1.25 per 1000 litres. In India the cost of producing pure water for piped supply from rivers works out roughly to 15 to 20 paise per 1,000 litres.



A diagram of 'flash distillation', the process by which ocean water is made fit for drinking. Sea water entering at upper left is more and more heated, as it passes through condensers and finally through heater. Then it flashes into steam at lower and lower air pressures in the different tanks. This vapour gives up its heat against the exterior of the condensers and turns to fresh water which leaves through pipes shown at bottom of diagram. Salty residue, called brine, leaves at lower left.

Developing nations like ours will require less expensive processes to take to desalinisation. But the demand for water is increasing so rapidly that the Madras Government is reported to have mooted a proposal for establishing a desalting plant.

Attempts are now being made to find out less expensive methods and to reduce construction costs. Investigations are also in progress to derive by-products like fertilisers from the brine that remains after pure water is removed from sea water.

The technical resources of the U.S.A. and the Soviet Union are now pooled by an agreement to exchange information regarding desalting of sea water and to pass on the results of their research to all nations through the International Atomic Energy Agency.

When a new breakthrough in techniques results from the international research in desalinisation of sea water, which is called "the most urgent project of the century", water shortage in the world may become a horror of the past.

Junior Technical Schools

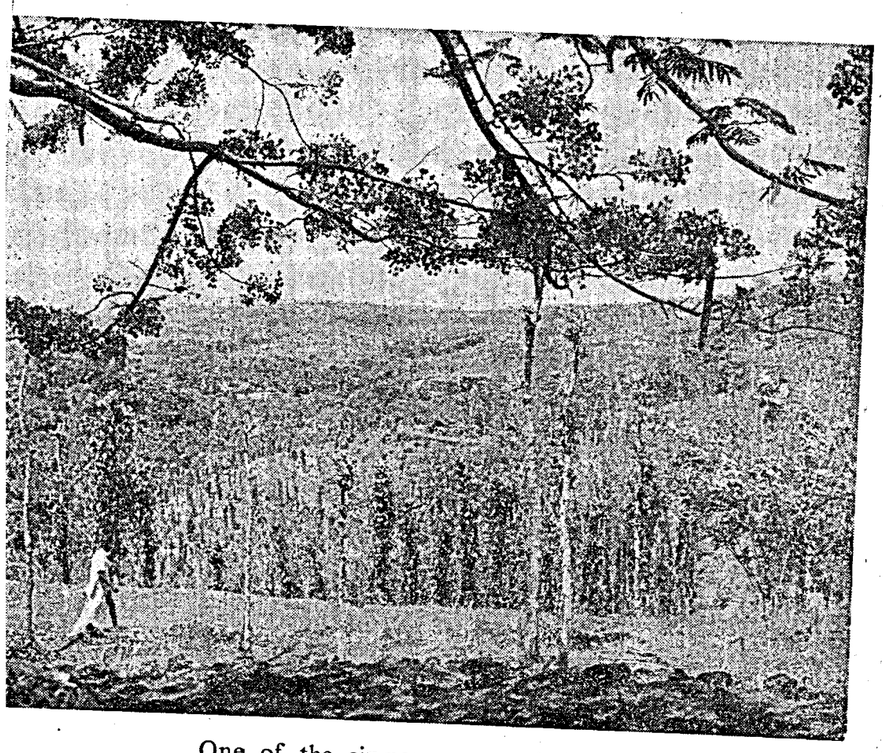
From page 6

junior technical schools shows that the students coming to these schools are of 'average' or 'below average' intelligence.

The pattern of the junior technical schools is not uniform in all the States. That makes a difference in the academic aptitudes of the students. In certain States, the courses are more oriented to employment while in others they emphasise the academic aspect and equipping the students for higher education.

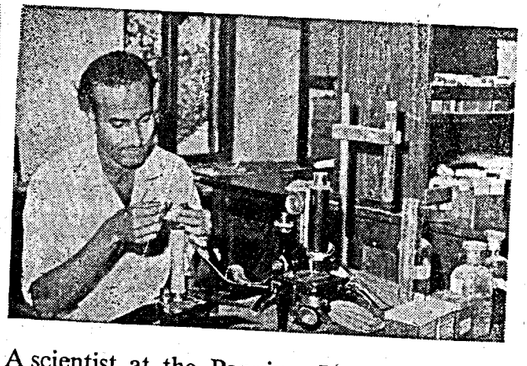
In an introduction to the survey report, Professor V.K.R.V. Rao, Member, Planning Commission, has said: "Considering the cost of education in these schools and also the paucity of resources available for educational development in the Five Year Plans, the present situation seems to call for a serious examination. One may also mention in this connection some of the other problems, such as the relationship between junior technical schools and industrial training institutes as well as technical high schools, gradation of skills and appropriate curricula development for the various types of institutions operating in this area, and the need to weave all these programmes together into a pattern of vocational education at the secondary stage".

GROWING MORE



One of the six pepper nurseries in Kerala which produces 95 per cent of the total output in India. Below: Vines completely withered due to a major disease caused by the flea beetle





A scientist at the Panniyur Pepper Research Station working on methods to root out the diseases of the spice

Photographs by TARA CHAND JAIN



A researcher looting diseased plants

PEPPER

Pepper vines being sprayed with DDT against 'pollu' and wilt



BLACK PEARLS

Scientists' Work in Kerala

PEPPER is the foremost of the spices. Its ability to change the taste and flavour of food has made it much sought-after. The quest for pepper has indeed altered the course of history.

Four centuries ago the chilli was discovered on the American continent but it has not dethroned pepper from its position. In the last few decades the advanced countries have become converts to plain foods. Still there is great demand for pepper in the world. The main suppliers are Indonesia and India. The little black pearl earns us a lot of foreign exchange—as much as Rs 65 million in the seven months of this year.

Because pepper occupies so valued a place in our foreign trade, it is important to increase its production. Three research schemes have been started in the last dozen years to study the problems of pepper. The first two are at Panniyur and Thodupuzha in Kerala State, which grows about 95 per cent of the national output. The third scheme is in Assam.

Pepper is obtained from the creeping vine *piper nigrum*. The plant lives up to 30 years. Therefore the selection of the right pepper vine for planting is very important. So far no scientific survey has been carried out to select the best vines. Six special pepper nurseries have been established in Kerala during the Third Plan to raise good and regular yielders. These nurseries can supply 100,000 cuttings which can meet only a small fraction of the total plantation requirements.

The yield from most varieties cultivated in India varies from 100 to 300 kilogrammes per hectare. With improved breeds and better cultural practices like application of more manures and fertilisers and plant protection measures the yield could be doubled. The Panniyur research station has been doing good work in this field.

In most of the big pepper plantations no manuring is done and consequently the soils are depleted and yields are poor. The manurial experiments carried out by the research stations have shown that by proper doses of manuring, which they have worked out, the yields could be increased greatly.

Pepper vines, fortunately, are not affected by many diseases. 'Pollu' is one of the few serious diseases of pepper. It is caused by flea-beetle and results in the hollowing of berries. This reduces the yield sometimes by about 30 to 40 per cent. The Panniyur research station has found that effective control of the pest is possible by regulating shade and by spraying 0.2 per cent DDT solution in July before the disease starts spreading and by repeating the spraying again in October.

Wilt is another major disease. This is controlled by spraying the entire vine with one per cent Bordeaux mixture in April/May and drenching the soil with Ceresan. During the period 1961-63 190 sprayers were distributed in Kerala.

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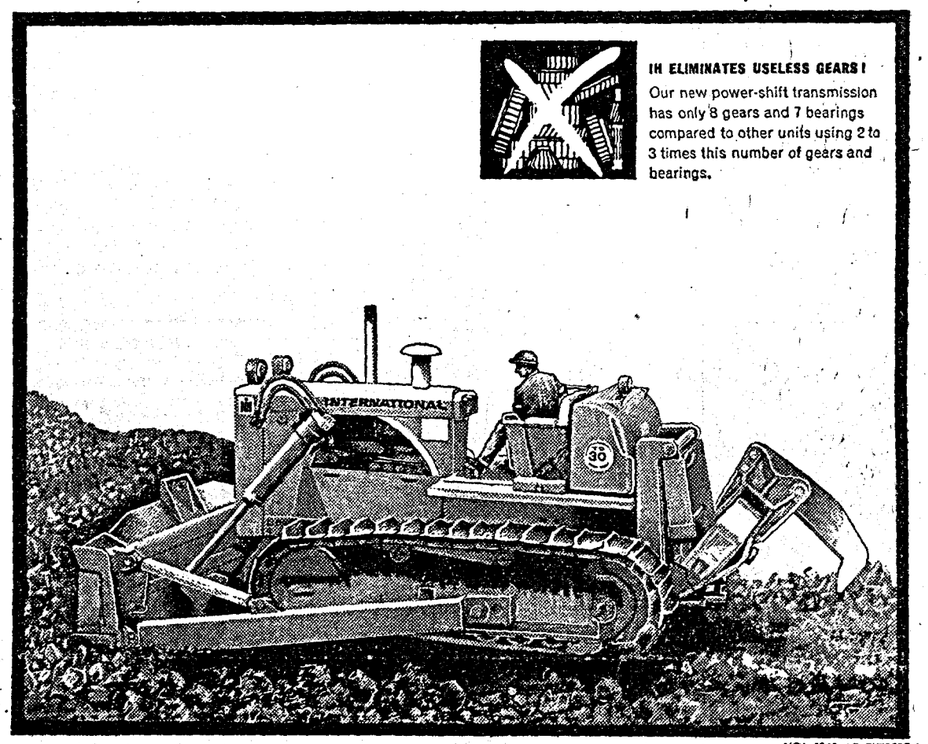
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VOL 1263 AR EVEREST

Pleasant Change

JUST as there are non-books, there are some photographs which are non-pictures. For example: dignitaries cutting tapes, laying corner-stones, presenting credentials, or placing flowers at graves and *samadhis*. Such scenes are photographed endlessly and published by our newspapers but very few readers pause to look at them. But here is a picture which we loved to see—and we are sure *Yojana* readers will like it too—a view of the inauguration of a nursery school of the Heavy Electricals colony at Piplani near Bhopal.



Pleasant variation of the formula. Our vote not only to the tiny girl facing the camera but also to the little boy at right who is ready for the eats.

Peep at Peepers

MANY people in their forties can remember the days when, as small-town boys, they gave the salute to Englishmen who might be passing by. There is a little boy in Delhi who does so whenever he sees a policeman. Shrewd beyond his years, evidently.

Unlike the bobbies of London, policemen in India aren't exactly popular. They are also mistrusted all round, and accused of graft, incompetence and arrogance.

But the police are not the only priers. There are many other kinds of them—ranging from the much feared excise inspectors to the much pitied school inspectors. The Punjab Government is just now busy evaluating the work of the inspectorate system as a whole. A questionnaire has been issued. Four out of the 17 questions are reproduced here :

No. 1. Are you satisfied with the work of Inspectors/Sub-Inspectors in the departments with which you have to deal ?

No. 4. How many different categories of Inspectors/Sub-Inspectors visit you in connection with your work?

No. 11. Are the Inspectors/Sub-Inspectors generally honest or generally corrupt?

No. 15. Have you had any occasion to complain to the higher authorities regarding the work and honesty of the Inspectors/Sub-Inspectors and if so, with what results?

Opposites Meet

TITLES of Pasu Pandit will be given to "genuine cattle breeders of Rajasthan to improve the cattle", according to the United News of India.

Strange turn, for throughout Sanskrit writing, 'pasu' and 'pandita' have been thought of as irreconcilable.

Anxious Times

The Times, London, brought out a special supplement on India to coincide with Independence Day. An editorial sums up the current mood of India as seriously inward looking; and the articles, by many Indian and a few British scholars and commentators, bear out this observation. (The advertisements, unusually readable, strike a more positive tone). There are political assessments of India after Nehru (a variant of the old game of after Nehru who or what?) and appraisals of the economic problems. Some of the findings are:

- — Family Planning: At last they are making a real start. (Mr. G. S. Austin)
- — Food: Unless the pressure on food supplies becomes much more critical the likelihood of a sustained drive for a major break-through in productivity is slight. (Prof. Daniel Thorner)
- — Land Reforms: Success and Failure of a Grand Design. (Prof. A. M. Khusro)
- — Economic crisis: The performance of the Indian economy in the last decade gives ground for optimism, and if the political leadership is able to exploit the opportunities, the future may still bear out this optimism. (Prof. K. N. Raj)

The unclassifiable Nirad Chaudhuri has a forthright essay entitled: "Eighteen Years of Independence—Still No Revolution".



IGNORAMAN

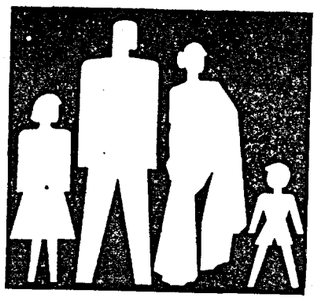
Wants to Know

Does the N. R. Pillai Committee Propose to Convert the Foreign Service into an Indian Service?

Going Metric

IN the issue of July 4, 1965, we published a letter which suggested that the Fourth Plan documents should use metric measures. *Yojana's* inquiries show that the Draft Outline of the Fourth Plan, currently under preparation, will use only metric terminology.

RAJAJI AND THE LOOP



MR RAJAGOPALACHARI has thrust his lance at the loop this time. In the *Swarajya* of August 7 he has strongly disapproved of the intra-uterine contraceptive device. The reasons, in his own words, are:

> "I hold firmly the view that only prosperity can bring about the results the mathematicians want and not contraceptives or surgery made popular among people in the upper strata of society...What we should aim at is production and consequent general prosperity. Reduction in the size of the family will follow without the need for 'loops' or surgery...
>
> "The comfort-loving, selfish and non-adventurous sections of the population will take advantage of contraceptives which the Government may provide and live easier lives, but it will not affect the population problem of the nation. A rise in general prosperity alone can affect it...
>
> "If we adopt birth-control by means of contraceptives and sterilisation we shall have an *elite* of selfish, comfort-loving men and women, as fond of life as leeches of blood, and never prepared for sacrifice or the risks of any kind of war. This is not the leadership we want in India, now or in the near future, until we have world security for peace in Asia...
>
> "An *elite* indulging in sterile sexual acts, and keeping themselves free from the troubles and worries of children, is not the *elite* that will inspire the poor to join the army and die for the country. Not only are the plans for contraception inherently disgusting like masturbation, sodomy, etc., but, in the circumstances we are placed in, wholly unwise. The queues reported gleefully by the press as standing for the 'loop' in Kerala are an alarming symptom, not a piece of good news as the 'family planners' may interpret it. It is very good news for China who wants this nation to be enervated..."

A firm point of view, trenchantly put. One wouldn't expect an octagenarian to approve of new-fangled ideas and devices. Specially Rajaji. But it is hard to understand why he should deny the non-Tamilians what he considers worth writing for his Tamil-knowing readers. He has published a Tamil version of his article on birth control in the *Kalki* adding a few paragraphs. The Tamil language is known for its incisiveness, and Rajaji's Tamil is razor sharp. Here is a free rendering of the Tamil version:

"People should reject this useless loop programme after realising how obscene it is for a woman before going to her husband to entrust her private parts to a doctor to be touched and handled by him and thereafter to join her husband."

The Tamil paragraph (omitted in the English version) makes us ask the question: while Rajaji is forceful, is he fair?

Is the suggestion of unchastity valid?

Don't our women mostly go to women doctors?

Even if they did consult male doctors—in most countries of the world the obstetricians are men—is an immoral act committed? Would such a great internationalist insult the women of the world ?

We even think that in this case Rajaji's famous logic has not wholly been with him. First raise living standards, then the family sizes will automatically go down, he says. We would wish to know precisely *how* these well-off persons would manage to have smaller families. Wholly through self-control? But then, as a moralist in the traditional manner, he also disapproves of the comfort-loving men and women who live easier lives. And comfort-loving goes with prosperity.

Here is a strange pincer: Bring about prosperity and thus a reduction in family size; but don't let the citizens who would have a higher standard of living indulge in sterile sexual acts that do not result in children.

Rajaji is right in advocating ethics and self-restraint, but not so in assuming that higher standards will, unaided, lead to a lower rate of reproduction.

The adventure argument also is weak: We have only to look at ourselves. We are so prolific ; but are we particularly adventurous ?

S.P.

MORE FACILITIES

FAMILY planning is imperative if the Indian community has to check the fast expanding process of "thousands are born to fatten the earth which cannot fatten them".

Today there is a loud cry, perhaps more than at any time before, for legalisation of abortion. But I doubt if the women of India would ever approve of it.

A great social reformation has to sweep over our society. We have no dearth of voluntary organisations and welfare councils. All these organisations have to carry the message of family planning to the masses, particularly in the countryside. A conscience has to be created against the irresponsibility of bringing into the world children who can only be poor. An intensive door-to-door approach has to be adopted.

What the Ministry of Health at the Centre and in the States should now do is to select doctors who will specialise in this work. Hopes will turn to bitterness, and greatly-talked about projects will fail, if the Government does not provide the necessary medical facilities in every nook and corner of the country.

Hanamkonda "RATNA"

Books

Sociologist's Sholapur

Demographic Profiles of an Urban Population by V.P. Pethe. Popular Prakashan, Bombay. 144 Pages. Rs 15.

P.D. Kulkarni

SURVEY reports emanating from the Gokhale Institute of Politics and Economics are usually very neat; the design of the study is appropriate, the collection of data careful, the processing scientific, and the presentation objective. Dr Pethe's survey of Sholapur, done under the auspices of the Gokhale Institute, has most of these virtues in ample measure. But one wonders whether in the matter of socio-economic and demographic surveys of urban centres, we have not reached a point of diminishing returns. In the Census reports, the urbanisation studies carried out under the sponsorship of the Research Programmes Committee of the Planning Commission and a few other stray surveys, there is a repetitive monotony of the same broad trends. On the other hand, taking a *micro* view of each specific centre, some facts are changing so fast that by the time a survey carried out for purposes of a doctorate degree is completed and published, it is already out of date.

The *Demographic Profiles* of Sholapur are based on the material collected by the author for his doctoral dissertation 'a few years back'. An average family of 5.67 persons, sex ratio of 930 females per 1,000 males, extent of illiteracy being greater among females than among males, larger proportion of married females at the lower age than the corresponding groups of the males are all examples of findings which are already common knowledge. Likewise, the trend in the marital fertility rates, first rising, then remaining steady at high levels between the ages 21 and 35, and finally declining with age, represents a fairly well established fact. With the rapid strides that family planning movement has made in recent years, particularly in Maharashtra, Dr Pethe's finding on the attitude towards family planning in Sholapur must certainly be regarded as outdated. In his survey, about 90 per cent of the male respondents and 95 per cent of the female respondents were completely unaware of the idea or methods of family planning. In a population of nearly 3 lakh, only 56 persons annually took advice from the clinics. One has reasons to believe that today the position in Sholapur would be very much different.

At places, the author makes contradictory statements. In Chapter VI on "Practice of Contraception", he talks of "apathy and indifference on the part of the populace to the question of family planning". But in the next chapter on "Attitudes towards Family Planning", he remarks that, "while the knowledge and actual practice of contraception were extremely scarce, the attitudes of the people towards the various issues relating to family planning were quite receptive and progressive". Likewise, in Chapter V on "Differential Fertility", it is observed that none of the biological or sociological factors (like caste, income, age at marriage, etc.) affected fertility in any significant manner. In the closing chapter, however, he states that "attitudes of the respondents towards family planning were conditioned by several variables, e.g., caste, occupation, education, age, income, etc."

In a very useful chapter regarding the changes in Sholapur between 1937 and 1955, Dr Pethe has recorded a finding which should cause concern. "It was found that the proportion of families below the Poverty Line rose from 83.9 per cent to 92.8 per cent and that below the Destitution Line from 32.7 per cent to 53.2 per cent." The income levels representing these lines were, no doubt, adjusted in accordance with the rise in the cost of living. This trend has to be seriously viewed by our planning and development authorities.

The book generally makes heavy and halting reading because of too many statistical tables, some of which could well have been relegated to appendices or dropped altogether. Some of the phrases used by the author also sound somewhat unusual. The term "educands" is used for persons who are more than literates and educated up to a particular (unspecified) standard. The word "already" perhaps means geographically or regionally. It is interesting to note that demographers regard women in the child-bearing age groups as those "exposed to the risk of child-bearing"!

Unusual Theme in Sanskrit

Antimayatra by B. N. Datar 34 pages. Rs 4

Narayana Dutt

THE funeral procession of Jawaharlal Nehru is the theme of Mr B.N. Datar's long narrative poem *Antima Yatra*, a noble and refreshingly unconventional theme for a literary work in Sanskrit. The poem is presented in the form of a running commentary—a literary device familiar to India right from the days of the great battle of Kurukshetra.

A senior official in the Planning Commission, Mr Datar has planned his project perfectly. He starts from the portico of the late Prime Minister's official residence at Teen Murti and follows the cortege as it snails its way through the mourning millions, standing patiently along the route to have a last look at the beloved face which had meant so much to them for so long.

Quite often as the gun carriage passes by some landmark on the route, the poet quietly steps aside from the crowd and lapses into a reflective mood; and as most of these places have been connected with

Nehru's public life in some way or other, we find the poet making a critical appraisal of the departed leader's political philosophy and administrative policies.

He ends the poem, not with a sentimental description of the last ceremonies, but with an appreciation of the noble thoughts and ideals that motivated this great man, who was the moulder of his people's destiny.

For a project of this nature the Champu (a harmonious blending of prose and verse) would have been ideally suitable. Or the poet could have used that marvellous invention of the Sanskrit poets, the Anushtub, a metre which combines in itself the rhythmic flow of verse and the flexibility of prose as well. The Upajaati, Upendravajra or Indravajra would have been the next best.

But Mr Datar is more ambitious. He has selected three of the longer and more intricate metres: Shaardula Vikridita, Mandakranta and Sragdhara and thus placed a heavy burden on his muses. Because of this, much of his energy is expended in manipulating the metre and as a result in many a stanza the syntactical relationship of the words is obscure and redundant words, like the *nipata*, abound.

A striking feature of much of the present-day Sanskrit writing is its closeness to the modern Indian languages, in both its vocabulary and idiom, annoying at times but never colourless. A witty professor once called it the Hindostani Sanskrit. And Mr Datar's Sanskrit, at places, has a slight touch of Hindostani in it.

But the major weakness of *Antimayatra* stems from another source: the poet's excessive pre-occupation with unpoetic ideas. He seems to shun emotions, standing aloof, lest he should get involved emotionally and be called sentimental. There is very little warmth and a bit too much of cold cerebration. His imaginary conversation between Gandhiji and Nehru sounds more like an exchange of notes after a long session of the Congress Working Committee.

As one lays down the book after finishing reading the last lines, one has the feeling of having gone through a long essay in some respectable academic journal.

DO PRICES DETERMINE ACREAGE?

Producer's Response to Changes in Prices and Marketing Policies. S. C. Gupta and A. Maaji. Asia Publishing House. 79 pages. Rs 12

S. S. Hasurkar

THIS case study of sugarcane and paddy cultivation in the district of Deoria in Eastern Uttar Pradesh, undertaken by the Agricultural Economics Research Centre, University of Delhi, at the instance of the U.N. Food and Agriculture Organisation, attempts an assessment of the influence of price changes on the decisions of the producers about acreage, inputs, etc. in respect of directly competing crops.

The actual survey was conducted in 1961-62. However, since the period of reference for such an enquiry has to be long enough to make allowance for the slow moving adjustments of agricultural output to the variations in prices, the report draws extensively upon secondary data available from published sources.

The report brings together valuable statistics in respect of the general features of the farm economy of the district, acreage under paddy and sugarcane, variations in the acreage under different crops according to the size of cultivated holdings, variations in output and productivity, differences in response to utilisation of inputs and the like.

After analysing the primary as well as the secondary data the report comes to the conclusion that there is no long-term correlation between the raw prices of sugarcane and rice, on the one hand, and the acreage of the two crops, on the other. The uninterrupted increase in the acreage under sugarcane is not explained by the trend in the relative prices of sugarcane and paddy. It, however, points that there is some suggestive evidence about the short-term response, i.e. year-to-year change in relative acreage corresponding to the changes in relative prices. The report claims that "in the extremely backward economic environment of the district, this evidence, though only suggestive, nonetheless appears, significant."

The report tends to support doubts about the effectiveness of the price and marketing policies as a means of influencing the crop patterns and for achieving selected targets. However, one must point out that the case study cannot be considered a representative one of the conditions prevailing in Indian agriculture. First the locale of the survey, namely the district of Deoria, is an extremely backward area. Secondly, the difference between the monetary return on sugarcane and paddy cultivation is so great that, as the report admits, "even a decline in the relative price of sugarcane would, within certain limits, not lead to a decline in its relative acreage". Thirdly, the report admits that paddy cultivation in the district under survey is mainly undertaken for personal consumption. This being so, its cultivation would hardly respond to a slight change in the relative price of paddy and sugarcane. Lastly, it must be borne in mind that the sugarcane prices are guaranteed and announced in advance. Thus the report examines the response, in respect of sugarcane, not to fluctuating prices in free market conditions but to stable guaranteed prices in an assured market. Both these things being uncertain in respect of paddy cultivation, the producer's response, in respect of these two crops, to price variations would be negligible.

All these factors, taken together, tend to prove that sugarcane and paddy could hardly be considered the ideal crops for assessing response of producers to changes in price. This puts an obvious limitation on the utility of the report.

PUBLICATIONS RECEIVED

Industrial Truce Resolution 1962 by S.B.L Nigam. 36 pages. *Why Grievance Procedure? Why Join A Trade Union? Family Budget* by Bimalendu Chakravarty. 20 pages. *Systems of Wage Payment* by Dinoobhai Trivedi. 36 pages. *Tripartite Machinery* by K.G. Srivastava. 58 pages. *Industrial Safety* by R.K. Pawar. 16 pages. *A View Point on Productivity* by M.B. Vyas. 16 pages. *Labour Legislation* (Summaries of Enactments) by V B. Kher and G.L Govil. 36 pages. *Our Labour Movement* by Shyama Prasad Vasavada. 33 pages. *Industrial Relations* by Bagaram Tulpule. 91+7 pages. *Labour Organisations* edited by Sevak. 28 pages. *The Impact of Workers' Education* XXXX pages. *Occupational Diseases* by M.N. Gupta. 36 pages. *Industrial Development* by M.A. Chansarkar. 60 pages. *Basic Elements of A True Labour Movement*. 28 pages. *Strikes* by Khandubhai Desai. 16 pages. *Wages* by Narendra Singh. 14 pages. All brought out by the Central Board for Workers' Education, Nagpur.



4 MILLION SEE INDIA

FOUR million people have so far visited the India Pavilion in the New York World's Fair.

The attendance topped three million in the six months it was open last year. This year the Fair reopened on April 22. Until July 31, more than 1.31 million people had been in the pavilion, with three months more to go.

It is not the mere attendance that is important, but the kind of impact it has been making.

An American poet, Evelyn Dickey, wrote a poem on its beauty. The famous New York newspaper, the Tribune, called it "the giant jewel-box of the Fair".

No surprise, says Mr P.K. Panikkar, Commissioner General of India for World Fairs.

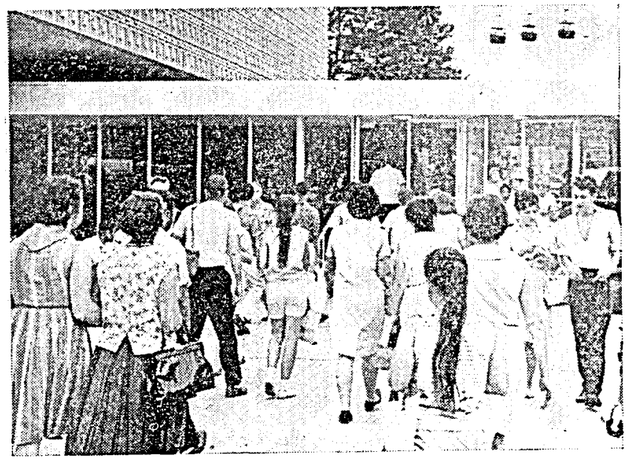
Mr Panikkar told *Yojana*:

"Our pavilion is a fine piece of work. It gives the people of USA a worthy picture of India. I say this with more than twenty years' experience of international exhibitions.

"There is a harmonious blending in the display of the history and culture of India through 5,000 years starting from the Trimurti. It tries to show how ancient Indians conceived time and space, that is, that space is subjective and time relative. Emphasis is laid on the efforts made by our country, since independence, for growth and development through various five year plans.

"There are animated tea plantations and cashew plantations; birds on a cashew tree telling the story of cashew.

"There is a national restaurant giving visitors Indian food with Indian fragrance. Through a glass panel they watch, with great relish, a demonstration of *tandoori* chicken being made."



And Mr Panikkar added:

"The entire foreign exchange spent by our country on this pavilion has been realised from the retail sale of souvenirs alone.

"Almost every week a very large number of trade enquiries are being received and processed.

"If we could do three or four such projections of our country in selected places, our international trade will move ahead and we will, besides, earn a tremendous amount of friendship."

Housewives against Profiteers

Lucknow Women Organise Co-operative Stores

USHA DASS



IT all started over a cup of coffee and the growing frustration every month of trying to live within one's budget. Prices rose steadily, and when potatoes began selling at Rs. 1.50 a kilogram we decided something had to be done. There were two ways of facing the problem—to do without everything except the absolute necessities, or, as a positive approach, open a shop ourselves.

We chose the latter. We started a consumer store on January 4, 1965. Looking back at it eight months later, I am convinced we did right.

Ours is a co-operative store. We have 500 members, and we are not enrolling more, as we do not want to become unwieldy. When we started, we had just our share capital of Rs 10,000. Our aim was to bring down prices, and to instil amongst consumers a spirit to do without, rather than resort to the black market. We try to provide all articles which are in short supply, such as dal, rice, vanaspati, babyfood, mustard oil etc. We sell most of these articles to non-members also. In the very first few weeks we scored a success.

The Women's Co-operative Store at Lucknow. It has a membership of 500, a share capital of Rs 10,000 and a turnover of Rs 500 to Rs 1,000 per day.



Organisers of the women's co-operative store at Lucknow



The price of bread in Lucknow came down from 80 paise to 60 paise a pound. The difference between our buying and selling prices is only 2 to 3 per cent—just enough to cover handling charges. Our average sale was Rs 1,500 a day on the first ten days of the month and Rs 500 to Rs 700 thereafter.

We cannot possibly hope to help every household in Lucknow, but we hope to make a little dent. We are also building up experience, since enthusiasm alone is not enough. We hope to open new shops in other localities of the city. We must be able to meet the needs of our members successfully, before expanding. The majority of our shareholders have only one share. We would, however, like our shareholders to raise their holding, so that we can have enough working capital. We intend to keep our overheads low. So we are relying on voluntary workers. This may mean that our service is not yet very efficient, but we hope this will improve.

We need hundreds of such stores all over the State. This depends on enough spirited women coming forward to take up the challenge. This activity also affords to many educated girls an opportunity to serve the people.

Co-operation occupies a place of importance in planned economy. Co-operative consumer stores can, to a great extent, be a guarantee to serve the people against exploitation by dishonest traders who not only charge unfair prices but also supply impure and substandard goods.

NEXT ISSUE

THE POLITICS OF POVERTY
Asoka Mehta

★

'LOOP' CAMPS IN MAHARASHTRA

★

THE KINNERASANI PROJECT

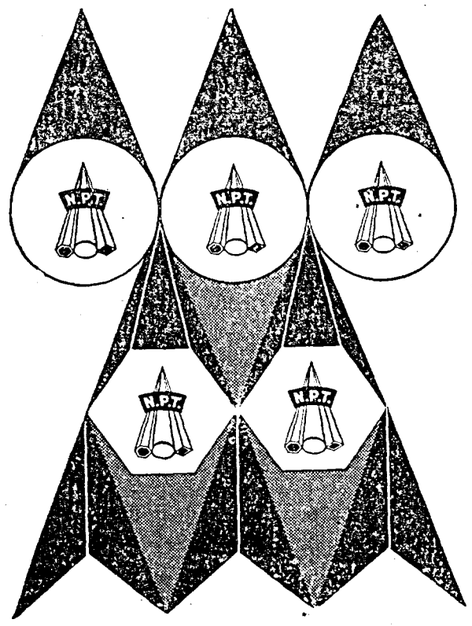
MEDICAL STUDENTS HAVE PLAN CENTRE

THE Planning Forum of the Maulana Azad Medical College, New Delhi, has started a Plan Information Centre. The Centre has publications, charts and maps relating to the various aspects of the Five Year Plans.

Students of the Medical College, with the help of the Planning Forum, have taken up social welfare work in Delhi and near-by villages. Groups of students in the fourth and fifth year classes of the College, led by Prof. A. K. Banerjee, have visited about 650 families and given them advice and guidance on health and welfare.

In the Narela village, which has a population of 22,000, the Department of Preventive and Social Medicine of the Medical College runs a rural health programme at the Primary Health Centre.

The Medical College also runs a 'book bank' for needy students, with the aid of the University Grants Commission.



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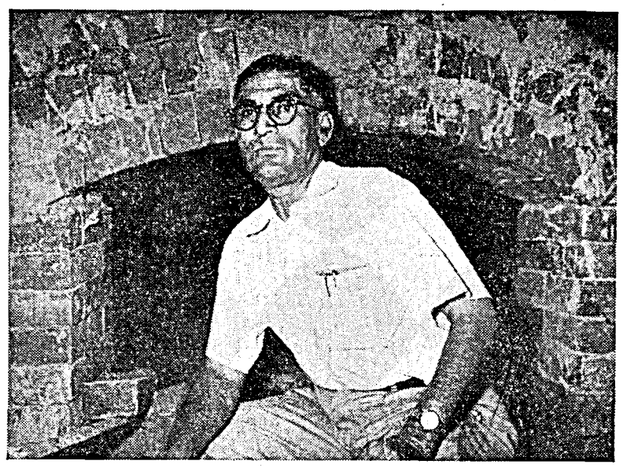
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Steel Worker Solves A Problem

And Wins an Award

CREATIVE thinking often goes unrecognised, but sometimes it gets due reward. M.M. Mazumdar, a Tata Steel employee, is an illustration of a man whose ideas have won appreciation. A suggestion he made about lining of steel furnaces resulted in a huge saving in money, labour and time for the company, and Mr Mazumdar was awarded Rs 6,000.

Until 1961 silica bricks were used in the construction of the door arches of the furnaces in Tata Steel's S.M.S. No 2 section in which pig iron is converted into steel. The front wall and piers of the furnaces were lined with *basic* bricks. The basic bricks then available would not withstand the load conditions and so could not be used in the door arches.

Basic bricks and silica bricks belong to the class of non-metallic substances called refractories. They are acidic, basic (alkaline) or neutral and are classified according to their chemical composition into four major groups: alumina-silica, silica, basic and special.

These refractories made generally in the form of bricks from natural substances like sand, clay, bauxite, dolomite, magnesite, chromite and so on, do not melt easily and do not fuse with the molten metal. They resist change of shape, weight or physical properties at high temperatures.

Basic refractories are used in lining steel furnaces because the limestone that is charged into them and the slag that settles down from molten steel are basic or alkaline and so will not react with the lining.

The silica bricks which were used in the construction of the furnace door arches in the S.M.S. No 2 section used to get burnt and damaged during production of steel, while the front walls made of basic bricks remained intact. This required frequent shutting down of the furnaces for repairing and in turn caused loss in production.

Mr Mazumdar, who works in the general refractories department, suggested that basic bricks might be used in making door arches of the S.M.S. No 2 furnaces. This suggestion was soon tried out with the basic arch bricks made in the factory's brick plant. It was found that the life of the front walls was almost doubled from 50 to 98 days and the need for intermediate repairs and shutting down during production was eliminated.

Mr Mazumdar's suggestion has now been adopted as a standard practice in furnace rebuilding in the factory and he has been given the cash reward as a token of appreciation of his worthy suggestion.

M. P. TURNS TO HYBRID MAIZE

HYBRID maize is attracting the attention of enterprising farmers in Madhya Pradesh.

Ganga-101 and Ganga-1, the two varieties developed by the Pusa Institute were grown on 37,000 acres in the State in 1964-65. Seeds have now been distributed for growing the crop on 60,000 acres.

Among the 14 districts of the State which grow maize, the districts in Indore Division and Tikamgarh and Jhabua districts have adopted the hybrid varieties. Jhabua has in fact the largest area of any district in India under hybrid maize cultivation. Hybrid maize has still a long way to go, however, since the total maize area in the State is 11.6 lakh acres.

Hybrid maizes give an average yield of at least double the ordinary varieties. They have large cobs and bold grains.

Maize, generally a *kharif* crop, has been grown successfully as a *rabi* crop in the State.

Yojana Bhavan Diary

A full meeting of the Planning Commission with the Prime Minister in the chair was held on August 10 and 11. It decided that the outlay of the Fourth Plan should be Rs 21,500 crore.

Mr George Rosen of USAID, Bangkok, met Mr Asoka Mehta on August 9. Mr Cedric Day of the UN Food and Agriculture Organisation met Mr Mehta on August 5.

Dr A.C. Joshi, Adviser (Education), left New Delhi on August 19 to attend meetings of the administrative board of the International Association of Universities at Kyoto, Japan. He will also study the working of correspondence courses in Japanese universities and the system of agricultural education for working farmers.

Mr Zebenbergan of the Dutch Volunteer Programme (J.V.P.) and Dr Blankhart of the Institute of Tropix, Amsterdam, met Prof V.K.R.V. Rao, Member, Planning Commission, and Mr U.S. Rana on August 18 to settle arrangements to assign five Dutch volunteers who will work in India.

Rs. 47.6 CRORE IDA CREDIT FOR INDUSTRIES

THE International Development Association (IDA), an affiliate of the World Bank, has given India a credit of 100 million dollars (Rs 47.6 crore).

It will be used for meeting the import requirements of industries manufacturing commercial vehicles and components, machine tools and cutting tools, electrical equipment and heavy construction equipment.

The credit bears no interest but only service charge, and is to be repaid over 50 years.

This is the second IDA credit for this purpose. The first, amounting to 90 million dollars (Rs 42.84 crore) was given in June 1964.

SNIPPETS

MR. J. Sudheer Reddi of Andhra Pradesh has been awarded 'Udyan Pandit' in the all-India competition in mango growing for 1965. His orchard at Yerrapad (Nalgonda district) has been adjudged the best in the country...A plant to handle the loading of iron ore has been set up at Visakhapatnam port and it has begun loading ships on a trial basis. It has a capacity to handle two million tonnes of ore a year... The first factory set up at Kanpur to manufacture intra-uterine contraceptive device (IUCD) has gone into production...In 1964, Rajasthan produced minerals valued at Rs 8 crore...Twenty-four rail cranes, each of 10-tonne capacity will soon be manufactured at Calcutta for the Railways under a licence from a British firm. Their value would be Rs 61.33 lakh...India exported goods worth Rs 185.35 crore during the first quarter—April-June—of 1965-66...The exports of cashew kernels and cashew-nut shell liquid reached an all-time high—Rs 16 crore—during the first half of 1965...The Indian Standards Institution granted 400 new licences during 1964-65. The I.S.I. certification mark scheme now covers goods valued at Rs 240 crore every year... The report of the Fourth Finance Commission has been submitted to the President.



REFRACTORIES FOR STEEL PLANTS

The Hindustan Steel Limited has placed orders with Soviet firms for designing plant and equipment to manufacture all kinds of refractories required for the steel industry. One of the plants will be set up at Bhilai for manufacturing annually 1.45 lakh tonnes of refractories for blast furnaces, open hearth furnaces and steel ladling installations.

Another plant to be set up at Bokaro, the site of the fourth steel plant, will produce heat-resistant materials for protecting hydrogen converters and 5 lakh tonnes of lime every year.

Salem Steel Plant

A TEAM of five steel experts from Japan has come to India for investigations into the proposed Salem steel plant.

The team is sponsored by the Japan Consulting Institute, an official agency representing the leading Japanese steel manufacturers. It will hold discussions with the Central and Madras Governments and Hindustan Steel Limited.

● The first generating unit of the Mettur tunnel hydro-electric power station was commissioned on August 16. The project is being constructed with Soviet assistance.

● The Panna diamond mines at Ramkheria and Majhgaon in Madhya Pradesh are expected to produce 32,500 carats of diamonds every year when fully developed in the Fourth Plan. So far, 4,783 diamonds, weighing 2,112 carats valued at Rs 8 lakh, have been recovered from the mines by the National Mineral Development Corporation.

DAILY TV FOR DELHI

DELHI will now have television for an hour every evening. The service for general audience was inaugurated by the President on August 15. Until now Delhi had experimental television broadcasting for schools.

A new television studio has been built at Delhi. All the equipment for it came as a gift from West Germany.

Television is expected to be extended to the other metropolitan cities, Bombay, Calcutta and Madras, early in the Fourth Plan period. Rs 100 crore are likely to be spent on the TV extension programme in the Fourth Plan.

Mass Communications

AN Institute of Mass Communication has been opened in Delhi. It will undertake research training and education in mass communication. Ultimately it will form part of the proposed Nehru University.

New Transformer

The Heavy Electricals, Bhopal has designed a new transformer of 12.5 MVA capacity using oriented steel. The new design has considerably reduced the weight of the transformer. A transformer of this design has already gone through all the tests and 14 more such transformers are under production.

The Heavy Electricals factory near Hardwar has begun production of steel columns. The manufacture of electric motors will begin in November, three months before the scheduled date.

Transmitting Tubes

The Bharat Electronics, Bangalore has signed an agreement with a Japanese firm for collaboration in the manufacture of transmitting tubes. To begin with, the new plant will manufacture 15 types.

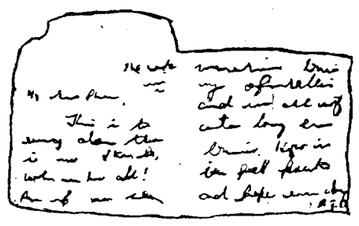
The diesel locomotive factory at Banaras is raising its annual capacity to 54 locomotives a year.

A Ten Paise Art Form?

S. Shankar Menon

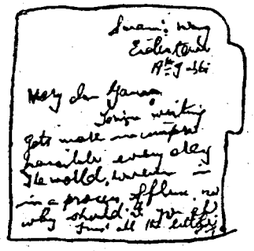
FOR artists who insist on being off-beat, creation rarely begins at home. Looking for newer raw material, they scour everything from beaches to bill-collectors and end up by painting conic sections on pebbles, making spectacle frames from raffia or sticking together tickets and laundry bills as a progressive pastiche. Why they should go to all this trouble one really can't understand. Especially when a traditional but newer art form is available round the corner. I mean the Ten Paise Inland Letter (it isn't even naye any longer), of whose quality Sarojini Naidu wrote to Nehru, "How patriotic to write on these, but how painful!"

The ways in which an inland letter is written on reveals individuality bordering on obsession. Most divide the larger side into two, write in two columns, with the reverse side a third column.



Most others use the bigger side as a full page and write across it from the top second fold to bottom, continuing on next side. (Figure 2).

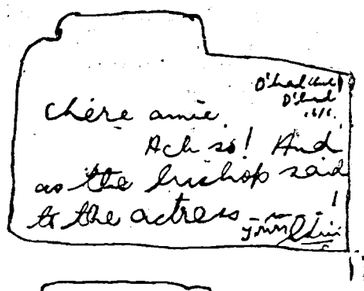
It is the more cryptic but gregarious sorts who start their message with their address on the right-hand corner of the larger side and then write across in bold, vehement letters, ending usually on the same side and leaving the other part blank—probably for the person getting the letter to play noughts and crosses on while he solves what the whole thing is about. (3)

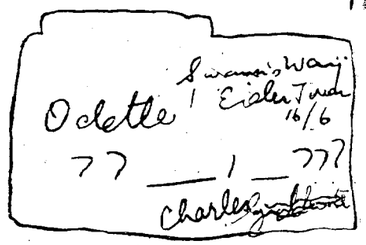


And if you haven't received a reply (in spite of many reminders) from the one you adore, the form can be used the same side up for an anguished, brief entreaty. (4)

Which shows the whole question of the art form in a clearer light. Physical ways of using this form are, as in any other art, merely the basis of creation. It is in the contents of course that an inland letter gets close to art.

An opening paragraph gives thanks for a letter, offers excuses for delay in replying. There is then a paragraph making tender enquiries about the person to whom the letter is written. How is the gout? Then, has cousin Apparao fulfilled his life's work and found a cure for baldness? Now that Thayarammal has had twins, why not sanctify such an unusual event by calling them Roberglobóe and Glockenspiel and was the picnic to Shramdan Point fully satisfactory for the ants (ha, ha)? The next paragraph deals with yourself and by the time you begin to really get going, there's only place to have regards conveyed to Apparao and Co., and since T. Ammal has had twins, there's not even space to fit in all the names.





In fact shortage of space is the main problem. And with the quickened pace of things these days, no longer will anyone have the time to spend even four minutes reading an inland, crammed with more material than Curzon wrote his wife or G.B.S. to Ellen Terry.

The very latest in post-Impressionism is a partial solution. Stream of consciousness with Pop-OP overtones is a distinct advance in technique...Came to Bombay, crowds spewed Churchgate, Central 10 a.m., suburban Id hid by white shirt (drip dry), dark trousers (ditto). Feathery frocks. Colaba Causeway, Koffee at Koomar's, worried about smoking, they said ho, ho, when we're forty, we'll have a cancer party...

This sort of thing may not go off too well, unless the receivee is warned well in advance.

Possibilities though are immense. Verse is not totally out of question. In fact Hillaire Belloc even preferred to write his letters this way. A beginning is made with...

Got your letter,
Feeling much better...

One meanders to...

Met Shunno at the Club,
God, he's fallen in lub

Bless me if he hasn't put on as much weight as a tub...

and then tapers off saying...

Son Dinny is ill,
The tailor's sent his bill

And all in all I'm quite gren round the gill.

Art for 10 paise. Socialism as always.

Three Peeps into the Press

G. N. ACHARYA

THE newspaper has many uses. It can take the place of a brush, a broom, a mat, a mop, a fan, a fly-swot, a screen, a curtain, a cover, a cap or even a temporary, unfashionable parasol. It is also engaged in the task of collecting, assimilating and disseminating essential information on the ever expanding and ever complicated fields of public concern. This task is becoming insuperable because the old one-way ticket from the cradle to the grave includes more and more as civilisation hots up.

It is here that the press needs criticism. In a free society such as we profess to be, the press is too, too strategic to be left unchallenged to those who control it. It is the least criticised institution in our society, though it claims the privilege of criticising all the rest. This, it seems, is true not only about what is called its editorial side, but even the business side.

As a business and an industry, newspaper production is as unique as it is as a communication medium. What the newspaper producer sells is not newsprint, but news and views. Yet a newspaper sells at a price which is often less than the price of newsprint. Hence the frequent complaints about black-marketing in newsprint. Hence too the fact that a paper with a newsprint quota is today the most highly priced and easily saleable asset.

No newspaper would be able to sell at the ridiculously low price that most of them charge today, if they did not carry advertisements. But advertisements depend to a great extent—fortunately so far, not wholly—on circulation. If the price of a paper could be, even by a tiny fraction, higher than the cost of production and distribution, no other incentive for circulation would be needed. As this condition seems unattainable, advertisements are an essential part of newspaper business.

That much is common knowledge. But despite the complexity of newspaper business, it has not been the subject of detailed continuous study. The Press Commission's perspective and broad conclusions are still valid. But it is now known that the Commission was misled in regard to some of the information on which it based its conclusions. Even today I do not know of any newspaper which runs a department of cost accounts. When it comes to smaller papers, the entire business is slipshod, and the establishments are run by the guess and chance method.

One would have thought, therefore, that newspapers would welcome the attempt of the Press Institute of India to make an expert study of their problems. But the very first such attempt elicited little co-operation. Mr. Subrata Banerjee, an experienced advertisement executive, who has set out the results of his efforts in a pamphlet, *Advertising and Small Newspapers*, ruefully records that "one cannot avoid concluding that there is a great deal of resistance to providing information so necessary for such studies. One publication was very outspoken about it."

Only eight out of 113 selected dailies to which a questionnaire was sent for eliciting information, cared to reply; only one, *The Tribune* of Ambala, gave complete replies. Mr. Banerjee, therefore, had to visit 16 towns and obtain as much information as he could by talking to the executives of 28 medium and 26 small newspapers. This, garnered with such published information as is available, is all set out in his pamphlet in mild, non-provocative language, as befits the Institute which sponsored the work.

In introducing the American symposium *Speaking of Advertising*, Melwin S. Hattwick says that "advertising is simply a tool of business and industry with which man can build constructively or which he can use poorly. He has done both in the past, but in future his poor work must be reduced and the good increased." But for sheer size alone, the tool seems to have become unmanageable in the United States.

Hattwick estimated that in 1963 an average American was exposed to 1,600 advertisements every day and the annual investment in the industry had reached the 12 billion-dollar mark. By 1970, this would rise to 20 billion dollars and each American would face 2,000 advertisements a day.

A 1961 survey estimated the expenditure on advertising at 92.60 dollars per head in the U.S., 27.20 dollars in Sweden, 21.60 dollars in Great Britain and 16.30 dollars in West Germany. (Quoted in the chapter on Advertising in the book *Discrimination and Popular Culture* edited by Denys Thompson). It came to around three per cent of national income in the United States and 2.2 per cent in Britain. Yet, Frank Whithead, the writer of the chapter on "Advertising" complained that "there is a case for saying that the cultural kingpin of twentieth-century Britain is the advertising industry."

We are still far from that state; but we seem to be making rapid progress. Mr. Banerjee estimates that by 1954 the expenditure on advertising had crossed the Rs. 100 million mark. Today the annual outlay is estimated at between Rs. 150 million to Rs. 200 million. That gives us a per capita expenditure of less than 50 paise. Mr. Banerjee's estimate is that it is going up at the rate of Rs. 10 million a year or 0.1 per cent of the national income.

Yet his pamphlet shows that no attempt is being made by the newspapers to create new advertising, of local interest or otherwise. All the newspapers are merely engaged

in a scramble to get as high a proportion of the same cake as they can grab. Probably one important job of the committee now inquiring into small newspapers is to recommend a fair share to the small papers, which, as Mr. Banerjee has shown, seem to be incapable of initiative. They seem to be keen on acquiring a vested interest in being small—a fatal immobility in a growth-oriented economy.

The second and somewhat lengthier pamphlet issued by the Institute, *Asian News in the Indian Press*, confirms the impression that our newspapers give little importance to Asian news. The writer, Mr. Chanakya Sen, did not have much probing to do—only the dull job of carefully scanning the columns of seven English and six Indian language papers for two months from March 15 to May 15, 1964.

Summarising the results of his survey, he says: "It was noticed that quantitatively the coverage was not too inadequate. But it was generally poor in quality. There was hardly any attempt to present Asian news in an Asian perspective or to give a fair coverage to various viewpoints. Nor did reporting include built-in background material which alone makes new developments meaningful to readers."

A careful study of his survey, however, conveys another and more disastrous impression—the utter capriciousness of the coverage. A press survey in *The Economist* (London, May 22, 1965) spoke in somewhat derisory terms of the metropolitan English dailies in India "whose reader is apt to be better informed about injustice in Alabama than in his own back garden." Mr. Sen's statistics show something worse. There is apparently no discoverable pattern, no settled principles according to which the news desk handles Asian news.

The third pamphlet, *Circulation Problems in Indian Newspapers* by Mr. T.N.M. Lingam, conveys the same impression of lack of order or purposefulness in the conduct of newspaper business. He too visited 16 centres, met and talked to the personnel (if any) of the circulation departments of 42 newspapers of different sizes. He has not only set out the meagre findings of his study, but has provided practical hints.

Both Mr. Banerjee and Mr. Lingam suggest some constructive effort by existing organisations of newspapers. Mr. Lingam also suggests the creation of yet another dealing with circulation problems only. Despite the proliferation of agencies involved his suggestion could possibly be taken up. But by their very character and composition, the existing organisations are not (and the new one may not be) capable of the type of action envisaged.

These are, at the moment, agitational in concept and functions. They make demands on Government and protest against its actions. They also resist the claims of employees. Otherwise, they are largely ceremonial.

There is an Indian proverb which says that one does not have to sample more than one grain to see if the rice in the pot is properly cooked. These three studies by the Press Institute into the three main departments of a newspaper's work are modest in conception and claim. They show that if the Institute wants to carry forward the good work, it will need a lot of courage, patience and perseverance. They also show quite unmistakably that there is no thinking mind behind most newspapers in India, that the press as a whole lacks creative dynamism.

SHAMBU by Malinda Topa



URBAN LAND VALUES

(*Continued from Page 3*)

Unitary ownership of land on a large scale is essential to successful planning. No comprehensive treatment of decayed inner areas or no comprehensive planning of new neighbourhoods is possible if the freehold is split among a multitude of landowners. A strong clearly enunciated urban land policy backed up by determination to implement it vigorously is one of the most potent weapons for producing a higher level of living in our cities.

Bold measures to implement such a policy should also be devised, if necessary, by amending the existing laws or even the Constitution. Unless this is done, we would very soon face a situation where nothing short of a drastic measure like outright nationalisation of all urban land on payment of compensation in the shape of long-term low-interest bearing bonds similar to the Zamindari bonds would offer a satisfactory solution.

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Shell Queen of Marina



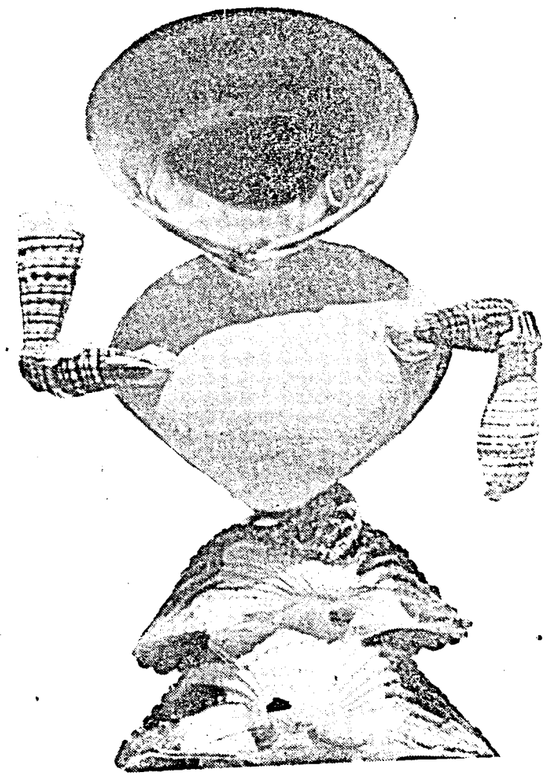
THE pictures reproduced alongside are of tiny dolls made of shells. They come from Madras, or, more particularly, from the world famous Marina beach of that city. They are an example of how the craftsman can give expression to his imagination with the material he can get.

Shell-collecting is common in all coastal towns; Puri, Madras and Trivandrum are famous for them. But nowadays children or casual visitors can pick up fewer shells, because shells have gained in economic importance. Craftsmen make dolls, ash-trays, incense-stick-holders out of them. Of late making dolls has also become a popular pastime among middle-class housewives in Madras. All that is required is a small pointed instrument, a file and few indigenous colours, a lot of patience and a few ideas. The portions are joined together by plaster of Paris. To add lustre, mica dust is also applied.

The dolls are sold by the craftsmen themselves on the Marina, which draws huge crowds in the evenings. It is a pretty sight to see the colours of these little objects come to life as they are sold in flickering candle-light, with the roar of the sea heard beyond.

The price of a shell queen on the Marina is 50 paise.

K.B.



PRIDE OF PLACE:

114

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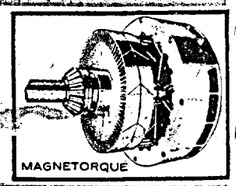


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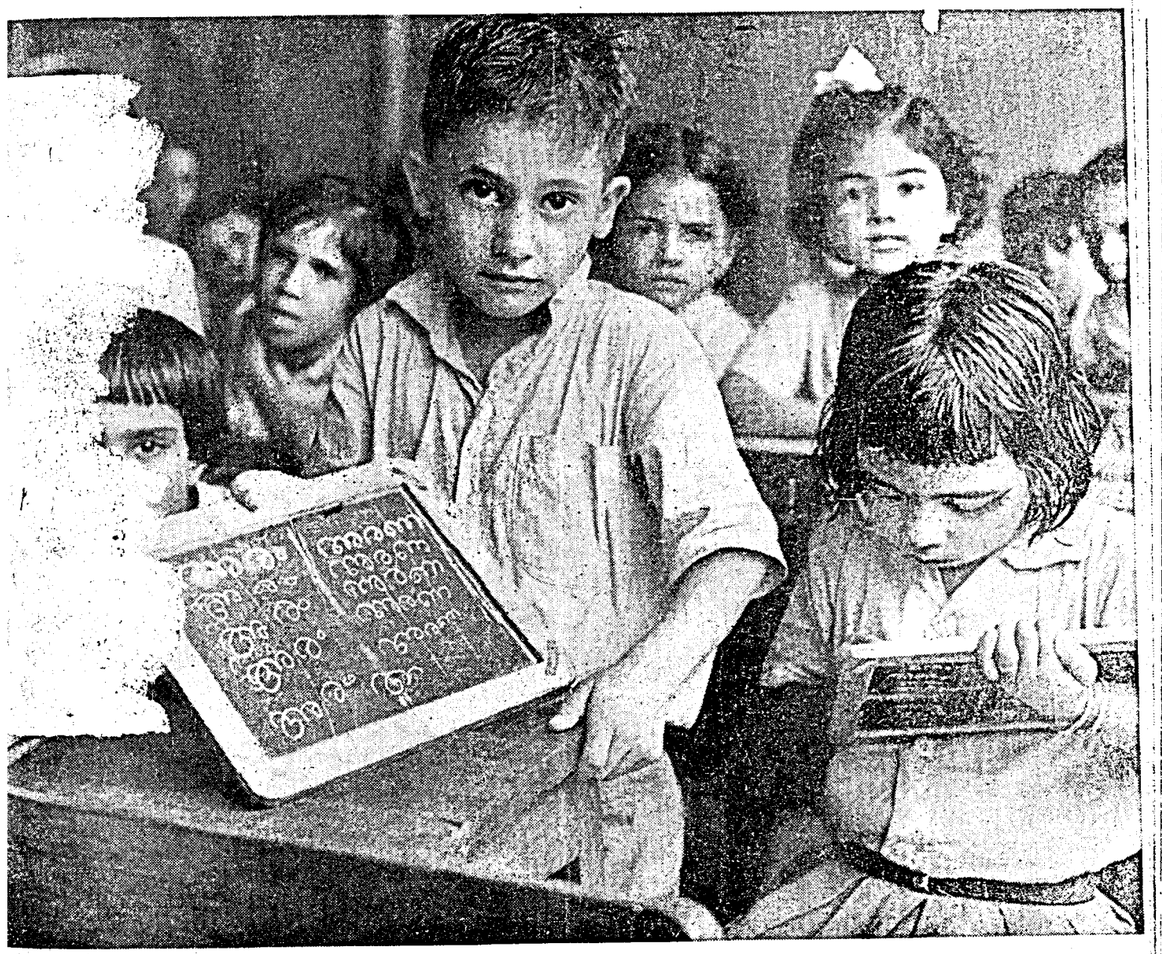
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YOJANA

NINTH YEAR

18

SEPTEMBER 12, 1965



Other Tongue Is His Mother Tongue

DEVELOPMENT COUNCIL DECISIONS

"The Politics of Poverty" By Asoka Mehta

25 PAISE

ABOUT YOJANA

YOJANA seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion on problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

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Cover—Story above.
Photograph by T.S. Nagarajan



Other Tongue Is His Mother Tongue

WITH a little slate pencil, a little boy is innocently making history. Five-year-old Umesh Chander from Uttar Pradesh is learning his three Rs through a South Indian language in Delhi.

Umesh Chander goes to the Kerala Education Society Higher Secondary School in the Capital, started ten years ago to teach Malayalees in their mother-tongue. The school's Principal, Mr P.I.A. Karim, is all praise for the boy's father, Mr Bachchi Ram Joshi of Almora, for giving the school this privilege.

"We told him we teach in Malayalam in the primary classes", says the Principal, "but the father insisted on admission. He wants the boy to learn in Malayalam. The boy has none to help him in his home work."

It is hard to spot Umesh Chander amidst the small class of Malayalee children. Mrs M.P. Radhakumari, the class teacher, said he mixed well with the rest.

"We have only to explain Malayalam words in Hindi and he picks up. And he writes without any difficulty," said Mrs Radhakumari. "He is a bright boy. He counts one to hundred in Malayalam upwards and downwards. There is nothing strange about it. He is interested and is intelligent," said Mrs K.N. Devasena, the arithmetic teacher.

The three-language formula wants Hindi children to learn a South Indian language. Little Umesh has done one better. He is making a South Indian language his very medium of knowledge.

—R.K.P.

NEXT FORTNIGHT

"Loop" Around Delhi—Picture Feature

★

le Corbusier—Bijit Ghosh

★

Population Policies—Lt. Col. B. L. Raina

★

N. D. C. Report

Vol. IX No. 18 Fortnightly Journal Published on behalf of the Planning Commission Bhadra 21, 1887

DEFENCE THROUGH DEVELOPMENT

IT was inevitable that Pakistan's aggression should cast its shadow over the two-day deliberations of the National Development Council at its twenty-second meeting. The resolution adopted by the Council refers to the challenge of serious external threats. This is the altered context in which the nation "has to undertake massive efforts for development". Greater defence preparedness calls for higher production. And out of whatever is produced—food, clothing, iron and steel, transport vehicles and so on—more will be diverted to meet the needs of defence. This greater effort will have to be made in such a way that it does not give rise to any inflationary financing.

Already, the nation's leadership had considered the outlines of the Fourth Plan at various levels and in different stages. A consensus had slowly emerged about the size of the Plan and its contents. There was agreement over the means and methods by which the necessary resources were to be raised. Here each has to play its part—the State and Union Governments, the private sector, the public sector undertakings and local self-governing institutions. There is a common desire to attempt more than a Rs 21,500-crore plan, if the economy shows further buoyancy and the resources look up. For the present, the National Development Council has set its seal of approval on the Rs 21,500-crore plan.

Superimposed on the discussions regarding the content and implementation of the Fourth Plan proposals is the urgency to give defence orientation to our aspirations in the economic and social fields. NDC took a major step by way of clearing the decks for this task. It decided that certain norms and policy considerations should govern the way we raise resources and spend them. Time is past when the country could afford the enfeeblement and erosion of tax laws and collection of dues on account of inadequate enforcement.

Leakage of revenue has to be prevented in other areas as well, particularly in the working of public sector enterprises. Here capacity should not remain idle, operating costs should be reduced, interest charges raised to the going rates, and capital costs covered by proper pricing policies. Administrative expenses—if not justified by functions to be carried out and results to be obtained—should be kept down. In no case should they grow at more than five per cent a year. Procedures should be simplified, delays avoided. Non-Plan expenditure should be scrutinised with thoroughness and not allowed to go up at more than 3½ per cent in the year.

The nation has to adhere to this programme of maximising resources and cutting out waste and delay. In a changing situation, it has to arrive at correct judgments on the relative priorities of claims against the national product. Once their order is determined, there remains the technical task of selecting the right methods of financing and organising them. In this context, it is good to remember that the burden of defence or development on the economy is not lightened by transferring expenditure from States to the Centre, or even for that matter, from public to private funds. In essence, the burden does not go up or alter when the people are made to pay for medical care or education through taxes instead of by fees.

In the past fortnight, our discussion on methods of planning and objectives of implementation has imbibed a new sense of stark simplicity: national survival has a claim prior to both welfare and growth. Yet, as Pandit Nehru used to say time and again, the country is at a happy stage of growth where building in defence potential goes hand in hand with economic development. If there are factories to make tractors for agriculture, it is easier to build tanks. The chemical industry can throw up man-made fibres as well as explosives. An efficient transport service can move food grains to the right place at the right time; it can also carry defence supplies. National survival cannot come without self-reliance—so the nation must push up exports the better to be able to pay its way internationally. Domestic products should quickly take the place of imported machinery, metals and fertilisers.

Or, one can have a look at education and manpower planning. The Prime Minister has spoken of the need to plan our educational programmes in such a way that they do not add to unemployment and frustration. Emphasis should be on educational developments which add to the output in field and factory. Our plans have to be so drawn as to increase the number of technicians and technologists, to train skilled workers and to improve labour mobility. At the moment, there is no shortage of manpower. But as our family planning programmes gain in their countrywide impact, married women who have already had a couple of children can join the labour force and work, at the very least, as part-time teachers. They can also become skilled workers who do not have the hard grind of manual labour.

This week's meeting of NDC has created a new sense of endeavour and dedication. It is in order to safeguard the country's security and long-term interests that the National Development Council has authorised the Chairman—that is, the Prime Minister—to reorientate the Plan as necessary. Whatever the rigours and deprivations, the nation is prepared to face the challenge. This challenge is as much economic as military. As the deliberations of NDC indicate, it is being faced in common by the whole country.

"QUICK" ESTIMATES FOR 1964-5 SHOW A GOOD YEAR

National Income Up 7.3 per cent

THE national income of India *in real terms* rose by 7.3 per cent during 1964-65.

This order of increase at constant prices is heartening news, since it is as high as that recorded during 1960-61, which was the highest since 1948-49.

This is a "quick" estimate. The Central Statistical Organisation, the department which calculates the national income, releases the "quick" estimate as soon as possible after the completion of the financial year (April 1—March 31) and the agricultural year (July 1 to June 30).

The "quick" estimate has necessarily to be based on partial data. It is provisional. (A revised estimate follows later). The idea in issuing the "quick" estimate is to give a quick and approximate appraisal of the performance of the entire economy in the preceding year at real terms, that is, at constant prices.

The constant price estimates provide a measure of the increase in production of goods and services in physical terms and are not affected by increase in price level during the period. They are of crucial importance in arriving at economic and planning decisions.

The increase of 7.3 per cent in 1964-65 shows that the growth tempo in the Third Plan increased considerably in the fourth year. In the first three years the increases were 2.6 per cent, 1.9 per cent and 4.5 per cent. This gives an average of 4.1 per cent for the four years of the Third Plan.

The extent of rise or fall in national income depends in a large measure on the performance of the agriculture sector which contributes about 45 per cent of the national income. It is a sector which is subject to the whims of the monsoon. During the years 1961-62 to 1964-65 the percentage increases in the total national income and the income from agriculture sector at constant (1948-49) prices were 2.6 as against 0.2, 1.9 as against a fall of 2.1, 4.5 as against 1.9 and 7.3 as against 9.2 respectively.

Another important sector in the estimates of national income is mining and factory establishments (which registered an increase of 5.9 per cent in 1964-65). Increases in the industrial production are directly reflected in the constant price estimates for this sector. Good performance in this sector sometimes offsets the mediocre or bad performance of the agriculture sector thus reducing to some extent the effect on the overall trend.

The other sectors in the classification are communications, railways, organised banking and insurance, other commerce and transport and other services. Of these, other commerce and transport contributes about 12 per cent and other services about 18 per cent of the national income. During 1964-65, the percentage increases recorded in the above mentioned sectors were 13.0, 2.9, 7.4, 5.9 and 5.6 respectively.

Going back to agriculture, the value of output in agriculture (proper) increased by about 10.2 per cent which was due to an increase of 5 per cent in the production of rice and large increases of about 20 to 25 per cent in most of the other important crops.

In the case of mining and factory establishments, the combined increase for both mining and factory establishments, does not give a correct indication of the performance in each sector. For instance during 1964-65 (which relates actually to the calendar year 1964) the increase in income from mining has been very small (1.5 per cent) and that from factory establishments 6.3 per cent. If mining also had registered a good increase, the overall contribution would have been much higher.

The contributions of individual sectors to overall percentage change in real income during 1964-65 were as follows:

Sector	*Percentage contribution to total national income in 1963-64*	*Percentage change in 1964-65 over 1963-64*	*Contribution to the overall percentage change in 1964-65 over 1963-64*
Agriculture (proper)	35.9	10.2	3.7
Mining and Factory Establishments	10.5	5.9	0.6
Communications	0.6	13.0	0.1
Railways	2.7	2.9	0.1
Organised Banking & Insurance	1.2	7.4	0.1
Other Commerce & Trahsport	15.4	5.9	0.9
Others	33.7	5.6	1.9
All Sectors	100.0	7.3	7.3

The following table presents the estimates of national income and per capita income at 1948-49 prices for the years 1950-51, 1955-56 and 1960-61 to 1964-65:

Year	*National income at 1948-49 prices (Rs 100 crore)*	*Per capita income (in Rs) at 1948-49 prices (based on 1941, 1951 and 1961 population census figures)*
1950-51	88.5	247.5
1955-56	104.8	267.8
1960-61	127.3	293.2
1961-62	130.6	294.3
1962-63	133.1	293.4
1963-64*	139.1	294.8
1964-65@	149.3	314.4

*Preliminary @Quick

DIMLY AWARE OF THE PLAN

But Keen on Fertilisers

THE majority of the people of a village in Andhra Pradesh, with a 75 per cent illiterate population, favoured family planning and girls' education, but were against dowry, prohibition, and untouchability. The village is Hukumpet, where a socio-economic survey was conducted in February.

Out of the 388 families surveyed by the Rajahmundry Government College Planning Forum, about 75 per cent had annual incomes of Rs 500 to Rs 1,500. The average per capita income of the village was only about Rs 200. Most of the families were in debt. A fourth of the families saved small amounts, which they kept with them, and did not put in post office or banks.

Though the village, which is eight miles from Rajahmundry, got electricity a few years ago, there was no small industry or cottage industry using power at the time of the survey. The people were only dimly aware of the five year plans. They were not satisfied with the distribution of fertilisers through the panchayat.

The bottom 30 per cent of our people together earn only as much as the top one per cent. The poor have a greater need of planning than the privileged. When scarcity rules the people, the need for a clear focus, deeper understanding, collective discipline and dedicated leadership is inescapable.

THE POLITICS OF POVERTY

ASOKA MEHTA

Feroze Gandhi, in my recollections, is inextricably mingled with another comrade of ours in the freedom struggle, Yusuf Meherally. Both had in them the wonderful gift of friendship; both could charm and still the disturbed waters of one's being, and evoke the best that we may have to offer; both were snatched away by death just when they were poised for great undertakings.

I have been asked to weave a garland of words to pay our tribute to Feroze. I have chosen as my theme "Politics of Poverty" because he was steeped in politics; his metier *was politics, and his politics was of the poor and for the poor. He was wedded to basic transformation, peaceful yet decisive change of our stunted economy and eroded society. He was a leading partisan of the revolution by consent that our democratic politics envisage, and in it he got his bearings from his identification with the poor, those without any privileges.*

It is not often that the words of the poor, emerging out of the bowels of their poverty, are captured in their glowing authenticity. Recently, however, I came across a book, *Child of the Dark*, written by a slum-dweller in Sao Paulo. In that opulent city, the articulate outcaste cries out in her despair,

> "Brazil needs to be led by a person who has known hunger. Hunger is also a teacher.....Those who govern our country are those who have money, who do not know what hunger is, or pain or poverty".

This searing prayer of Carolina Maria de Jesus has been answered in our country: we have as Prime Minister a person who has known hunger and poverty, who has had them as his teachers. We may, therefore, talk with some confidence about the politics of poverty.

In fact concern with poverty has been at the heart of our politics ever since the days of Dadabhai Naoroji. A principal justification of our national liberation movement had been the aggravation of poverty that foreign rule brought about by the drain of our resources and its inability to remove the squalor and want of centuries.

Our poverty, however, is not merely of the body. It is at once a poverty of spirit, body and mind, having its roots in our social system, our economic apparatus and our culture. Our situation borders on desperation because these three different roots of poverty have interacted and reinforced one another.

The poor have rarely found entry in the corridors of power. In the Old World, the poor, for countless centuries, were totally excluded from the processes of power. In the New World, the expanding frontier was the one escape available to the energetic among the poor. The vast mass of the people in any country, before industrial transformation is brought about, are the rural poor. They naturally hunger for land and have often turned against the landlords; they have yearned for

Feroze Memorial Lecture delivered in New Delhi on September 8, 1965.

expanding credit and distrust bankers and merchants. The money changers, throughout history, have fattened on the misery of the poor. The poor have only one vested interest; it is the vested interest in change.

The Jeffersonian vision of a rural democracy, of self-sufficient agriculturists, owning their homesteads, has often inspired national leaders. But such a society implies a vast expanse of arable land capable of taking care of not just the existing population, but also of its future growth. Where land is limited, diminutive farms, even if they could be carved out, would not open up any dimension of change. Growth potential has to be coaxed out of the economy, if social transformation is to be ensured.

The thrusts of technological change cannot be held back; even in Jefferson's America, arcadian life faded before it bloomed. Where the pressure of population on land was heavy and kept growing, and technological possibilities leading to economic diversification had not yet opened, ideal communities were thought of in terms of the immense out-pouring of moral energy of men. Today, it seems possible to work out social and economic transformation without demanding abiding presence of moral incandescence in every person.

Karl Marx saw the emancipation of man at the end of the road travelled by industrial growth and economic change. Where these changes had already occurred, he demanded socio-political changes, and where they were yet to occur, he sought political upheavals that would sponsor the missing economic growth. In the former case, it could be a dictatorship of the proletariat involving the dominance of the many over the few; in the latter case, it has invariably proved to be the tutelage of the many by the few.

Reweaving the Fabric of Existence

When the poor are given democratic powers, will they end up with the accent on distributive justice and acquiescence in economic stagnation? Or will they trigger growth with the other changes that they seek? Aneurin Bevan was sceptical of industrial efflorescence emerging through government by consent. His words were,

> "It is highly doubtful whether the achievements of the Industrial Revolution would have been permitted if the franchise had been universal. It is very doubtful because a great deal of capital aggregations that we are now enjoying are the result of the wages that our fathers went without."

If politics of poverty has any potency it would seek to narrow the gulf between the rich and the poor—always wider in undeveloped countries than in the developed countries. Will it also strive for the accumulation of capital (always painful) to initiate and push through structural changes in the processes of production themselves ? Are the poor solely concerned with the *relations* of production, or, also, and even more, with the *forces* of production, whose suppression in the world of today is a greater crime against the poor than the embedded inequalities?

Very few nations are willing to face these elemental challenges. Ours is among the select and the most exposed. Through our action and our understanding we are weaving new patterns in the tapestry of history.

There is no escaping for any country from the stress and thrust of transformation. That requires conscious and determined leadership, whether the process is democratic or otherwise. The main task is to correct the *imbalances*—for example, between population and resources, between educated men and the jobs available to them—and that requires the assertion of *will* and *capacity* in the society. It further demands activisation and energisation of the people. Where the process is democratic—if it is not another name for apathy—the leadership will have to evince deeper dedication and the people greater understanding, in brief, profounder commitment.

With other developing nations, we have reached the stage where, in the words of Robert Heilbroner, *The Great Ascent* has to be mounted. It, in fact, involves in a decade or two

> "nothing short of a pervasive social transformation, a metamorphosis of habits, a wrenching re-orientation of values concerning time, status, money, work; an unweaving and reweaving of the fabric of daily existence itself".

Nation after nation has faced the task of transformation with varying degrees of awareness and purpose. As years have gone, what could have been attempted through *incremental* changes, that is accelerated changes, but along the same lines, have given place to *structural*, or fundamental, changes—where the known dimensions themselves have to be altered. We have now reached a further stage, where *constant changes* have to be accepted and absorbed. The whole concept of stability is thus revolutionised. *That society alone is stable that develops capacity to live with change.* In a recent study of Russian Radicalism and Revolution, *Sons Against Fathers*, E. Lampart sketches a certain profile of mind and spirit that is wholly relevant :

> "The situation of the new radical rendered him more rootless, more mobile than his predecessors of the forties. Alike by conviction and origin he had no feeling for his society and was not a part of it. although the paradox of his situation is that he was concerned with the social problem to the exclusion of everything else. He inherited nothing, not even his personality, which he had, as it were to create anew. He detested conventions and hierarchies, the careers and opportunities, and all the stuffy pomposity of life. Everything in his condition led him to sunder the secure, comforting bonds of custom and familiarity. His tendency to prickliness when confronted with examples of entrenched superiority, or contempt for what he considered to be more airs and graces rarely sprang from private resentment. He had no wish to find a niche for himself in the prevailing class structure .....To be more accurate, he was bent on creating a new society, not on gate-crashing ideologically or convivially, the old one, which he believed to be doomed."

This radical approach is essential to revolution. We need to recapture, rediscover, in the circumstances of social transformation, the mood that inspired us during the heroic days of the national movement.

Bread and Other Things Too

It might be argued that politics of the poor is simple —theirs is the quest for bread. In our conditions, the ineluctable fact is that either we do not get bread at all, or we get bread and other things too. Bread, to use a convenient symbol, is plentiful only when agriculture is bountiful. Within the traditional confines of agricultural production, the possibilities of growth are limited, and a considerable part of them we have already exhausted. These possibilities leap forth only when the traditional bounds are overcome, that is when new tools and techniques, new skills and scientific understanding, are brought to agriculture. It means constantly altering and improving the human element in agriculture, as also improving and altering the material bases provided by land, water and other inputs in agriculture. A fabulous rise in agricultural output has been achieved in the United States : the production per man hour of labour doubled between 1940 and 1950 and it almost doubled again in the next twelve years. This spiral growth has been due to chemicalisation and industrialisation (including electrification) of agriculture.

Every Indian cannot be assured the simple bread and rough cloth that he seeks to appease his hunger and cover his nakedness with, unless we strive to bring to him a modicum of education, a deepening of industrialisation and a host of associated changes in transport, credit, marketing and other institutions. If it is foolish to juxtapose bread against freedom, it is equally futile to counterpose a basket of bread against a basket of wider achievements.

Twin Requirements

Even where politics of the poor focuses on food alone, it will be still necessary to produce enough food grains—there is a great deal of unsatisfied hunger in our land—and to provide employment and earnings to the hungry to enable them to secure their share of food. These twin requirements demand a great amount of developmental efforts and transfer of resources from the better off to the under-privileged and needy, that is, complicated social engineering.

Even granting that there are many routes to economic welfare, certain critical tasks remain constant. These challenges—or dilemmas, if you prefer that word—can be reduced to four inter-related problems: First, the people must somehow accumulate capital, saved from the rigours of subsistence economy; a surplus that needs to be invested to energise productive activities. Secondly, agriculture has to be revolutionised. Without that neither man nor materials needed for further growth can come nor can the basic needs of the many millions be met. Thirdly, the nation has to encourage alterations in men and institutions; in cultural mores and the folkways. Fourthly, these changes have to be channelled into the process of industrialisation because that way alone new tools and techniques emerge to augment and diversify production, that is, improve productivity and thus, lift levels of living.

There is an inescapable relationship between improvement in life and augmentation in investment in the economy. Professor Colin Clark has offered a workable rule of thumb :

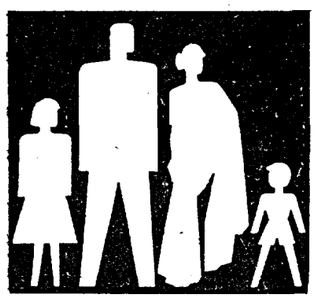
> "It is only in so far as the rate of investment exceeds the rate of population increase multiplied by four that anything will be left for industrialisation or for raising standards of real income."

In India, today, our population increases at almost 2.5 per cent per year. The rate of saving in our economy, today, is 10.5 per cent. This means that we are still hovering at the edge of stagnation. We have to lower our birth rate—shall we attempt to halve it in a little over a decade ? On the other side, we have to step up our savings and investment to 20 per cent in a decade or so. Such a two-pronged attack would open up possibilities wherein the people would experience the glow of change, and improvement in their living conditions. Politics of poverty that overlooks these basic efforts are, in reality, ineffective, shadow politics.

Food for all involves, if not for production, certainly for the possibilities of consumption, universal employment. These simple objectives demand far-reaching developmental efforts and social changes. A recent survey has confirmed that the pattern of distribution of income in the rural households is such that the bottom 30 per cent of them have an income (10.58%) which is almost that of the top *one* per cent (8.87%). Half the rural households have an income (22.48%) that is almost the same as that accruing to the top 5 per cent (19.50%). Even when agricultural production goes up, the marketable surpluses are apt to accrue to the larger holders of land. If these surpluses are to be made available to the poorer sections of the villages, they must be assured of earnings. Those earnings—arising from investments—have to be balanced by savings if inflation is to be avoided. Our rural sector is large, almost half of our national income comes from it, and experience the world over shows that economic transformation does involve imposts on the rural people, hence the outlays will have to be balanced by savings from the top layers of agricultural households. Half the agricultural income flows to 20 per cent of the rural households. Surely the rest, 80 per cent, cannot experience change unless the burdens are adjusted—whether in terms of a grain tax or other forms of imposts upon the better placed.

In the urban-industrial sector inequalities are sharper. Again the managerial elite insists upon having standards comparable to those in the West. At the stage of development where we are today, in no country were these comforts provided. Unless we accept austere standards for the elite, our consumption claims will eat into savings, abridge and erode investments and multiply the miseries of the poor. There is nothing more unsettling for the submerged people as they seek openings of progress than the "demonstration effect" of ostentatious living. Non-basic consumption, which embraces in our country today not just the luxuries and frivolities of the rich but the comforts and conveniences of the middle classes, has not just an unsettling

(*Continued on Page 26*)



Maharashtra Takes up Loop Campaign in Big Way



MAHARASHTRA, which has the distinction of leading the country in family planning, has undertaken an intensive programme to popularise the Intra-Uterine Contraceptive Device (I.U.C.D.).

The State has set before itself a target of reducing the birth rate by 50 per cent by 1973.

The birth-rate, which was 31.8 per thousand in 1960 has already come down to 28.8 owing to a variety of causes of which the most important is the family planning programme launched in 1953 and stepped up in 1960.

In the last four years 210,000 sterilisation operations have been performed in the State and 3.5 lakh couples persuaded to adopt contraceptive methods regularly.

Plan to Cut Birth Rate by Half

Last year alone (1964-65), as many as 232 vascetomy camps were organised in the State. The total number of camps held in four years is 481.

The new campaign to popularise the loop will be worked through three agencies—private practitioners, existing family welfare planning centres in urban areas, and Zila Parishads in the rural areas.

One thousand private practitioners will be enlisted. Each of the 142 urban family welfare centres will be asked to distribute at least 400 loops every year. Each Zila Parishad has already been told that it will be given 1,000 loops a year, which may be stepped up to 2,000 loops. Voluntary organisations will be given all help.

I.U.C.D. camps will be organised in all the districts in the State. Already camps are being held at several places. At four rural camps held at Aduro (Ratnagiri district), Guhagar (Ratnagiri district), Sirur (Poona district) and Thana, 857 loops were distributed. An I.U.C.D. Information Week was observed in the State, as in the rest of the country, in the third week of July. The full results have not yet been computed.





Women registering their names at a loop camp. *Right:* **Children are looked after by camp officials while their mothers have gone to the operation room.**

The main difficulty in introducing the I.U.C.D. service in the rural areas on a regular basis, in addition to organising the short-term camps, is the shortage of women doctors. There is a proposal to attach a woman doctor to every district family planning bureau.

Maharashtra has a Statewide network of family planning organisations. A State Family Planning Board was set up in 1957. There are honorary "family planning education leaders" at divisional and district levels who tour the districts. A special family planning bureau was established in 1958 under the Director of Public Health. Besides, a Central family planning field unit, which has a travelling training team, has been working in the State since 1962 providing on-the-spot training to health centre personnel.

Every district has a family planning bureau, along with a mobile vasectomy unit and a demographic cell under a district family planning officer who is a trained doctor. As the organisation of vasectomy camps has now been taken up by the Zila Parishads (through the district family planning bureaux), the four divisional mobile units which had been doing this work will now take up propaganda and education in family planning.

Besides, there is a network of family welfare planning centres all over the State. There are 142 such centres in the urban areas and 482 centres (with 1,413 sub-centres) in the rural areas. These centres are run by the Government, local self-governing bodies and voluntary organisations. Each centre covers a population of about 60,000. These centres have so far contacted more than 30 lakh people and given advice to 3.12 lakh persons.

Incentives are given to people for adopting family planning methods. Contraceptives are distributed free in rural areas, and to persons earning less than Rs 300 per month in urban areas. Cases are medically examined before and after the sterilisation operation. The persons undergoing operations are granted special casual leave.

Photographs:
Director of Publicity,
Maharashtra.

Women awaiting their turn outside the operation room. *Right*: **After the insertion of the loop, women queue up for collecting medicines.**





Ajanta in True Colours



Experts Suggest New Studies to Restore the Paintings

AJANTA and Ellora. Names that spell magic in the world of art. How long will they continue to do so? How can these great treasures be preserved for posterity? These are questions over which archaeological scientists have begun to ponder.

Recently a Unesco mission of scientists critically appraised the present condition of the mural paintings and sculptures in the Ajanta and Ellora caves and rock-cut temples. Dr. Paul Coremans and Dr. H.J. Plenderleith, great archaeological chemists, examined 25 out of the total of over 60 caves. They reported that many of the paintings were damaged beyond repair owing to smoke, heat and moisture, human vandalism and bad restoration techniques. Many more paintings, they said, were lying concealed beneath dark layers of soot and varnish.

While acknowledging the skill and restraint shown by the scientists of the Archaeological Survey of India in preserving these mural paintings, they have concluded that the latest scientific methods in preservation need to be employed. They have recommended that, until the paintings are scientifically studied, all efforts at cleaning, except essential maintenance, should be stopped.

Preservation and restoration of paintings and sculptures has now become a distinct, highly specialised branch of science. It is not merely a question of upkeep of the treasures for historical documentation, but of preserving their appearance without any change as a testimony of style and artistic conception.

SCIENCE NOTE

BY ROSSCOTE KRISHNA PILLAI

The first step in preservation is to find out the different materials that have been used in the paintings. Secondly, the causes of deterioration and formation of incrustation, which deface the surface and core of the paintings, are determined. Then the paintings are cleansed, the factors which cause deterioration are eliminated and the paintings are coated with materials which protect them from further deterioration.

In scientifically examining the paintings, they are first studied under varying intensities of light, from different angles, using magnifiers.

Then they are photographed by X-rays, ultra-violet rays, or infrared rays. This is done by using special equipment, which will reveal the nature of cracks, patches and the extent of deterioration that may be concealed under darkened layers of varnish. This study also shows whether there is more than one layer of painting and also the depth of penetration of varnishes, impregnants, etc.

After this a small portion of the paintings is subjected to microchemical and spectrographic analysis. Only a few milligrams are enough for such examination. It is possible to find spots of undamaged painting amidst large damaged patches and to remove them for chemical study.

These portions are studied under a microscope. The pigments are then extracted by suitable solvents for microchemical methods of analysis like chromatography.

This diagnosis enables the scientists to arrive at the proper binding medium and coating materials to be used for protecting the paintings from deteriorating further.

A number of preservatives used in the past, such as varnish, wax, shellac, celluloid and cellulose acetate solutions, are not considered safe now. Some of them decompose and crack with time or change owing to oxidation and thereby discolour or blacken the paintings. Modern science has now added to the restorer's tools a number of synthetic resins, which preserve the paintings admirably without any damage. Among them are vinyl acetate, acrylates and "soluble nylon". They not only preserve the surface of the paintings but also act as adhesives to secure loose plaster and prevent flaking of colours.

Side by side with chemical examination goes a study of the causes of deterioration. Paintings suffer because of (1) gases and impurities in the air, (2) humidity and heat in the atmosphere, (3) bacteria, moulds and fungi, (4) insects, birds and bats, (5) light, and (6) human tampering, either unknowing or wilful. People are reported to have lived and cooked in the Ajanta and Ellora caves during the long centuries when they had been lost. Smoke and heat have added to the damage caused by age.

Chemistry has evolved a wide variety of substances—fumigants, repellents and insecticides—to fight the menace from insects, bacteria and fungi. From among them are chosen those chemicals that do not stain or in any way affect the texture of the pigments and painted materials. Thymol, benzine, petrol, camphor, ethylene dichloride etc., volatilise and produce insecticidal fumes and are thus effective in preventing decay due to insects and bacteria.

The havoc played by climate and nature on mural paintings is immense. Moisture in the air penetrates into the surfaces and salt crystallises on the pores of walls. Water seeps from above and below through crevices in the rocks. Moss and lichen also grow with the help of moisture.

A thorough survey to measure the areas of dampness and the quantities of moisture in the air and inside the walls is the first step in preventing natural decay. Instruments called humidity recorders help to make these measurements. The damp walls are then dried by scientific drying methods.

Unscientific restoration techniques and the use of unsuitable cleansers and varnishes damage the paintings irreparably.

Many of the world's masterpieces have been spoilt thus. But with great care and patience and high scientific skill many of them are being efficiently restored.

Scientific restorers at Belgium have hitherto spent five years in delicately removing traces of varnish and paint used by former clumsy restorers on a remarkable canvas copy of "The Last Supper", the famous Leonard da Vinci mural in Milan, done by his pupil Andreas Solario.

The first scientific attempts at restoration of the mural paintings at Ajanta and Ellora were made by two Italian experts, Professor Cecconi and Count Orsini about 40 years ago. They used casein and lime-plaster and shellac in spirit to fill cavities and beeswax in turpentine as a surface preservative. But these natural resins have decayed in the course of years and are now considered to be injurious to mural paintings.

Systematic research has to be carried out to study the behaviour of modern synthetic preservatives and binding materials under conditions of high temperature and humidity in India. The Unesco scientists have recommended the study of synthetic resins like vinyl acetate, methyl methacrylate, and "soluble nylon" to evolve suitable modifications for the treatment of mural paintings at Ajanta and Ellora.

All advanced countries have big, properly-equipped laboratories near their great archaeological treasures. But Ajanta or Ellora now depend entirely on the Archaeological Laboratory at Dehra Dun for their scientific restoration treatment. The Unesco mission wants at least a small field laboratory to be established at Ajanta.

With the adoption of the latest scientific techniques in preservation, it may still be possible to save at least what remains at Ajanta and Ellora.

QUOTATION BOX

We seem to be satisfied as long as the tender is all right, even if the building cracks.

—Professor P.C. Mahalanobis

Protection for Invigilators at Public Exams.

—Headline in a newspaper

Water experts are inclined to take this enthusiasm for desalination with a pinch of salt.

—"The Economist"

God's creation is indeed in a soup. What'd save it, but the "loop"!

—"Lok Rajya", Bombay

We are all potential law-breakers.

—Lord Chalfont, British Minister at the Geneva Disarmament Conference

If the object was to throw the report into the dust-bin, why have it done?

—Mr Tek Chand on his Prohibition Report

Had Gobindsagar (capacity 8,000,000 acre ft.) been located in the plains, it would have formed a lake stretching along the Sutlej river, from Rupar to Karachi, say 1,000 miles long, 2 miles wide and 6 ft. deep.

—Mr Pratap Singh in "The Statesman"

When Mr Asoka Mehta was not in the Planning Commission, he complained about bad planning. Now that he is in the Planning Commission he is complaining about the Plan not being executed properly.

—Acharya Kripalani in Parliament

Building Up of Stocks of Coal During Kumbh Mela

—Headline of a press note

I am against the commercialisation of AIR...Bureaucratisation leads only to incompetence and nepotism. But commercialisation leads to incompetence, nepotism and vulgarity.

—The Editor of "The Illustrated Weekly"

...It seems most unlikely that in the event of a *coup d'etat* in Delhi the authors of the *coup* would think it worth their while to make the capture of All India Radio one of their first objectives.

—Mr Iqbal Singh

Missing wisdom teeth can ruin a good talk.

—Mr P. Lal

And those who speak in Hindi
Speak it so chaste and fine.
O do not kick up a shindy—
Their language is divine; .....

—A poetaster quoted by Diwan Chaman Lal

For want of quorum, the Lok Sabha had to be adjourned this evening (August 25) about half an hour ahead of schedule while the House was discussing the no-confidence motion against the Government.

—A newspaper report

Let them not disfigure and mutilate Chandigarh. There can always be all kinds of pressure, including political, to spoil its beauty.

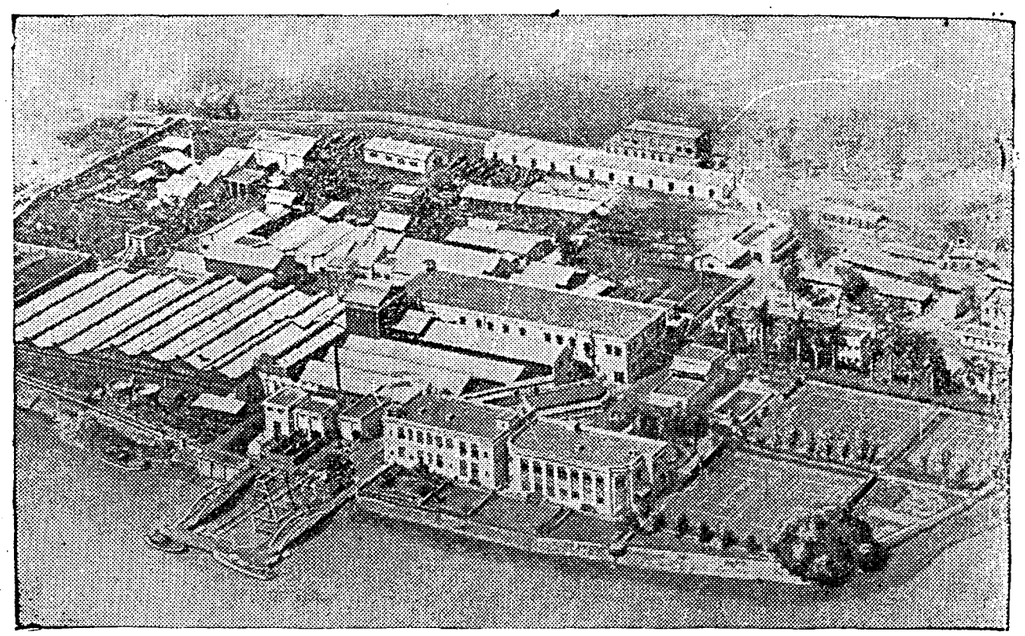
—M. Pierre Jeanneret, retiring Chief Architect of Punjab

Having a house has a number of interesting affinities with having a woman. It begins in restlessness; the itching desire to move on. One casts about, one finds and woos, uneasily aware that certain well-established habits are likely to be called in question if one makes the conquest, one conquers at a cost rather greater than hoped. Once in, the place proves to be amazingly infested with cobwebs and partitions...

—John Coleman in "The New Statesman"

The prices have kept soaring and the only reduction I have come across was in regard to the charge at the Delhi electric crematorium.

—Acharya Kripalani



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Chinaware Lacquers	Crown Cork Lacquers
Silk Screen Printing Finishes	Pilfer Proof Closure Coatings
Shoe Lacquers	Heat Resisting Finishes
Leather Dressing	Fire Retarding Paints
Blackboard Paints	Hammer Finishes
Boiler Compositions (Interior and Exterior)	Copper Wire Enamels
Hairpin and Hairclip Lacquers	Toy Enamels
Food Can Lacquers	Black Umbrella Rib Enamel
Paper Varnishes	Pencil Lacquers
Adhesive Lacquers for staples	Paint Removers
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Paints for inside of tube lights	Tyre Paints
Light Bulb Lacquers	Bicycle Enamels
Marking Inks and Paints	

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Forest Resources for Industries

NATIONAL INVENTORY OF BAMBOO AND WOOD URGENT

FORESTS yield various products of industrial importance : timber and the sheet material made from wood, such as plywood, fibreboards and particle-boards, used in housing, other construction, transport and furniture; cellulosic raw materials used in making paper and board; and gums, resins, and other minor forest products. They also satisfy certain needs of the local population such as small timber for building huts and making agricultural implements, fuel for the hearth, and fodder for livestock.

Besides, forests also have a protective role in minimising soil erosion, mitigating floods and regulating the flow of sub-soil water to sustain agriculture.

This many-sided usefulness of forests makes planned forestry important for the national economy. Such a planned approach has to give due weightage to the obligatory features listed above and also take into account the extent and the pattern of demand on forest products.

Let us confine ourselves to the major forest industries. Such industries have certain special features. They yield a wide range of products, both consumer and intermediary goods, flowing into many sectors of the economy. The demand for them rises sharply with economic development and consequent higher living standards. Consumption of industrial wood is small when the income per head is low. The present pace of planned development and rise in living levels and the increase in population have pushed up the demand for various kinds of forest products. A sustained increase in production will have to be brought about through intensive schemes of development of forest resources to bridge the widening gap between consumption and production.

India today imports 60 per cent of its newsprint requirements involving foreign exchange of Rs 5 crore. If availability of cellulosic raw materials could be assured and mills set up, the entire requirements could be met by indigenous production. It has been estimated that against our production of about 5.5 million tonnes in 1961, the country's requirement of industrial wood for various uses is likely to be of the order of 8 million tonnes by 1965, 12 million tonnes by 1970, and 16 million tonnes by 1975. Therefore, if the progress of the country is to be maintained, by 1975 it should have at least this quantity of industrial wood production to meet the expected demand.

Foresters are confronted with the poser, "How to meet the growing demand for wood

K. G. BHATIA

for various purposes?" Hence the need for increasing the production from forests, rational use of the present yield and increased production by raising large-scale plantations of suitable fast-growing species. This will entail going into hitherto inaccessible forests for which roads have to be built. This is an important method of resource creation.

Better Statistics Needed

What the extent of forest resources is, how they are being consumed and what the likely level of future requirements is likely to be—all these questions need to be carefully examined. We need fuller figures on the pattern as well as the volume of forest products consumed in different sectors of the economy. Factual data are also needed concerning forests—their extent, location, composition, standing wood volume, rate of growth, and the quantities of various products that will be available on a sustained basis as also the cost at which these can be procured by the industries.

But, as is usual in developing countries, reliable statistics are wanting. India has not yet carried out any national forest inventory. The figures of out-turn of wood and other forest products which are mentioned in various publications are rough estimates based on certain assumptions. Even less reliable are the figures of the forest capital, namely the growing stock, which are at best intelligent guesses.

No prospectus for investment in forest industries can be prepared without some reliable information. Concerted efforts will have to be made to tackle the problem. The methods of collecting statistics need to be standardised to provide a basis for general and detailed planning. In short, the immediate needs are:

i. a national forest inventory—to know the present availability of wood and other forest products;

ii. statistics of removals, employment opportunities, trade prospects, and consumption of forest products; and

iii. periodic review of supply and demand trends.

Not only should the present out-turn be utilised to the best advantage, but production should be maximised, particularly of products most in demand. One of the serious obstacles in the development of forest industries is the high cost on obtaining the basic data concerning the availability of forest resources. Aerial surveys are likely to considerably reduce this cost and also save time. Modern sampling techniques have made it possible to get more precise data at lesser cost.

These studies can best be made by a special group with adequate facilities to determine correctly the present availability of various raw materials, the cost at which they can be collected as also the manner and the extent to which they can be increased to meet the future requirements.

We Must Exploit the Remoter Forests

Detailed surveys will take years. But even approximate figures could help in planning and later accurate data could be collected. Realising the importance of such studies the Planning Commission appointed a Committee on Natural Resources which has suggested that such surveys should be undertaken on a continuing basis, reviewing the results obtained from time to time and filling the gaps that come to surface.

The primary function of the Resources and Scientific Research Division of the Planning Commission is to conduct such studies and carry on research on problems relating to development, utilisation and conservation of the natural resources including forest resources. The studies are aimed at ascertaining, as far as possible with available data, the most rational utilisation of available resources and need to create new assets. One of the studies deals with the availability of forest raw materials for pulp, paper and newsprint and measures to

augment the forest resources to meet the future demand.

In the coming years the country is going to face a serious shortage of paper. As against the present low level of *per capita* consumption of only 1.5 kg of paper the reasonable consumption by 1980-81 should be about 6.0 kg. The trend of future demand is given in the sub-joined table:

('000 tonnes)

Type	*Consumption 1963-64*	*Estimated future demand*	
		1970-71	*1980-81*
1. Paper and Paper boards	493.6	1,200	3,000
2. Newsprint	125.2	300	600
3. Chemical pulp	75.4	200	600
	694.2	1,700	4,200

It has been estimated that these targets can be realised only if the availability of cellulosic raw materials is stepped up to the following extent:

Year	('000 *tonnes*)
1965-66	2,800
1970-71	5,300
1975-76	9,000
1980-81	13,000

There are 53 paper and paperboard mills in production in India with a production capacity of 643,870 tonnes and with a licensed expansion of 227,516 tonnes. Besides, ten new large units have been licensed or approved with a total capacity of 244,200 tonnes. The total production of paper and paperboard for the year ending March 31, 1965 was 493,000 tonnes. It may be expected that during 1965-66 the total production of paper and paperboard might be around 550,000 tonnes as against target production of 700,000 tonnes for the Third Plan*.

At present, the main forest raw materials used by the paper industry are bamboo and to a lesser extent *sabai* grass and some coniferous woods. Some of the mills have started using miscellaneous hardwoods (and sugarcane waste). Most of the bamboo from accessible forest areas is either already being utilised commercially or goes for agricultural purposes. The bamboo resources available in the remoter forests have not yet been worked. There is lack of exact information regarding the total availability of bamboo in different regions. It will be desirable to ascertain this by a systematic survey in the interests of industrial development. According to the study the total annual potential availability of bamboo has been estimated at about 4 million tonnes, with an extra 2.4 million tonnes if bamboo-bearing forests are properly tended and the inaccessible areas opened up.

*Information furnished by the Directorate-General of Technical Development (Paper Directorate), Ministry of Industry and Supply, New Delhi.

Similarly, with better efforts we can have access to the large quantities of coniferous wood (fir and spruce) growing in the upper reaches of the Himalayas. So far these forests have only been partially exploited for want of communications.

Thus, supplies of forest raw materials for making paper could be augmented by tapping the bamboos in the forest of Assam, the West Coast and Dandakaranya; conifers in Punjab, Himachal Pradesh, U.P., and Jammu and Kashmir; natural growing miscellaneous hardwoods in the forests near the mills; and by creating industry-oriented plantations of fast-growing broad-leaved species.

Large Employment Potential

The employment potential in forestry operations and forest-based industries is fairly large and is steadily growing. The total capital employed in the paper industry alone is of the order of Rs 7,000 lakh and the industry provides employment to 42,000 persons.* Besides the paper industry, the manufacture of wood-based sheet materials (plywood, fibre-boards and particle-boards) are also developing fast in the country. Efforts are being made to have integrated units so that forest products are utilised fully and to the best advantage.

Forest resource surveys, to determine the economic potential of at least some of the obviously more valuable forests, has received special attention in some of the States during the current Plan period. Work has started on a forest inventory. This major project, called Pre-Investment Study of Forest Resources, receives assistance from the U.N. Special Fund. In the next three and a half years, this study is expected to cover an area of about 29,440 square kilometres. There is need for more inventories so as to cover the whole country.

A wholesome feature is the rapid expansion of plantations of fast-growing species like eucalyptus. A Centrally-sponsored scheme for raising such plantations was taken up during the Third Plan with a physical target of 56,000 hectares at a total cost of Rs 275 lakh. According to assessments made in the Planning Commission for the Fourth Plan, a much bigger programme for planting bamboos and conifers (250,000 hectares) and fast-growing species of industrial importance (437,000 hectares), mostly for pulp, paper and wood-based sheet materials, will be necessary.

To summarise, in order to meet the increasing demand for forest raw materials for various industries, particularly paper and newsprint, composite wood boards, etc., it is absolutely essential to plan for the proper utilisation of available quantities and to maximise production. This will be possible only if—

1. a reliable inventory of forest resources, their availability, removals and end-uses is compiled;

2. there is a periodical review of the trends of supply and demand of various forest products;

3. there is intensification of the programme of management of forests to increase their output and reduce the cost;

4. there is opening up of hitherto inaccessible forests by developing communications and introducing modern logging methods for their exploitation, so that forest produce could move at a faster pace and economically to the centres of consumption; and

5. there is a larger programme of planting suitable fast-growing species to meet the rising demand for wood.

Mr K.G. Bhatia is Research Officer in the Planning Commission.

*National Progress Report on Forestry (1962/64) issued by the Ministry of Food & Agriculture, New Delhi, 1964.

Yojana Bhavan Diary

The Planning Commission met from August 23 to 26 to discuss the Fourth Plan outlays and programmes and again on August 31 to consider the agricultural plan for the Fourth Plan period.

The National Planning Council study groups met on August 27 and 28.

Prof. P.C. Mahalanobis, Member, Mr Asok Mitra, Additional Secretary, Mr B.N. Datar, Chief, Labour and Employment, Planning Commission and Dr K.R. Nair, Director, Central Statistical Organisation have left New Delhi to take part in the World Population Conference (August 30 to September 10) at Belgrade.

Dr. Harbans Lal, Deputy Economic Adviser, Department of Economic Affairs, Ministry of Finance, joined the Research Programmes Committee as Member-Secretary on September 1.

Mr. P.D. Kulkarni, Joint Director Social Welfare Division, participated in the meetings of the UNICEF Group on Scheme of Planning for Children and Youth, held at Bangkok from August 29 to 31.

Mr M.K. Gopaliengar, who has been with the Planning Commission, as Chief (Power), on deputation from the Ministry of Irrigation and Power, has left the Commission to join the U.N. Economic Commission for Latin America as Hydro-electric Adviser.

Mr D.R. Suri, Chairman, Technical Group for Transport, Planning Commission died on August 21. A condolence meeting was held in the Yojana Bhavan on August 23.

TEACHERS CUT CLASSES

"We are the gentlest of all those who have demonstrated on this street," he said.

He had eyebrows that looked used to expressing disapproval, but the eyes themselves were of a man who was long forced to be patient.

He was a member of a teachers' procession that marched to Parliament last month in the capital.

It was a procession very unlike others. There were placards, of course, but no slogans were shouted. Evidently the teachers were giving their throats a rest.

Working in Yojana Bhavan, we are privileged to have glimpses of a number of protest marches and demonstrations. There are mammoth-sized ones, whale-sized ones, snake-shaped ones, and some which are



only like squirrels and sparrows. The bigger ones have common features. They are all highly organised, and organised roughly the same way, whatever the colour of the caps and banners—red, saffron, white or blue. There are the scooter-ised cheer-leaders, who herd the demonstrators arriving by buses and lorries. There are the loudspeakers fixed on the avenue trees. There are the rostrum-builders. There are the professional assistant demonstrators who are ready to swell the numbers of those whom mere ideology brings on to the street.

Then there are those who look to the feeding of those who come from outside. After the Jan Sangh demonstration last month an organiser said they had arranged several thousand lunch packets. (What a great deal of merit they are accumulating? Isn't *anna-daan* the greatest of *daans*?)

The demonstrations are not without their lighter side. A group which took part in the Jan Sangh demonstration came by buses belonging to a Gandhi co-operative transport company. A Sikh taxi-driver going home in the evening said: "Had a good day, I made 90 rupees. But what were these people asking for?" Others who are enthusiastic about demonstrations are those who sell bananas, parched gram, cooked gram, baked sweet potatoes, grilled corn cobs and tinted beverages.

Some months back, after the communists had staged a rally, a colleague spotted a person who looked an Andhra. Our colleague, also being from Hyderabad, asked the other man in Telugu what had made him come all the way. "They said they would pay my fare: they said they would give me my food and some money for tobacco. And they said they would show me Jawaharlal Nehru. So I came," was the reply.

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The Books We Send

Book buyers, book sellers, book importers and book publishers are all talking about the new import restrictions. The shilling and the dollar are dearer now for readers of magazines and books. We have to pay more for foreign ink and paper—provided the dealer deigns to take our order. Fortunately our young men haven't yet been denied access to knowledge of the doings of Messrs P. Mason and J. Bond, and the older men can still buy "girlie" magazines. It is only the scientists (social and natural) who find it hard to persuade bookshops to get them their needs of books—and what strange names they have (the books)!

Meanwhile a quiet battle rages between sellers and publishers. Some publishers say: "We can do it. We can be independent of foreign books." The sellers say: "What you publish is good only up to intermediate standard; for all higher knowledge we are still dependent." Amidst all this it is interesting to know that we too export books. The Asia Publishing House's bulletin for August says that the book industry earned foreign exchange of Rs 84.15 lakh in 1963-4.

The bulletin didn't give details, but someone who claims to know tells us that half of this sum comes from the textbooks we send to African countries.

ANDHRA'S

HEAVENLY DAMSEL Helps Industry

1,000 MW Power from Kinnerasani Project

KINNERASANI is a small river in Andhra Pradesh which flows into the great Godavari a little below the pilgrim town of Bhadrachalam.

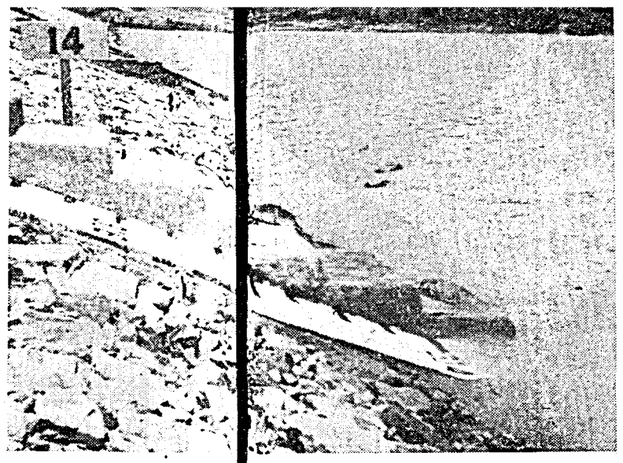
The river, whose name in Telugu means 'heavenly damsel' and whose praises have been sung by the Telugu poet Viswanadha Satyanarayana, will soon be assisting industry.

The waters of the Kinnerasani Project in the Burgampad *taluk* of Khamam district will serve the Andhra fertiliser factory and a thermal power station run by the Electricity Department.

In the first phase, by building a dam to a restricted height, the fertiliser factory's requirement of 5 million gallons a day and the thermal power plant's need of 10-million gallons a day will be met.

In the second phase, by raising the height of the dam, the reservoir storage will be increased to its ultimate capacity which will enable the thermal station to be further expanded so as to generate 1,000 megawatts of power, consuming 46 million gallons of water a day.

In its length of 96 kilometres, the Kinnerasani drains a total area of about 1,300 square miles. The stream is reputed for its flash floods which hold up traffic. This will be d by the construction of the dam. The area has ab inches rainfall yearly. The total monsoon yield f e catchment at 75 per cent confidence limit is exp o be 9,863 million cubic feet or 2,26,000 acre fe



A section of the earthen dam. Below: water channel being lined with cement concrete

A v etween two hillocks and containing the river c s proposed to be closed with an earthen dam, w e saddles in the hillocks on either flank are pr to be closed with masonry dams.

P. S. RAMAKRISHNA RAJU
utive Engineer, Kinnerasani Project

The en dam will have an ulimate height of 126 fee a top width of 20 feet. The total quantity of earth red to be conveyed and deposited in place for the hase of the dam is estimated to be about 56 mill ic feet.

The ry dam with a top width of 14 feet and an ulti eight of 415 feet will be built with stone maso ment mortar 1:5 proportion.

In t st phase, the reservoir will have a storage capacit ,375 million cubic feet, and a waterspread of 4 sq miles. In the second phase, the reservoir will ha storage capacity of 8,400 million cubic feet and a spread of 10 square miles.

By t st week of July this year, the river gap had been cl and the earth dam raised to R.L. 365.00, enablin r to be stored up to R.L. 340.00. The river is being ted through the spillway and the composite dam g Some 41,939 units of earth (each unit of 1,000 c feet) have been conveyed, deposited and compac n place by using heavy earth-moving machinery. work has been done departmentally.

Wo the concrete-lined water supply channel is in gr ogress and will be completed by the end of Octobe 5. Water will be let out for the testing of the boil f the first power generation unit of the thermal sch by November 1, by pumping the water from the res into the channel. The first unit of 60 megawa apacity is expected to go into regular operatio m March 31, 1966.



YOU ASK WE TELL YOU US

SUPPORT PRICE

Mr R.K. Goyal, Modinagar

What does 'support price' mean?

Answer : 'Support price' is a price which assures the producer a minimum return on his produce. It is determined by the Government, which offers to purchase produce at that price when the market prices fall below the level.

Support price becomes necessary when there is a glut in the market and the traders and middlemen exploit the producers. Support price thus allows prices to fluctuate in a free market but checks them at a minimum level.

Farakka Project

Mr M.L. Kapur, Ludhiana

What is the Farakka Barrage Project? Why has Pakistan objected to the project ?

Answer: The object of the Farakka project is to save Calcutta port from silting up. Calcutta is an inland port situated on the left bank of the Hooghly. The Hooghly serves as a navigation channel between the sea and the port. The main stream of the Ganga flows through another branch, namely Padma, and the Hooghly gets waters only when the Ganga is in high floods. On the other hand the tidal bores in the sea ride on into the Hooghly and deposit heavy sediments year by year. To flush the sand and silt back into the sea, it is necessary to release water stream into the Hooghly in the upper reaches. The Farakka barrage is being built mainly with this purpose.

This solution for the deteriorating port of Calcutta was conceived as far back as in 1858 by expert British engineers. At the time of partition, the claim of India on the Ganga waters was accepted and the areas adjoining Farakka were distributed on this basis between India and Pakistan. Secondly, the Ganga flows through India, and only 1.5 per cent of its waters are contributed by Pakistan region. Thirdly, the Farakka project will help to reduce floods in the neighbouring areas of Pakistan. Thus, there is no case for Pakistan to take any objection to the project.

Agriculture Plan

Mr P. Sobhakara Rao, Srikakulam

1. What are the measures proposed in the Fourth Plan for the development of agriculture ?

2. What is the effective way of improving our agriculture?

Answers: 1. Agriculture will enjoy the first priority in the Fourth Plan. The various measures proposed to be taken up in the Fourth Plan for agricultural development are :

a. Undertaking and promoting development programmes such as irrigation, land reclamation and soil conservation.
b. Developing arrangements for the production and distribution of essential supplies like fertilisers, improved seeds, pesticides, cement, agricultural machinery and implements.
c. Undertaking measures for increasing the efficiency of factors of production, through research, extension, etc.
d. Provision of economic incentives such as remunerative prices, marketing and subsidies.
e. Institutional reforms to create conditions conducive to greater investment in agriculture.

2. The effective way of securing rapid increases in agricultural production is through application of new scientific techniques to agriculture. For instance, new varieties of paddy which could take high doses of fertilisers have been evolved by agricultural scientists. The main problem is to popularise these varieties in areas with assured water supply by providing necessary inputs of fertilisers and pesticides and credit.

At the same time a self-contained agricultural development plan will be prepared giving details of all the schemes and programmes.

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VOL-1266 AR EVEREST

STATISTICS

we are collecting more figures of many kinds to frame policies by

By
K. R. NAIR
Director,
Central Statistical Organisation

STATISTICS have assumed increasing importance in this country especially since the emergence of the era of planned development. Reliable statistical data are needed to study the existing levels of the economy with a view to planning for the future and also to assess the progress achieved from time to time.

It is well known that there are considerable disparities in the economic and social fields not only among the States but also between regions within a State. The five-year plans aim at reducing these disparities and bring about greater balance and uniformity. In order to take appropriate measures and draw up realistic plans we have to have statistical data for each State based on the same concepts and definitions.

Besides statistics for each State it has been found essential to have statistics for the various regional divisions for specific purposes of development. For the efficient development of natural resources like water, minerals and forests, which are highly localised, the country has to be divided into units apart from the administrative units of States and Union Territories. For instance, the country has been divided into river basins for development of water resources and regions of hydroelectric power. These divisions cover groups of States and even parts of different States. Recently the Planning Commission has drawn up a scheme which divides the country into 14 resource development regions and 57 divisions based primarily on considerations of the physical conditions. Backward areas in the country have been classified by the Commission into (i) desert areas, (ii) chronically drought-affected areas, (iii) hill areas, (iv) areas with high concentration of tribal population, (v) areas with high density of population, low level of income etc.

The National Sample Survey, conducted since 1951, collects statistical data not only according to the States but also according to regions consisting of contiguous districts with certain homogeneous socio-economic characteristics such as crop pattern, attitude, population density etc. At present there are 51 such regions.

While massive statistical studies in very minute detail going down to the household level are undertaken during the Census, periodical and annual statistical surveys in various fields and for specific purposes present an up-to-date picture of the country to the planners and policy-makers.

One of the most important sets of statistics at national and regional levels required for development programming is population data. In our country these data are vital, because the very fast growth of our already large population has been upsetting all our calculations for the future. Population data are needed to assess the needs of goods and services on the one hand and the size and quality of man-power resources available for producing them, on the other. The data provide valuable information on per capita and national income, literacy, structure and distribution of households, important demographic characteristics like sex, age, marital status and migration. The literacy data provide a basis for educational planning; the information on migration is for studying the impact of urbanisation on fertility, mortality, consumption pattern and the complexion of the labour force in different places. The decennial census, the most recent of which was conducted in 1961, is the major source of demographic data in India. Data on population, births and deaths are also being systematically collected through sample surveys organised by the Directorate of National Sample Survey and the Registrar-General of India, but they are prepared only up to the State level.

Under certain sets of assumptions regarding future course of fertility, mortality, migration etc., population projections for the whole country and for each State have been worked out by age groups and sex for every five years beginning with 1966 up to 1981.

Provision of better employment opportunities forms a major goal of planning. This requires statistics of the employment opportunities available to the existing unemployed and under-employed as well as to the net addition to the labour force every five years. At present the Census and the National Sample Survey provide

these data at State and regional levels. The 1961 Census gives the break-up of data down to village, town, block levels and hence provides a bench-mark for assessing changes in the labour force. The National Sample Survey collects data on labour force, employment and unemployment regularly and based on these, estimates of these characteristics at the State level are arrived at for rural and urban areas separately by the State Statistical Bureaus.

Annual collection of data on employment in the organised sectors of the economy registered under various Acts like the Factories Act, Mines Act and Plantations Act and also in Government insurance business and banking is done on State level.

Employment in all public sector establishments and all large private establishments employing not less than 25 persons on a statutory basis are covered by the Employment Market Information Programme, which was launched in 1955. These data, collected every three months, are available at the State and district levels.

As regards agricultural employees, the bulk of whom are self-employed, the population census data form the only source.

The Live Registers of Employment Exchanges, which are located only in urban areas, indicate at least the unemployment trends in cities and towns. The employment data for railways are available by the operational zones which cut across boundaries of States.

Agricultural Statistics Basic to Progress

As agriculture has been given the highest priority in the economic development policy of India, reliable statistical data of the various aspects of agriculture should form the basis of all planned progress in this field.

The primary agricultural statistics relating to utilisation of each plot of land are maintained at the village level. Data of production of all important crops are available for each district and each State. Pilot studies are under way to get estimates of production even at the block level, each block consisting of about 100 villages.

Statistics of agricultural holdings classified according to the size are collected every ten years through sample survey for each State.

Indices of agricultural production at all-India and State levels as well as data on average farm and wholesale prices for all the important agricultural products at the district and State levels help to formulate appropriate price policies and to assess the success of plan implementation in agriculture.

The number of livestock and poultry by sex and age groups, the area, volume, density and composition of the different categories of forests, the quantity and value of major forest products and statistics of the catch of marine fish in maritime States are collected regularly and provide valuable data for realistic assessment and planning in these fields.

Industries Survey Every Year

Since industries form an important segment of planned development contributing about 11 per cent of the total national income, a large variety of statistical information is needed at both national and regional levels. The main source for the statistics of industrial production is the Annual Survey of Industries, conducted by the Department of Statistics of the Central Government. The collection is done through the agencies of the Directorate of National Sample Survey, the Indian Statistical Institute at Calcutta and the Central Statistical Organisation.

The Annual Survey of Industries covers the entire factory sector in the country, that is, units employing ten or more workers if the units have power, or 20 or more workers if the units are without power. In 1964 their number was of the order of 49,000. Factories employing 50 or more workers (with power) and 100 or more workers (without power), which numbered nearly 13,000 in 1964, are covered on a census basis. The remaining factories are covered on a 16 per cent probability sample basis. Data collected include the number of factories, capital, number of employees, wages, input of material, output of products and value of manufacture. These are published both for the whole country and for each State.

In addition, monthly production statistics for selected industries are collected and published by the Industrial Statistics Wing. The total number of industries covered thus are about 330 and the data include installed capacity, production and stocks.

Besides these the Central Statistical Organisation brings out an All-India Monthly Index of Industrial Production based on 201 items.

No comprehensive estimates of private consumption and savings are available either at the national or at the State level. However, the National Sample Survey has been collecting data regularly on household consumption expenditure in its various rounds. These provide the basis for projecting household demand for goods and services. study of changes in household income distribution, personal savings etc.

The raising of education and health levels is one of the key planks in the building up of a welfare State. The complete reorientation of our educational policy and the building up of our structure of education with suitable adaptations to fit in with our national needs cannot be formulated without a statistical base. Educational data are collected in respect of number of public and private schools, teachers at each level, type of education, number of people classified by level of education, age, sex etc., and school finances.

In regard to health services, data are available at regional levels in respect of hospitals and dispensaries (beds, admissions, patients treated etc.), number of doctors, nurses and other medical personnel, their education and training, and number of family planning clinics.

National Income estimates have been prepared annually from 1948-49 onwards both at current and constant prices.

To achieve balanced regional development, a comparative study of the level of industrial and economic development among the States over time is very important and comparable service of State/regional income serves as a useful indicator of development. The estimates of State income prepared by the Statistical Bureaux of some States represent only the value of goods

(*Continued on Page 24*)

Books

The New Thinking in Economic Theory

Lectures on Advanced Economic Theory. K.T. Ramakrishna. Asia Publishing House. xiv+315 pages. Rs. 20.

Ashok Desai

THIS is primarily a textbook on price theory. It is divided into four parts dealing with the "definition, scope and method" of economics, Hicksian demand theory, product markets and factor markets.

The book closely follows what are now standard elementary textbooks on the various topics; it can claim to bring between two covers the conclusions of the best-known economists. However, it does not cover all the work it might have been expected to. Modern work on oligopoly, for instance that of Baumol and Sylos-Labini, is completely neglected; in fact, what Mr Ramakrishna describes as oligopoly is no different from perfect competition and Chamberlin's large group case. Even the work of Wiles and Penrose, which should be fairly elementary economics by now, finds no mention. At least some of the various treatments of the bargaining process of wage fixation—Zeuthen's, Hicks', Nash's—are quite old by now; even they are omitted. Neo-Keynesian theories of distribution also find no place.

One would be justified in saying that this book is designed to teach pre-Keynesian economics. Most of the books and articles the author relies on are pre-war; all post-war ones are elementary textbooks.

In exposition Mr Ramakrishna uses plenty of one-quandrant diagrams. While they are a time-honoured pedagogic device in economics, it is doubtful if they can be made its prime vehicle, or indeed if they clarify the ideas by themselves. Presumably the objective of lectures is to teach students by example how to express the ideas in examinations, and what matters in examinations as well as in public life is facility of verbal exposition, and not amateur draughtsmanship.

The foregoing comments have been based on the assumption that the book is meant for teaching stereotyped syllabi in a stagnant Indian university. But a word of protest against the syllabi and the stagnation cannot be resisted. For economics is not just what economists said and wrote down: it is intended to improve our judgement of the working of the real world and to form a rational basis for policies. Mr Ramakrishna's book comes nowhere near fulfilling this intention. Various economists wrote down various definitions of economics because they did not know how else to start a book or because they disagreed with the politics of their professional colleagues and wanted a methodological stick to beat them with. To enumerate the definitions they thus wrote down to students who have learnt little economics is to waste their time with what to them is meaningless abracadabra. To teach theories of imperfect competition when Mrs Robinson herself has condemned them as largely irrelevant is sheer ritual; and students who are taught economics as a series of fables in diagrams are ruined for ever as potential judges of reality. The best one can hope for with this way of teaching is that it would bore most students stiff and drive them away before they become the useless dry-as-dusts it is designed to produce.

TESTING SOILS OF INDIA

Soil Testing in India by Gilbert R. Muhr, N.P. Datta, N. Sankarasubramoney, V.K. Leley & Roy L. Donahue (Second Edition, 1965). United States Agency for International Development Mission to India. 120 pages.

S.P. Raychaudhuri

THIS is a revised edition of the publication first brought out in 1963. Soil testing has proved a very useful tool in the hands of soil scientists and agronomists for assessing the fertility of soils with a view to guiding proper fertiliser use and thus eliminating guess work in supplying fertilisers to the crops.

Under an Indo-U.S. project on soil fertility and fertiliser use, a start has been made by setting up 24 soil testing service laboratories at different locations. Besides these, the State Government of Bihar has established three new laboratories of its own which are located at Ranchi, Patna and Pusa. The Government of Punjab has established two more soil testing laboratories, at Palampur and Hissar. These laboratories have equipment for analysing 10,000 soil samples a year.

Recently the laboratories at Ludhiana, New Delhi, Bangalore and Sambalpur have been remodelled with the help of USAID and everyone of these laboratories is capable of analysing 30,000 samples a year. Plans to set up more soil testing laboratories in the intensive agricultural areas are under way. There is a proposal to further strengthen the centres for working on the soil-testing and crop correlation work more intensively.

Although only a few years old, the programme has shown considerable progress. Soil testing centres have so far handled about 0.82 million soil samples.

The present revised publication gives a clear picture of the work that has been done so far in the country on this very important problem, including collection, preparation and despatch of soil samples, the arrangement of the soil testing laboratories, the procedure for carrying out the soil tests, the preparation of the chemical reagents, use of soil test data (including correlation with crop responses and preparation of soil test summaries) and maintenance of

instruments and their minor repair. The publication includes the floor plan of a standard soil test laboratory designed to analyse 30,000 soil samples per year showing the most suitable arrangement of power point, electric point, sink, water type reactor, etc. Of particular interest is a note on the organisation of work in the laboratory for maximum efficiency, indicating how the laboratory soil chemist might keep contact with the farmers, through extension workers, for securing optimum efficiency and in following up the results obtained by recommended fertilisers. The detailed descriptions of these items, which had also been given in the first edition, have been brought up to date. Some chapters have been entirely rewritten and more illustrations by way of photographs and charts have been included.

A new feature of this second edition is the clear demonstration, through the ABC type trials, that application of fertilisers on the basis of soil tests brings out most economical returns to the farmer in respect of wheat, rice and hybrid maize. Appendices I-XV give useful information on such subjects as equipment needed, composition of important plant food materials and soil amendments, conversion factors and atomic weights of elements.

There is no doubt that this revised edition of the publication will be useful not only to the soil workers and extension staff but also to the general public interested in the application of modern fertilisers in farming.

Rural Fuel

Domestic Fuels in Rural India. National Council of Applied Economic Research, New Delhi. 131 pages. Rs. 12.

THIS is a useful study of domestic energy consumption in the rural sector, a field in which at present no satisfactory and reliable data exist. The past data on firewood, cow-dung and waste-products have been utilised by the Energy Survey of India Committee to process their statistics for the rural sector.

The statistical collection for the survey is stated to have been tied up with the Household Saving Survey undertaken by the Council covering about 9,000 rural household samples chosen in 320 villages in the country with population below 10,000. In linking up two surveys with an essentially diverse approach it remains to be seen how far the methodology and sampling procedure adopted for the rural household saving survey could be claimed as compatible or unbiased for the fuel assessment survey.

A rather cautious approach also seems called for in making projections of future demands. For instance, a target of 37 million tonnes of soft coke projected for the year 1975-76 in the survey could be termed as a herculean miracle for achievement considering the trends in present production as well as consumption pattern of soft coke in the last ten years. Has the country got adequate capacity to finance the project for the mining of at least an additional 65-70 million tonnes of coal for this purpose and also for soft coke manufacturing plant of such colossal dimensions?

The inherent drawbacks in the survey and the overemphasis on soft coke without regard to practicability has blurred the perspective picture attempted.

T.R.

Agricultural Trade

Agricultural Commodity Trade and Development—Prospects, Problems and Policies. A reference paper FAO Commodity Policy Studies Special Studies Programme No. 2 by Food and Agriculture Organisation of the United Nations. $ 1.50.

This reference paper was submitted by the U.N. Food and Agriculture Organisation to the United Nations Conference on Trade and Development which was held in 1964.

The paper attempts to analyse the problems and policies relating to trade in agricultural commodities in the wider context of trade and development. It also serves as a reference service with respect to other relevant FAO studies, consultations, and programmes. In the end it presents in a summary form a series of policy conclusions and suggestions for possible action in the field of trade in agricultural commodities and economic development.

As a supplement to this report, relevant recommendations of the United Nations Conference on Trade and Development are also given.

The report gives in a nut-shell all the problems relating to trade in agricultural commodities and will be of immense use to readers interested in this problem.

Publications Received

The Indian Year Book of Education, 1961. 420 pages. Rs 17. *Working With Village People* (A Collection of Case Studies) by Sushila Mehta. 111 pages. Rs 1.25. Both published by the National Council of Educational Research & Training, New Delhi.

Management of Public Health In India. National Council of Applied Economic Research, New Delhi. 158 pages. Rs 18.

Nepal's Finances. His Majesty's Government, Ministry of Finance, Kathmandu. 67 pages.

World Cocoa Survey by C.A. Krug. 242 pages. $ 4.00 or 20 s. *International Commodity Arrangements and Policies.* FAO Commodity Policy Studies Special Studies Program No. 1 by Gerda Blau. 52 pages. $ 1.00 or 5 s. *FAO Commodity Review—1965.* 175 pages. $ 2.00 or 10 s. *Fasciolliasis and the Liver Fluke* by E.L. Taylor. 234 pages. $ 3.00 or 15 s. *Coconut Situation* No. 13 May 1965. 45 pages. All brought out by Food and Agriculture Organization of the United Nations, New Delhi.

Effects of Bhakra Dam Irrigation on the Economy of the Barani Villages in the Hissar District 1961-62. Gurdit Singh and Swaran Singh. 219 pages. *Report on Inquiry into the Standard of Living and Means of Sustenance of the Aged Destitutes.* Gurdit Singh. 62 pages. Rs 3. *Family Budgets of Twenty-six Cultivators in the Punjab for the year 1962-63.* 70 pages. Rs 3.45. All brought out by The Economic and Statistical Organisation, Government of Punjab, Chandigarh.

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The Third Five Year Plan of the Indian Union—A Pictorial Presentation. 105 pages. Rs. 3. *Jawaharlal Nehru on Community Development, Panchayati Raj and Co-operation.* 165 pages. Rs 1.75. *Financial Control in A Welfare State—Trends in India* by B.B. Lal. 128 pages. Rs 4.50. *Man Behind The Figures.* 31 pages. 50 paise. *The Indian Experiment.* 35 pages. 50 paise. All published by the Publications Division.

The Sharavathy Project of Mysore has shown the need for being ready with alternative designs. It has also revealed the unsuitability of the tender system for big works.

Lessons from a River Project

S. SUBBARAMAIAH

RECENTLY the second generator at the Sharavathy hydro-electric project was commissioned in Mysore State.

The Sharavathy Project, designed and constructed mainly by Indian engineers, is a major project and the largest recipient of American aid (Rs 48.7 crore) among the projects in our country. It will make a big difference to the power picture of India.

To the student of planning, the Sharavathy project, in addition, has some lessons to offer. The execution of the project has in fact occasioned considerable public criticism. Even if part of it has had political motives, there is a large area of established truth. *A White Paper on the Sharavathy Valley Project* was placed before the Houses of Legislature on March 2, 1964. Three conclusions that can be drawn by an objective reader of the document are : (1) The designing of the project and the programme of work as a whole did have an alternative plan in case the initial assumptions went wrong. (2) The planning of the project was based on inadequate knowledge of the available agencies for contract work. (3) The tender system is rigid and therefore unsuitable for allotment of work to contractors.

Two peculiarities of the project may be noted. One is that the project is located in the Malnad region of the Mysore State and therefore the work-season is limited to barely six months in a year. If the monsoons come early and last longer, the work-season is accordingly reduced. Resources committed for the project had therefore to remain idle half the time. The second feature is that sand and shingle were not available at the project site. Time, and, to a smaller extent, the non-availability of building material were the two constraints to the construction programme.

One of the basic reasons for the traumatic experiences of the Sharavathy Valley Project was that at the very beginning the design of construction was found unsuitable as the assumed rock foundations were not available. This led to a series of changes disintegrating the entire process of work. Getting an alternative design for the earth dam, instead of the originally planned masonry dam, took over 24 months. Virtually the entire process of designing was organised afresh. Even the design supplied by the Central Water Power Commission was unrealistic in that it required the use of materials which were not available at the project site. This process of designing the earth dam meant a four-fold increase in the stone work on filters on the upstream and a twofold increase in the rock-toe work on the downstream.

More complicated than this was 'the double handling of the materials'. Elsewhere in the project, tendered and allotted work became unnecessary, in view of the revised designs. Fortyfour per cent of the quantities stipulated in connection with a particular item of work were found to be surplus. Because of the disintegration of the process of work and the disruption of the flow of work, spillway work on the right bank had to be suspended for three work-seasons.

To recall all this is not to question the validity or the necessity of redesigning some sections of a project. But it is obvious that alternative plans, programmes, and designs should be prepared in advance so that construction work and the integration of the several works may proceed without loss of time.

Planning literature employs defence terminolgy to a large extent—wars are waged on poverty, plans of strategy are discussed and approved targets are identified and fixed under these plans! It is but right that plans and programmes of work, if they are to be significant guides for action, should have alternative plans too.

Failure to formulate an alternative plan apart, even the approved and adopted plan was based on inadequate study and understanding of the nature and size of the available contracting agencies. If the project planners had this information, most of the difficulties relating to the contract work could have been avoided. The project could have been more realistically phased, and the size of individual items of work more realistically determined.

Without such study of the structure and size of the contracting agencies, the Sharavathy Project work was divided into two stages. The first stage consisted of the construction of two dams, one with six sections of chainage, two tunnels, an RCC duct for the power channel, an earth dam and an earth dyke, and rock-fill on the upstream, and a dam mound besides the supply of *surki* and burnt hydraulic lime. The second stage of work consisted of the Linganmakki Dam spread out in five sections.

To undertake and complete these individual items of work within the stipulated time was beyond the means of most contracting agencies. In the beginning stage,

for instance, only three contracting firms offered their tenders. Acceptance of this work meant an unusual degree of technical competence, large capital, both working and fixed, a big organisation and labour force.

Referring to the upstream rockfill work the White Paper estimated the responsibilities as follows: "...it involved a fleet of about 250 transport lorries with a reserve of another 50 lorries, besides a large number of stone-crushers, rock-drills and compressors and large quantities of drilling rods, explosives, detonators, etc. A proportionately large labour strength was needed and all these preparations would need three to four months under the prevailing conditions".

The resources and capabilities of the three contractors were not such as to permit the entire work being given to any one of them, and almost all the contractors working for the Sharavathy project wanted and got some sort of financial assistance or other. In fact, interest-free advances were made to all the contractors and Appendix X of the White Paper shows the amount of machinery advances paid to the several contractors. Even the Public Works Department was ill-equipped to undertake the work when the Hydro-Electric Construction Projects Board allotted it the compaction work. The department did not have all the compaction machinery to proceed with the work and it had to be entrusted to one of the contracting firms.

The lesson therefore is that the size of individual items of contract should be reduced, in present engineering and other technical conditions, to the size of the available contracting firms or, if the technical and engineering conditions do not permit such a reduction, measures must be included in the plan itself for raising the size of the contracting firms. The machinery advance given by the Board and the splitting of the work among the three contractors themselves constitute such adjustments in size.

The very size of the project, the nature and complexity of the construction activities, the revisions of designs and the frequent changes in the process and flow of activities demonstrated that the tender system of selecting contractors and fixation of rates for the various items of work was unsuitable for a large project involving a variety of independent works.

The very first tender for work at the project had to be terminated because the contracting firm got itself dissolved. The rigid agreement over details between the project authorities and the contractors, which completely ignored the dynamic nature of activities in the project construction, led to a series of disputes. Final settlement was not on the basis of the tender agreement but on the basis of mutual understanding, persuasion and business-like negotiation. Thus the project authorities wanted an agency to take up the compaction work which was allotted to the P.W.D. A contracting firm had to be persuaded to accept the rockfill work, and in respect of the rock-toe work there was hardly any time to call for tenders. Again one of the firms was entrusted with the work after negotiations. By abandoning the tender system the project authorities secured economies in terms of expeditious work and expenditure. In one instance alone allotment of work through negotiations, it was claimed, led to savings of Rs 32 lakh.

These inadequacies in planning and lapses in their execution do not, however, diminish the significance of the fact that the Government, and several subordinate agencies like the Hydro-electric Construction Projects Board, the civil engineering sub-committee and others, must have shown a concern for speedy execution of the project, a preparedness to break through the official routine to reach the plan targets, and above all a flexibility that is characteristic of enterprise and achievement. The redesigning of the project, meeting the unanticipated stresses and strains in the disintegrated process of work, rejecting the tender system wherever it was useless despite official requirements, the businesslike approach in dealing with the contractors and the commitment to reaching the targets, speak of a new vitality emerging in Government undertakings.

Letters

Wasted Talent

THE impact of the huge expenditure and investment under the Plans is not yet visible in our economy. This phenomenon can be well explained if we recognise the waste at different levels of our economy, including collossal wastage of talents.

There is general belief that talent is lacking. This is not true. Talent there is, but it is either wasted through inefficient use or not even recognised.

I can give an instance I know of. A leading commercial bank in Bombay employed three highly educated people, each with a Ph.D. degree backed by sufficient experience. Of these one was given officer grade and the other two (let us call them Dr A and Dr B) were placed in the junior grade with an assurance that they would be elevated to a higher post within a year or two. The one in the officer grade was given a job of sorts; of the two in the junior grade, one was asked to manage the bank's library, and the other was sent to be trained in the branches. Dr A disgusted with the type of work given to him, resigned and joined another research firm of repute. Dr B continued in the bank's service and during the years has gathered considerable experience in banking in spite of adverse attitude from the ranks. But the important thing is that he still remains in the junior grade.

There are several ways in which talent is neglected. First of all, organisations do not make full use of the talented persons in their service. Often they are asked to do the work that is far below their capacities and merit. We should not waste a Ph.D. on what a matriculate can do. And sometimes, out of sheer cussedness, talented people are humiliated.

This kind of waste is enhanced by the activities of unions and associations. Labour always demand that promotions be based on the years of service and not talent. Moreover, a large percentage of members of

(*Continued on Page 28*)

C.D. WITH FARM FOCUS

DOES IT REALLY CLASH WITH "TOTAL MAN" APPROACH?

Bibhas Chatterjee

THERE has been much controversy over the recent decision to use all the block personnel mainly for assisting agricultural production. Agriculture has been made the first love not only of the block development officers and village level workers but of the "subject-matter specialists". It is no longer the exclusive responsibility of the agricultural extension supervisor.

This shift in emphasis has caused some commotion in the minds of Community Development workers. According to some who hold firm views, such a step violates the multipurpose character of the Community Development movement and strikes at the very foundation of its philosophy. There are others who prefer to sit on the fence and wait for how things go. Some others however, are ready to go along with the new line with conviction.

What is the "philosophy" of Community Development as we have understood it ? It is that human beings desire changes in their ways of living, and that this inherent urge for change can be harnessed to bring about an all-round, planned, socio-economic development in rural areas.

Community Development, thus, is a programme of mutual self-help. Its objective, summed up in the phrase "destination man," is to develop the human personality. Too much emphasis on a particular problem or a particular aspect, the purists aver, is therefore the very antithesis of the philosophy of Community Development.

Particular human problems, however important, cannot be dealt with in isolation. All problems of human life are intertwined, interlinked, interrelated. Human problems are either objective, relating to existence, or subjective, relating to consciousness, and the two never obtain in isolation. The development of the human personality, which is the avowed objective of Community Development, cannot make a distinction between subjective, socio-cultural problems and objective, economic problems. In the view of "multipurpose" people the move for preferential treatment to agricultural production, in that it singles out one element alone for emphasis, strikes at the very root of the philosophy; as a result Community Development will lose much of its appeal. It will no longer be community development but mere agricultural extension.

Let us examine this contention. Let us see whether the change in emphasis makes the movement a unipronged one. If we can prove that the shift in emphasis does not mean a departure from the multipurpose approach, we shall have squarely answered the objection.

THE recent shift, it seems to me, merely means that the efforts of Community Development workers should be centred on the activities of cultivators in raising agricultural production. It is a change in the perspective, and calls for some rearrangement of priorities, but *does not connote any change* in approach to human problems as such.

To illustrate, there is the very sound proposal to make the block agricultural farm a nucleus of the agricultural programme. Progressive farmers would be given training on the farm so that the farm as a whole is used as an effective means of demonstration. Now every extension officer has a positive role to play in making this training a success. The instructions given by the agricultural expert can be made more interesting by the use of audio-visual aids, and the social education organiser can help in it. The utility of service co-operatives can be explained by the co-operative man, while the panchayat officer can very well help the cultivator-trainees in appreciating the role of panchayats in the task of agricultural development. The block development officer himself will be there in planning the entire programme of training and in making arrangements for subsequent follow-up in the field by his team.

Thus we find that all the "subject-matter specialists" have full scope in such a scheme for mixing with people and communicating their ideas. The only difference is that they will all share a common platform and work on a common programme. Instead of going out in different directions, they would work on and with a selected group of cultivators in an integrated manner and at one place. In fact, programme planning by the respective extension officers would become more realistic, more precise and more effective. This, obviously, does not infringe the fundamentals of the Community Development approach.

The controversy would appear insubstantial if the term "emphasis on agriculture" is correctly interpreted and understood. It does not mean emphasis on *agricultural problems* as such but emphasis on the *problems faced by an agriculturist* in raising his production. It will be a mistake to consider these two as synonymous. There is a vital distinction between them. Agricultural problems are technical, and the domain of the agricultural extension officer. The problems of an agriculturist are socio-economic in character, and are much vaster, demanding for their solution the

combined endeavours of the block team with the B.D.O. as captain. We thus come back to the "multi-pronged" approach.

A couple of case illustrations will perhaps make it easier to appreciate the vital distinction just made. The programmes for agricultural development in Package areas are fairly comprehensive and detailed, and personnel for executing the programmes are also adequate. The supply line is well geared to the task. Consequently agricultural production has registered an overall increase in the areas. I know of a particular Package district where agricultural production, both *kharif* and *rabi* has gone up by as much as a hundred per cent. This is no mean achievement.

The problem of agriculture, the objective problem of production, has been solved to a considerable extent. But the problem of the agriculturist, i.e. the problem of consciousness, remains. The problem of education, the problem of health, the problem of communication—all these persist. There has been a proven increase in the income of the agriculturist, but there is still no change in his mental attitude, and no more readiness in the matter of creating community assets or fulfilling his obligations.

My experience of working in an "adopted village" provides the second realistic example of my assertion. The adopted village in question has very progressive cultivators who miss no opportunity of getting assistance from the concerned block. Improved farming practices have made them economically better off. But efforts to repair the dilapidated school building through voluntary labour and contribution proved futile because, in their opinion, education for children is wasteful, and does no good. This is due to the fact that all emphasis was laid right from the beginning of the block on the problems of agriculture in disregard to the human problem.

Obviously, the people of the village have not been able to reap the advantages of increase in money incomes by developing into useful and responsible citizens. The village continues to be steeped in conservatism and ignorance; the traditional vices flourish. The village bears out the fallacy of the belief: "If only we take care of agriculture, agriculture will take care of us."

THE illustrations go to show that dealing with the problems of agriculture alone will not lead to the automatic solution of the agriculturists' problems. They also bring out the importance of solving the agricultural as well as the agriculturists' problems through the Community Development staff who combine technical competence with a social vision and have the total personality approach.

The controversy has made the Community Development workers shake off their complacence. It might even revitalise the programme and review the faith that the movement is bound to forge ahead and serve rural India all the more. It is a programme that touches the maximum number of people, institutions, beliefs, social customs and behaviour patterns. It is the only instrument of bringing about socio-economic progress in the countryside.

The recent shift in programme emphasis brings about a change in the form, but not in the content of the programme. It aims at making the programme more practical, integrated and thorough. If we work it with sincerity and conviction, the programme will prove to be a better tool in bringing about all-round development in rural India.

(The author wishes to thank Mr S.N. Banerjee for making his study of several Package districts available to him.)

STATISTICS

(Continued from Page 18)

and services originating within the geographical boundaries of the States and not the total income accruing to their residents. These estimates thus ignore the flow of income across the boundaries of the State. Moreover the State Statistical Bureaux use different types of data and varying methodology to prepare the income estimates which are not therefore comparable and cannot be technically fully accepted. Efforts have now been initiated by the Central Statistical Organisation to streamline this work by evolving uniform techniques, concepts and definitions.

Collection of statistics as between the Centre and the States is determined by the responsibility for the subject matter concerned. As such the nature and structure of the statistical organisation is governed by the Constitutional classifications of subjects. In actual practice, even in those subjects which are assigned to the States, the Centre acts as the co-ordinating authority for presenting the data on an all-India basis.

The foremost among the Central organisations for compilation of statistics on a national scale is the National Sample Survey Organisation created in 1950. Its field wing is the National Sample Survey Directorate which functions under the Cabinet Secretariat and the technical wing is the Indian Statistical Institute. The Central Statistical Organisation (CSO) is the central co-ordinating agency for the National Sample Survey.

The National Sample Survey Directorate is responsible mainly for the field work of the various surveys, except in agricultural statistics. It has a field staff of 1,600 located in the various States, who, in collaboration with their counter-parts in the States, collect and furnish data at the State level.

The results of the surveys are then processed at the Indian Statistical Institute. This has resulted in producing statistics on a large number of aspects of the economy which are of uniform quality from State to State and region to region.

Besides the National Sample Survey, the employment exchanges of the Ministry of Labour and Employment, the Census Superintendents under the Office of the Registrar-General, and the statistical agencies of the Ministries of Food and Agriculture and Transport collect various types of data at the national level.

The organisations mainly responsible for the collection and maintenance of statistics at the regional or State level are the State Statistical Bureaux, the statistical cells in the State Government departments, district statistical offices, progress assistants at the block level and primary and supervisory agencies at lower levels such as *tahsildars*, *patwaris* and village level workers.

Based on a paper presented by Dr. K.R. Nair at the 35th Session of the International Statistical Institute, Belgrade, September, 1965.

PIG IRON PLANT IN PUNJAB

THE Punjab Government will set up a pig iron plant near Hissar at a cost of Rs 3.5 crore. The plant will have an annual capacity of one lakh tonnes of foundry quality pig iron, to meet the requirements of industries in the State. Work on the plant will begin early next year and production would start by the end of 1967.

The plant will use iron ore from Mohindargarh, 128 kilometres from Hissar.

BRIDGE ON DON

The foundation stone was laid on August 28 of a bridge to be built on the Don river near Hittanhally (Mysore) on National Highway No. 13. The bridge will cost Rs 15 lakh.

SNIPPETS

India's exports in 1964-65 were valued at Rs 815 crore, an increase of Rs 101 crore in two years...The exports of tea during the four months April to July this year amounted to 43.22 million kilograms valued at Rs 25.33 crore, an increase of Rs 2.44 crore over that in the corresponding period of last year...Exports of cashew kernel were 34,027 tonnes valued at Rs 18.3 crore during January-July 1965 (Rs 3.54 crore more than in the corresponding period last year). The export of cashew shell liquid during the seven months totalled 7,400 tonnes, valued at Rs 1.19 crore...Canada will supply India about 1.5 lakh tonnes of wheat this year...The Parbati irrigation project in Bharatpur district of Rajasthan extended its irrigation facilities to 20,000 acres of land in 1964-65...The State Trading Corporation will export to the Soviet Union bananas worth Rs 8 lakh under an agreement signed recently. Another agreement has been signed for the export of mango and pineapple juice...Three members of the British Steelworks Equipment Consortium have come to India for discussion on the proposed expansion of the Durgapur steel works.



H.E.L'S HEAVY MACHINES

THE heavy rotating division of the Heavy Electricals, Bhopal, has gone into production. It will manufacture heavy rotating electrical machines like turbo-generators of capacity up to 150 MW, large water-wheel alternators, large A.C. and D.C. machines. This machinery will be used in hydro-electric and thermal power stations, diesel engine sets, steel rolling mills and other heavy industries and mining.

India Makes Surgical Tools

The surgical instruments factory at Madras has been formally commissioned. Set up with Soviet assistance at a cost of Rs 5.25 crore, the factory will manufacture 25 lakh surgical instruments valued at Rs 2.7 crore every year. (See article in *Yojana*, April 11, 1965)

FACTORY FOR MEDIUM TRACTORS

A FACTORY to manufacture medium tractors and other agricultural implements will soon be set up in the public sector. An agreement for collaboration has been signed with Czechoslovakia. Costing Rs 17.2 crore, the factory will have a capacity to produce 12,000 tractors of 20 HP and 28,000 implements and spare parts every year.

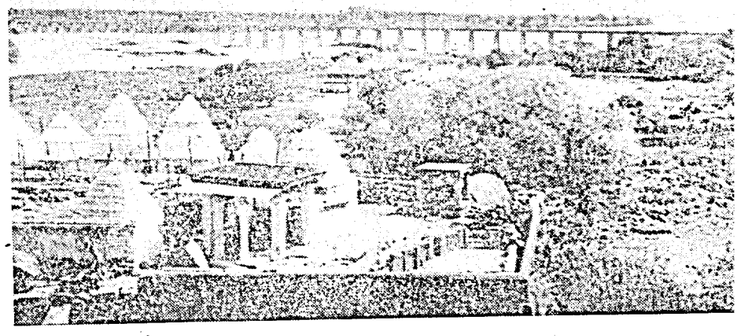
India has so far received 10.000 tractors from the Soviet Union and 2,700 more will come this year.

CREDIT FOR INDUSTRIES

The Industrial Finance Corporation of India has been given a credit of 20 million Deutsche marks (Rs 2.4 crore) by the German Bank for Reconstruction. With this credit the Corporation will have received a credit of 75 million Deutsche marks from the Bank.

Besides, the Corporation has received two other credits—40 million dollars (Rs 19 crore) from the Agency for International Development of U.S.A. and 50 million francs (Rs 4.9 crore) from French Bank of Commerce, Paris.

* Sixteen additional regional centres for workers' education have been set up, thus fulfilling the target for the Third Plan. The number of such regional centres has now reached 28.



A NEW BRIDGE across the Godavari at Bhadrachalam in Andhra Pradesh links the State with Orissa and Madhya Pradesh. It was completed in July at a cost of Rs 70 lakh.

The Politics of Poverty

from Page 5

effect on the poor, but also weakens the surge of growth and slackens the efficiency of those whom we want to draw into more productive pursuits. Politics of the poor, from any rational point of view, cannot seek a flat sharing of poverty but has to work for the priority of investment over non-basic consumption which eats into the possibilities of employment, together with the provision of basic consumption to the millions. Men who wish to avoid becoming victims of uncontrolled social change must consciously organise the changes themselves.

The Ultimate Solvent

Economic growth is the ultimate solvent of our poverty, want, and gross misery. That growth, in our conditions, remains impeded without the widening social changes. Welfare of the people, I would like to emphasise, is the end result of growth and change and not a substitute for either of the two. Shall we deny education to our young people, shall we evade provision of productive skills to them, because we resent imposts to finance those activities? Should provision of drinking water for the people be put off to permit us our comforts? Can India of our dreams emerge where each one seeks an island of security in the whirling sea of deepening want? Can the islands remain safe against the irresistible waves of change?

We have been depending on external assistance for reaching a 13 per cent rate of investment in our economy even when our savings account for only 10.5 per cent of the national income. I believe that as the poor have a claim over the resources of the rich, so also poor nations can seek aid from rich nations, if the concept of world community has any meaning and world peace is to abide. There is another reason also, which we may not emphasise but that we should not ignore. The reason is crisply stated by William McCord in his book, *The Springtime of Freedom* :

> "In essence, the developing nations of today subsidised Europe as it began its economic advance (through the Colonial Drain); surely, this fact alone indicates that Western aid today should be regarded not as a sentimental gift, but a just return on investment."

As international peace cannot survive if rich nations ignore the needs of poor nations: ultimately, they would have to spend far more of their resources in money and men in combating wars and disturbances than is needed for fostering economic change; so also within our country, if the upper sections of the society resent the demands of development on their earnings, the resources they will ultimately have to find to maintain civil peace will be perhaps more. Tragically, the resources diverted to peacekeeping, international or social, add little to the progress of man. By resisting the worthwhile, often one is driven to succumb to the worthless.

It is the logic of development that those that have tend to get more. The rich nations will be able to use constantly new technology and augment their resources faster than poorer countries. In the developing countries, regions that have moved forward will progress faster than the sluggish and the stagnant. The existing industrial corporate concerns in our country, for instance, will have about Rs 1,050 crores of depreciation funds and Rs 900 crores of retained profits etc., during the Fourth Plan period. They will thus expand and proliferate. It is this characteristic of growth that validates the principle of redistribution, of transfer of resources from the better place to the badly set. This is the *raison d'etre* of welfare economics everywhere. In a country like India, just the elementary needs of the people—food and work—require stringent transfers of resources. Even when one reduces the content of welfare to the bare minimum and consciously links it with growth activities, the need for transfers remains massive, because the humanity to be reclaimed from utter morass of want is staggering in its numbers.

Accent on Social Change

Elsewhere it was possible to choose between economic growth and social change. It was also possible to arrange them in some sequential relationship. In India, if growth is pursued by itself, it will never gather strength. Its ambit will remain narrow and precarious. For a short while *enclaves* of development and prosperity will emerge, but they, lacking spread-effect, will remain insecure. The modern sector of the economy will reach limits of expansion if the traditional sectors do not grow, that is, expand and modernise. If economic growth is to achieve sustained momentum, it will have to be stoked by social change. It is not ideology that leads us to lay accent on social change—that is, hewing down of economic inequalities and of social privileges—but the demographic and sociological facts that are stubborn and intractable.

In some countries economic growth opens up a margin of welfare and so permits muffling or delaying of social change. In India the growth itself is a function of the change—the latter enables and triggers the former. Our conditions, compared to the general run of things the world over, are far from normal. They are in fact critical, because we have no margin of tolerance. We are, because of our abject poverty and massive numbers, the world's ultimate proletariat.

This then is my answer to a nagging question in you —whether I plead for national politics or class politics. For me the two are one. We need community consciousness and community solidarity to salvage ourselves. It is not enough to have an open society that we claim to build, it is necessary to have communitarian attitude and approach. A century of experience has made obsolete the controversy between national politics and class politics even in the wider world. Each has to inform the other. Even if we opt for class politics, a ruling stratum will emerge. That stratum will get panoplied in privileges unless it retains its sense of purposes and dedication. Only that leadership will be able to lift our grinding poverty that has luminous purpose and dedication. The objective constraints that operate on us will permit escape to none. Subjective response that has come cannot be confined to politics alone; it has to be the product of the *ethos* as a whole.

In no country did new forces stir and burgeoning follow until there was intellectual unrest and cultural efflorescence. To challenge the old and articulate the new, is the essential intellectual prerequisite of economic and social growth. In our inherited culture there are many elements that enrich us and must abide. But to seek the fruits of science and technology one has to adjust oneself to the structure of modernity. These cultural stirrings have to reach out to the poor if they are to become active agents, and not passive objects, of history. It is necessary to impart freshness and fecundity to their cultural awareness. To paraphrase Marx, it is not necessary for the culture of the poor to suffer from poverty of culture !

Penumbra of Politics

You are by now, I know, probably thoroughly outraged. What has this hocus-pocus of planning to do with politics, whose substance we know is drawn from caste and community, from local grievances and regional peculiarities, from personal frustrations and group antipathies? I plead guilty to the charge—but only partially. Politics always operates in its peculiar penumbra. Intransigence and intractability of limited loyalties are among the operational media of political action. That is so not just in India but the world over. Again, it is not a bane of politics alone, it is inherent, instinct, in all group life: Lord Buddha had to expel a close disciple from his nascent Sangh, Jesus Christ was betrayed with a kiss to the Roman legions by his immediate associate. Socrates was given hemlock by his fellow citizens.

Group affiliations and aspirations will always operate in politics. But they have to be suffused with understanding, endowed with purpose and direction. That is the real essence of politics. A voter votes on myriad differing considerations, but when the votes are counted a certain pattern of opinion is revealed. It is that pattern of opinion and understanding one has to influence and shape, though none can organise the wayward impulses behind every vote. India's politics is "of scarcity", as Myron Weiner has aptly described it. Politics of scarcity can easily degenerate into politics of scramble. Such politics can only damage the poor; scramble would aggravate the difficulties and it is the weak and the vulnerable who would suffer the backlash. The poor have a greater need for planning than the privileged because without such efforts economic growth, to the extent there is, will tend to be beneficial to the latter. When scarcity rules the lives of the people, the need for a clear focus, deeper understanding and collective discipline is inescapable.

Politics of poverty implies a deeper understanding and specific orientation. It requires involvement in social change by closest association with those whom Gurudev Tagore called, "the lowliest and the lost" It is the return to the worship of God as poor as Gandhiji envisioned it. Any lesser politics is shadow boxing on the brink of a precipice. The poor, just because of their poverty, will not automatically discover the path to transformation. Pandering to their prejudices, even those emanating from injustice and raw wants, will not release the dynamism required for effective deliverance. The effort needed is not brief and dramatic but sustained and purposive. The poor, in India, have a long row to hoe, before the dead crust of centuries is transformed into soil that laughs with golden harvest. Given the key role of leadership in economic growth process, political change itself becomes an area of conscious action. Development that would enable poverty to be overcome requires interaction among political, cultural and economic factors. Even the narrow question of mobilising additional capital for economic growth is made possible only by a *determined* leadership. It is clear that what development needs is not only consensus nor pure coercion, but a *consensus-coercion-continuum*: a widespread consensus that does not hesitate to coerce the intransigent when necessary.

The poor have to continuously precipitate the crisis—of conscience and of politics. Once Gandhiji made it impossible for us to acquiesce in subjection. Likewise, the meaningful politics of today has to make it impossible to acquiesce in mass poverty and gross inequalities. As those who sought to escape from the crisis that Gandhiji precipitated lost significance in the land, so must those who escape to their islands of security forfeit the confidence of the people. It took nearly thirty years of determination and dedication to achieve political freedom; given the same determination, it should not take more than twenty years to ensure for us economic freedom.

The Lever of Development

Those who accept these insights and understanding as crucial and vital for the nation will turn their energies to institutional innovations and constructive politics that would give the needed direction and dimension to the poor man's unfolding understanding and efforts. Politics will then mean not playing musical chairs in stagnation, but activising the escalator of development and change. Austerity and Egality will be viewed not as irksome burdens but as expressions of community solidarity and adjuncts of development. We shall be then not lost in weaving the cocoon of frustration around us, but in discovering in shared efforts the satisfaction of creative transformation. Politics of poverty can mean merely messing about in the morass of stagnation, it can also mean occasional explosions of mass anger. But we can, if we only will, make it the decisive hammer of history that can shape for our people the destiny that we dream of. In my humble opinion, Pandit Nehru was guided by considerations of the kind outlined above. That is why he made Planning the lever of development. "Planning", as Prof. Rudolf Bicanic recently put it, "increases the importance of political action." In the evening of his life, Pandit Nehru heroically gathered his failing strength to give a mighty heave to such a policy. He was fully aware that the cost of change increases as time passes. Time can be a terribly frustrating force. Hence the urgency in his final summons to revitalise and reorient our political action. The very magnitude of the task, he was convinced, would provide incitement to determined effort. A nation cannot be built on unproductive toil, parochial loyalties, and misery that has come to be realised as remediable injustice. The leaders that have left us have given us the vision. It is for us to enshrine it in our life.

Letters *From Page 22*

these associations are from the promoted cadre and have little sympathy with people who have better qualifications and experience.

In order to put a stop to this wastage the following changes should come about:

(1) Talented people should be appointed in grades appropriate to their qualifications. If they are started as junior officers, they must be elevated to a higher grade as early as possible.

(2) Work should be entrusted according to abilities.

(3) The highly qualified people should also be given intensive executive training.

(4) Associations and unions should learn to promote the interest of the talented.

Thana G.V. KULKARNI

MAKE IT TOPICAL

YOUR issue of August 15 would have been much better if you could have made it an Independence Number and included a few articles on the mid-year appraisal of the final year of the Third Five Year Plan.

These days, topics dealing with economic growth have become important in view of our Plans. I think it will be better if you can give at least one article in every issue dealing directly with one aspect of economic growth, for example economic growth and planning, capital formation and economic growth, prices and economic growth, agriculture and industry, taxes and so on. Foreign trade, foreign exchange, standard of living, national income, distribution of wealth, population etc., transport, housing etc. are also themes which interest the people. I hope that you will give due consideration to my suggestions. The article on 'Economic Growth and Education' by Prof. V.K.R.V. Rao and the article in another issue on electricity and economic growth were very useful.

Rohtak M.M. SINGHAL

ONE OR CHAOS

THERE can be only one person to lead a nation. In history he is known as the king. In case there are kings more than one the nation passes through chaos and confusion.

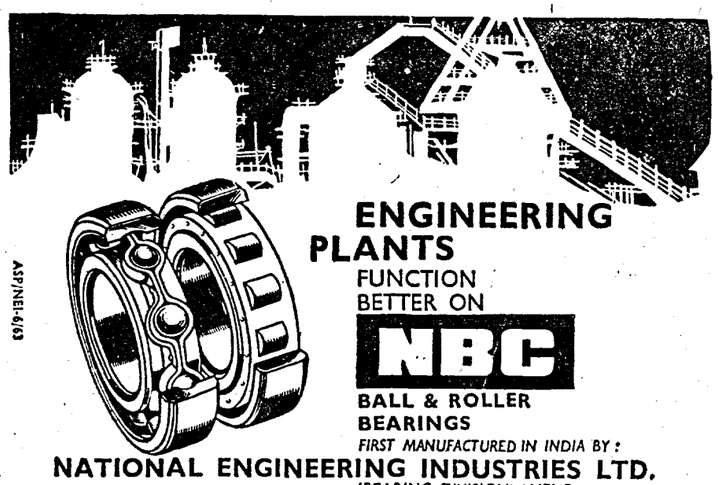
In the interest of welfare of the Indian nation let there be only one official language. The English language is understood by all the States. Let it not be disturbed so that peace and order may prevail.

Tanjore R.V. IYER

THUMB IS ENOUGH

Uneducated people are interested in opening accounts in banks. The difficulty is that they cannot sign their names properly on cheques. If thumb impressions are accepted by the banks, as they are by the traditional moneylenders, the illiterate people will be in a position to open accounts and thus help the banking business to grow. Will the banking authorities consider the proposal?

Bangalore M.R. VASUDEO RAO



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A Cheerful New Harijan Colony

A new Harijan colony has taken shape in the Madras village of Karanipuducheri, opening new hopes in the lives of 42 families. Self-help has been the driving force of this development.

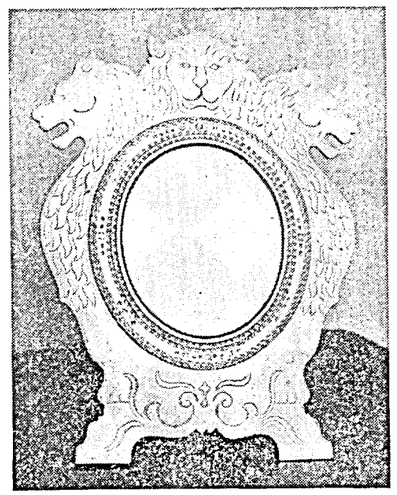
For more than a generation, a group of about 40 Harijan families were living in very backward conditions in a low-lying area. Attempts had been made by a few leaders of this village in Kattankolathur block since 1936,. to obtain suitable land from the Government for cultivation and housing. A few acres of forest was offered to them, but they could not derive much benefit.

Their way to success was paved when a co-operative Harijan Land Colony Society was started in 1962-63 with 42 members. Each member was allotted two acres of land. A grant of Rs 17,000 and a loan of Rs 6,000 were sanctioned to the society. And, with this assistance, the members of the society worked hard and converted the barren land into smiling fields. More than half of the society's members have purchased bullocks with financial help from the society.

The members put in their best efforts in agriculture. They cultivated paddy, ragi and chillies. In 1963-64 they even raised a second crop. They plan to deepen a near-by pond and develop it as a small tank to ensure irrigation.

These Harijan members are their own employees. Hence their cultivation expenses are comparatively low. They have been able to save and pay back the loans granted to them. The society provides them many facilities. Today, they have a number of assets, such as sprayers, dusters, double-bullock carts and modern agricultural implements.

An added distinction of Karanipuducheri is that it is one of the cleanest villages in the State.



Kerala's Unbreakable Mirror

ARANMULA, a sleepy Kerala village, becomes in August-September every year a great eyefill for the spectacle-hunting tourist. The regal snake-boat regatta is held there, in which hundreds of bare-bodied oarsmen paddle through the Pampa river.

But little Aranmula, famous for its *Vallom Kali* and its Krishna temple, has one more precious thing to offer: a metal mirror. It is the gifted handiwork of the poor village artisans.

Tradition has it that the mirror was born of chance. About 400 years ago, the chief of the temple committee of the place invited a few professional smiths from far-off villages, gave them lands and wanted them to cast vessels in bronze. The smiths, locally called Kannans, failed to get a good metal casting. The chief was furious and threatened to take back the lands. When the smiths, with prayers on their lips, were melting the usual alloy of copper and tin, the women threw all their ornaments made of pure tin into the vessel as an offering to the gods. The molten alloy glistened like silver and when polished it could reflect images clearly. The smiths made a crown out of the alloy and presented it to the deity, which came to be known as "mirror idol".

The smiths succeeded in making mirrors out of the alloy and the chief of the temple committee encouraged them by including a metal mirror among the *ashtamangalyam* (eight auspicious things). This created a demand for it.

Great patience and care go into the making of the mirror. Its alloy and the method of casting were, until recently, closely guarded secrets of a few families in Aranmula. But, with modern methods of analysis, the method has been found out and production is now successfully undertaken by the School of Arts, Trivandrum. An 18-month training course in metal mirror manufacture has been started under the Third Plan at Aranmula.

38,000 SCOOTERS IN A YEAR

India produced 38,000 scooters, auto-rickshaws and motor-cycles in 1964-65, against a licensed capacity of 70,750. This year, 13,536 scooters were manufactured till July.

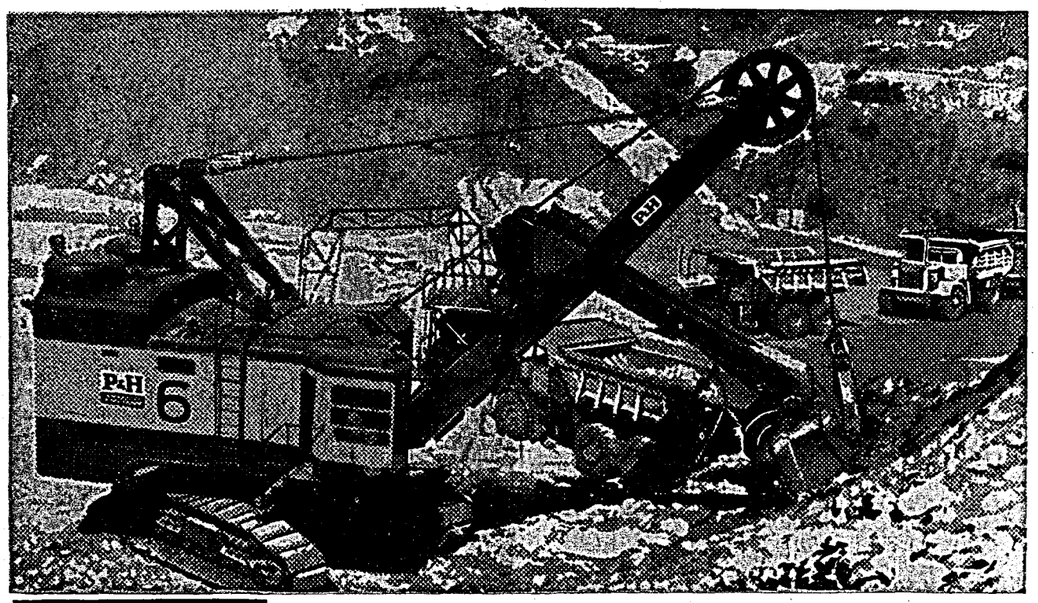
The indigenous content of scooters is being raised to 85 per cent this year.

Eight new companies were granted licenses this year to set up factories for manufacturing scooters and two of them have already gone into production.

West Germany has submitted a project report to the Government of India for the manufacture of mopeds (scooterettes) in India, in collaboration with Indian industrialists.

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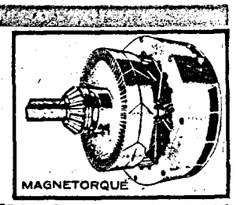


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YOJANA

NINTH YEAR 19 September 26, 1965



THE GNAT—MADE IN BANGALORE

INDIA—PAKISTAN : Economies Compared

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

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COVER, featuring Bangalore-built Gnat fighter aircraft, is by JIVAN ADALJA

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YOJANA

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TIME OF TRIAL

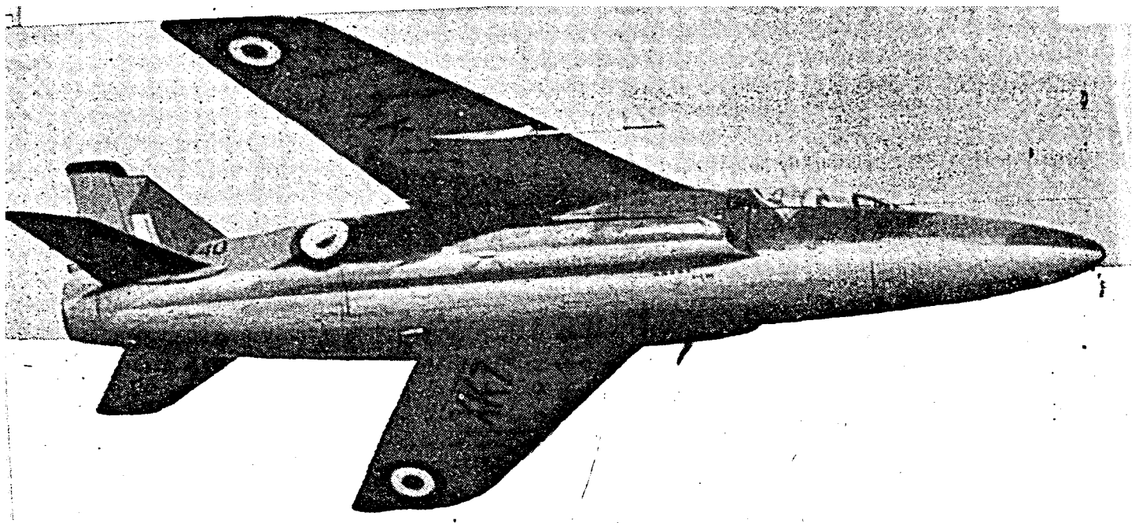
MAHATMA GANDHI, the apostle of non-violence, held that there was something greater than even non-violence, namely fearlessness. He would rather have violence than timid acquiescence in evil. The nation has been giving a magnificent demonstration of both fearlessness and readiness to stand up for the national ideals. As President Radhakrishnan observed in his broadcast, the ideals of our nation are the highest ideals that mankind has been able to evolve—freedom, democracy and human welfare. It is to defend freedom that we have taken up arms, and freedom is inseparable from the territorial integrity of our land. To cede any part of it to blustering bullies and cowardly schemers would be suicide.

Years ago, Jawaharlal Nehru declared before the joint session of the two Houses of the U.S. Congress: "We have to achieve freedom and defend it. We have to meet aggression and to resist it, and the force employed must be adequate to the purpose. But even when preparing to resist aggression, the ultimate objective of peace and reconciliation must never be lost sight of, and heart and mind must be attuned to this supreme aim and not swayed or clouded by hatred or fear."

We achieved freedom and we are defending it. We are meeting aggression, and doing it in a manner that has converted the scoffers to admiration. The force we are employing is adequate to the purpose —neither less nor more. We are careful in not widening the issues beyond what the situation demands. As we made clear the very day President Ayub announced that his country was at war with India, we are not at war with either the State of Pakistan or the people of Pakistan. Our aim is only to cure them of the insolence of power by depriving them of the armament that they have shown themselves incapable of controlling. Above the harsh din of batttle is heard the calm voice of our Prime Minister—a voice of brotherliness, a voice of reason, a voice of peace, and a voice, too, of unshakable determination and fortitude. It is a leadership schooled in the tradition of truth, courage and self-restraint; it is a leadership that upholds the Gandhian precept that above all is fearlessness. It is to this that our people are responding. It is this that reinforces and is sustained by the matchless morale of our own people —those actually doing the fighting and the civilians who are with the fighters. And little wonder that the menace of China too has failed to unnerve us.

The course of fighting depends on the quality of generalship, the valour and skill of the soldiers and airmen, the sufficiency of armament, the vision and leadership of the political chiefs, the will and hard work of the people, and what is no less important, the strength of the economy.

Owing to the far-sighted policies adopted under the Plans, we have a much stronger and more diversified economy today than when we achieved freedom. Instead of relying only on borrowed machinery and equipment we sought to build up our own basic industries. This we did not in pursuit of military strength but to build the basis of a modern economy which can provide work, wherewithal and welfare to the people. This policy now stands us in good stead. While, fortunately, we are not alone and have well-wishers in the world, we have ultimately to fight our own battles and do our own work. The courage of our jawans, the genius of our military commanders, the compelling strength and wisdom of our Parliament and political leadership and the morale of our people are for the whole world to see. It is now for each one of us to realise that wars are won not in a day but through long and patient toil. We have to put in that toil.



OUR GNATS BLUNT PAKISTAN'S BORROWED SABRES

"VERY much superior", "highly sophisticated", "tremendously destructive", "there is no match to them": these were the uncomfortable thoughts that crossed the minds of ordinary Indians when Pakistan obtained F-86 Sabre jets and F-104 Starfighters from the United States under the military alliance. The Indian Air Force's battles with the Pakistan Air Force have shown that we need have no exaggerated opinion either about the Sabres and Starfighters or about Pakistan's air power.

And what's more, our own Gnat, built in our own country by our own technicians, has proved more than a match to the "superior", "sophisticated" and "tremendously destructive" Pakistani machines. Of course the I.A.F. officers have proved themselves to be the better airmen. When Squadron Leader Keeler and Flight Lieutenant Pathania, using our Bangalore HAL-manufactured Gnats, brought down the first two Sabres over the Akhnur-Chhamb sector in Jammu on September 3 and 4 the Gnats won their spurs in combat.

The Gnat is a single-seated lightweight fighter or fighter-bomber, originally made by the Folland Aircraft Company of the United Kingdom. The Hindustan Aircraft Limited at Bangalore (now part of Hindustan Aeronautics) has been manufacturing this plane since 1956 under licence. The turbojet engine which powers the Gnat is also being produced by HAL under licence from Bristol Siddeley Engines Ltd., U.K.

HAL has also been making, since 1959, a supersonic fighter, the slim, swept-wing aircraft HF-24 Mk I. This is also powered by two Bristol Siddeley Orpheus turbojet engines.

The Gnat, which means "a small two-winged fly", is called so because it is smaller and lighter than most modern jet aircraft. It weighs only 3,000-4,000 kilograms, about half the weight of the American F-86 Sabre (7,900 kg) and less than a third of the weight of F-104 Starfighter. In length and span also, it is smaller than F-86 and F-104. The Gnat is about 9 metres long and has a span of 6.75 metres while F-86 Sabre is more than 11 metres long and has a span of about 11 metres. F-104 has a length of more than 16.5 metres and a span of more than 6.5 metres. The Sabre jet and F-104 Starfighter are both powered by General Electric turbojet engines.

The maximum speed of a Gnat is about 0.98 Mach (1 Mach=760 m.p.h. or 1,200 km) or 1,150 km per hour and it can fly to a height of 15,000 metres. The speed of the Sabre jet is slightly less than that of a Gnat, that is about 1,100 km. The F-104 Starfighter can fly at a speed of 2.2 Mach or 2,330 km per hour and can go up to 27,400 metres. The MIG-21, the single-seater delta-wing fighter that we have bought from USSR, is equal to, if not better than, F-104 in many respects. Its length, span, speed, and fighting qualities match those of F-104.

The fighters are generally used for combat in air with the enemy planes. So they are small and sturdy and are propelled by the most powerful engines. They fly at great speed, climb rapidly, and can be easily manoeuvred. They attack and destroy enemy aircraft using specialised weapons like air-to-air missiles. They outfly and outmanoeuvre opposing fighters.

Two Aspects of Air Warfare

Attack and defence in modern warfare greatly hinge on air power—the number of latest fighters and bombers on each side, their speed, range, manoeuvrability and armament. Air power gives the opportunity to aim at the heart of the enemy and to strike a paralysing blow.

Air warfare has two aspects: strategic and tactical. *Strategic warfare* consists of aerial bombing upon the enemy's sources of strength or war potential, namely vital military installations and airfields and key industries. These might be far away from the theatres of ground warfare. *Tactical air warfare* is the direct support given by fighter aircraft, light bombers and transport planes to the troops fighting on land.

The problem of striking and destroying the enemy aircraft, which now fly at speeds two to three times that of sound and at such great heights, is so complicated that the modern warplane, especially the fighter, has become an almost completely automatic weapon-system with an array of electronic, navigational and computing gear. It can detect, identify, close with and often fire upon an enemy aircraft with very little help from the pilot. The electronic devices in the plane help the pilot to locate his enemy; with the electronic computers he finds the distance of his target and then fire at the correct moment.

Phenomenal Progress of the Warplane

The development of the warplane from its infancy to the highly automated jets of the present day is breathtaking. Although the aeroplane was developed in 1905 it had only a nominal role to play in the First World War. The Germans were the first to use a fighter aircraft in World War I. It was designed by Anthony Fokker, a Dutchman. The structure was of canvas and wire, with an open cockpit. There was no armament on the planes but the flyers carried up pistols or rifles and exchanged shots in the air. In those days a speed of 150 kilometres was startling for an airplane.

It was during World War II that warplanes came to play a dominant role in deciding the course of a battle and the fate of combatants. Air power was a major weapon in every campaign of the Second War.

Jet aircraft and guided missiles appeared in 1944 and entirely transformed air warfare. The Korean War (1950-53) quickened the change to jet-propelled warplanes. The first large-scale air battles between jet fighters have been mainly between U.S. F-86 Sabre jets and the MIG-15s over Korea.

During the Second World War fighter planes attained a speed of about 640 km. p.h. By 1949 piloted aircraft had broken through the sonic barrier — that is they had flown at a speed greater than that of sound. The latest rocket-powered X-15 plane of U.S.A. has attained a speed four times that of sound.

Among the famous fighters of the war are Britain's Spitfires and Hurricanes, Germany's Messerschmidts and Junkers, France's Mysteres, America's Starfighters and Thunderchiefs and U.S.S.R.'s MIGs.

The need to fly at greater speeds and higher altitudes during war called for more sophisticated and lighter engines than the reciprocating internal combustion engine (similar to the one in a motor car) which was in use in aeroplanes from 1903 to 1939. Frank Whittle of Britain's Royal Air Force was the first to suggest the application of gas turbine for aircraft propulsion. But the British authorities were initially sceptical and before Whittle could see his novel idea actually being implemented in 1941, the first jet-propelled aeroplane, Heinkel 178, designed by Hans von Ohain, flew in Germany on August 27, 1939. The device which powered the plane came to be called a turbojet engine.

The method of operation of a turbojet engine is as follows : Air drawn in from the atmosphere is compressed to 3 to 12 times its original pressure. Fuel, which is generally 65 per cent gasoline and 35 per cent kerosene, is added to the air and burnt in combustion chambers. The mixture is heated to 650° to 950°C. The resulting hot air is passed through a turbine which in turn drives the compressor. The pressure of the air which is discharged by the turbine will be nearly twice the atmospheric. The excess pressure is used in a propelling nozzle to send out a steam of gas at high velocity which produces a thrust. It is the thrust which drives the airplane forward.

In some cases, the excess power in the turbine is used to drive a propeller through reduction gearing. Then the engine is called a turboprop. Turboprop is very much lighter than turbojet and is easier to construct in large sizes. At speeds below 800 km. and at high altitudes, turboprop is more efficient than

(*Continued on Page 23*)

SCIENCE NOTE

BY ROSSCOTE KRISHNA PILLAI

A FOURTH PLAN THAT WILL SAFEGUARD COUNTRY'S LONG-TERM INTERESTS

Higher Farm and Factory Production : Outlay of Rs. 21500 Crore

Resolution adopted by the National Development Council at its meeting of September 5 and 6

THE National Development Council resolves that the overall size of the Fourth Five Year Plan should be of the order of Rs 19,000 crores investment plus current outlay of Rs 2,500 crores on the basis of the 1963-64 price level. It recognises that, in order to advance towards achieving the largest degree of self-reliance and to fulfil, by 1975-76, the objectives outlined in the Congress Party's declarations, the country has to undertake an investment of this magnitude in the Fourth Five Year Plan.

The Council realises that the large investment made in the last three Plans has not improved the standard of living of the mass of the people in the measure that was required or anticipated. This has been due in part to a more rapid increase in population and in part to an inadequate increase in agricultural and industrial production. Together with the additional burdens of defence expenditure imposed on the nation since the Emergency in 1962, these factors have caused internal prices and costs of living to rise to levels which are proving onerous to large sections of the community.

These problems have to be tackled resolutely in the Fourth and succeeding five year Plans. One of the urgent problems to be grappled with for this purpose is the effective control of population growth. The Plan allocations accordingly provide for the maximum possible effort for educating the country on the subject of family limitation and for organising an effective programme to achieve the objective of rapid reduction of birth rates.

The rise in prices has mainly been due to shortfalls in agricultural production, basically of food grains and also of cash crops like cotton, oilseeds, etc. The rise in prices of basic commodities had its inevitable reaction on the prices of all goods and on the general cost of living. To deal with this problem the Fourth Plan has to give the highest priority to agricultural production and avoid inflationary financing altogether in the scheme of mobilisation of resources.

The continued growth of industrial production at a satisfactory rate, at this stage of our development, depends very much on the availability of foreign exchange to import machinery and industrial raw materials and components. All possible efforts should be made to secure the maximum increase of our export earnings and to reduce our dependence on imports of items such as machinery, metals and fertilisers, by promoting their domestic production. The Council recognises, however, that with increase in industrial production as planned there would necessarily be an increase in imports of various kinds of materials, some of which are not available at all in the country and others not produced in large enough quantities.

The Council is of the view that taking into account the need for imports of substantial quantities of machinery and equipment to meet the requirements of Plan projects as well as the large obligations on account of repayment of foreign loans and interest charges during the Fourth Plan, the quantum of foreign assistance for the Fourth Plan will have to be substantially larger than in the Third Plan. The assistance that will be available will depend largely on the goodwill and ability of friendly foreign countries and our earnestness and determination to take all effective measures, within our competence, to implement the Plan.

The Council makes an appeal to workers in farms and factories to contribute their share for the success of the Plan in a disciplined way to put forth their best effort despite the difficult conditions in which they have to work. To those sections of the community which are better off, the Council makes an appeal to restrain expenditure and avoid conspicuous consumption and waste. They have to accept a much larger share of contribution to the national effort both in the interest of the community at large and their own self-interest.

The Council feels confident that, at this time when the country is engaged in meeting the challenge of serious external threats and has to undertake massive efforts for development, the nation will rise to the occasion and demonstrate its inherent strength and solidarity. The Council authorises the Chairman to re-orientate, alter and amend the Plan as necessary to meet the emergent situation and safeguard the country's security and long-term interests.

WE SHALL FIGHT FOR FREEDOM AND DEVELOPMENT

THE PLAN IS ESSENTIAL FOR DEFENCE, SAYS PRIME MINISTER

The National Development Council, which met in New Delhi on September 5 and 6, decided that the Fourth Plan, with an outlay of Rs 21,500 crore, should concentrate on higher agricultural and industrial production, and avoid deficit financing altogether. In view of the present threat to the country's freedom and integrity, the Council authorised its Chairman, the Prime Minister, to make any changes in order to give it a defence orientation.

Addressing the Council, Mr Lal Bahadur Shastri said, while fighting to preserve freedom we cannot give up the important work of economic development, for development was essential even for defence. Mr Shastri observed:

WHEN we met here last, it was felt that we should increase the size of the Plan from Rs 21,500 crore to Rs 22,500 crore. This increase of Rs 1,000 crore in the public sector would generally meet the needs of the country and also to a larger extent meet what our States want. This matter was carefully considered here and several exercises were carried out. Ultimately, the Resources Committee and the Planning Commission came to the conclusion that it was not possible to raise resources for the public sector beyond Rs 13,850 crore. In the circumstances, we had to decide what the size of our Plan should be. The Planning Commission had a number of meetings to consider this and at the last meeting of the Planning Commission, where I also happened to be present, it was decided that we should have a Plan of Rs 21,500 crore because it was essential that we keep within the limit of the resources available to us.

I think that keeping everything in view, this Council will also agree that we should have a Plan of this order and as far as possible we should not go below it. The size of the Plan is, no doubt, important but its content is even more important and in fact it is the content which would provide the result. There are various sectors in which we have to spend big amounts and they are essential. *But naturally the highest priority has to go to agriculture.* I think, agriculture, industries, irrigation, power, road transport, education and medical facilities are some of the important subjects which have to be given hgh priority. But, as I have always been emphasising, the need for increased agricultural production is paramount. Most of our economic development in fact depends upon agriculture and increased agricultural production. Again, in regard to prices and our foreign exhcange difficulties, we cannot achieve much without higher food production. We cannot for ever depend on imports from foreign countries.

It is stated in the Draft Memorandum that at the end of the Fourth Five Year Plan, we shall become self-sufficient in the matter of food. But just for precaution's sake, I would say that we should at the very least be in a position to drastically cut down our imports. We have therefore to provide the largest funds for agriculture. But the main question to consider is whether we can absorb the funds provided. The development of agriculture is a much more difficult process than the setting up of industries because it is a decentralised sector. You have to do it over a big and extensive area. And there is, if I might say so, not enough of co-ordination between the different wings of the Agriculture Department. It is, therefore, not an easy matter to absorb the funds provided for agriculture. We should see to it that agriculture will not suffer for lack of funds. If the allocations made are spent and are utilised and if more money is needed we should not hesitate to cut down something else and provide the necessary funds for further expenditure on agriculture. In fact, I had once suggested and would suggest even now that in the first year the highest priority in regard to funds should be given to agriculture. We have to give our fullest attention to agriculture in the first year.

I do not say that other things must be cut down. For example, in the first year we can try to concentrate on completing all the industrial projects we have in hand and which have not been completed by the end of the Third Five Year Plan. Then we can take up other projects which would yield quicker results. So in the first year of the Fourth Five Year Plan, we will have enough work to do in every sector. But what I had suggested, and would suggest today, is that we should be prepared to make any sacrifice in the first year of the Plan with a view to providing adequate funds for agriculture. This will need an integrated Plan. I am glad that the Planning Commission is trying to prepare an integrated Plan for agriculture. I understand that a note has been circulated to the Chief Ministers, incorporating the draft of an integrated Plan for agriculture. This draft may have to be further considered and your advice will be very valuable.

Purposive Education & Power for Villages

I NEED not say much about education or medical facilities. I am glad that the Plan has not laid much stress on purely literary education. What is essential is that we should see to it that the boys who

are educated do get employment and do not remain unemployed. Merely having academic qualifications and then loitering about here and there leads to frustration. So whereas it is essential that the highest importance should be attached to technical education, we should not spend much on a large number of colleges or universities. I am all for primary education, for adult education and technical education. I do not say that literary education should not be further expanded but there has to be a reasonable limit and we have to view it in the context of all the other urgent needs we are faced with.

About irrigation, I need not say much because its importance is all very well known to us. I think our peasant who is still not so much technology-minded believes that if he gets water, he will produce much more, if not double the quantity. Therefore, irrigation, along with power, acquires great importance.

I would like to lay stress on rural electrification because it means that we can provide pumping sets in the rural area which would help peasants and provide them with irrigation facilities. Power for industry is important but we cannot ignore rural electrification. So these are some of the important sectors which should receive high importance and I know that the Planners are also thinking more or less on the same lines.

Rs. 3,600 Crore More Must Be Raised

ABOUT the resources, it is going to be a very difficult and onerous task to find something of the order of Rs 3,600 crore. This has to be done through taxation mostly. Of course there may be some other sources too, but mostly it has to be through additional taxation. And as far as I can judge, the State Governments are prepared to fulfil their quota. I have not talked to all the Chief Ministers, but last time when we had met here, I had a meeting with some of the Chief Ministers and they told me they wanted a somewhat bigger Plan. I have no doubt that they are prepared to discharge their responsibility of finding the resources allocated to the States. I do not know what they will be able to do now or in the next budget. But I got the impression from some of the Chief Ministers that they might do something even now by imposing fresh taxes or raising the rates of electricity or irrigation. I would leave it to the State Governments to decide as they think best.

External resources have also to be found and we have suggested that it should be to the tune of about Rs 4,000 crore. Of course, it all depends on the goodwill of the countries which have been helping us and also the institutions like the World Bank. Naturally, they will expect that we should do something on our own. We should make our own contribution, and, as you know, our Finance Minister placed a supplementary budget recently before Parliament. It is an indication of the fact that we are prepared to bear greater burdens with a view to giving a new fillip to our Fourth Five Year Plan and also show to the world that if they will continue their help or increase their assistance, we, on our part, will also try to match it and do much more than what they will give, and thus produce conditions in the country which would be in the larger interests of the people.

This supplementary budget, as far as I can judge, does not touch the interests of the common man. I mean he has not been affected and mostly those who reap very high profits have been taxed the most. Heavy levies have been imposed on some of the items which are sold on a profit of about 400 per cent, 500 per cent, 800 per cent like copper, lead and zinc. There is, of course, an additional burden and it has to be borne by the country. As I have said, for both our internal resources and external resources, we have to do our utmost and see to it that there is no shortfall in our Fourth Five Year Plan. If we have decided upon the size of the Plan and if we agree that it should be of the order of Rs 21,500 crore, we have to make every effort possible to see that it is fully implemented and fully completed and that there is absolutely no shortfall. For that, you have to keep a constant watch on the resources position. If we can do better, if we can get more resources, we can add to the Plan, we can expand it. But we have also to keep in mind that in case the resources are not available, or they are available in lesser quantities, then we may have to curtail or cut down our Plan because we cannot go beyond our means. Otherwise, there will be inflation. *We have, as a policy, decided that we will not take any steps which would lead to inflationary tendencies. There will be no deficit financing.* The State Governments have to keep this in mind.

Better Administration, More Economies

ONE of the most important things we have to do in regard to resources is the cutting down of our expenditure. The Central Government is also fairly guilty of the fact that it has not been able to cut down much of expenditure. We did try it and we have succeeded to some extent but we will have to economise our expenditure much more. We have added a number of departments and so perhaps have the States. I think it is time that we carefully consider the question of effecting economies in our expenditure both at the Centre and in the States.

As I said if we do want that there should be no shortfall in our Plan, we have to pay special attention to the implementation of the Plan, of our projects, of our schemes. If those responsible for the execution of the Plan are remiss or if they do not perform their duty satisfactorily, then whatever the funds or whatever the allocations we have, it would not really work. The performance has to be very good, very efficient and very satisfactory.

I have already referred to implementation of our agricultural plans. I am especially referring to it because it has much to do with the work which is actually being done in the field, whether it is irrigation or power, supply of fertilisers, etc. or supply of seeds, credits, or other inputs. The point is that there should be better co-ordination and consistent improvement. We have to keep a watch on this. We see the results on paper and come to judgements on the basis of the reports we get. Co-ordination may have to be done in the Secretariat but it is much better that some of us sit down in the villages and work out the scheme of co-ordination after actually finding out the difficulties of the people, of the cultivators, of the farmers. We go there only once or twice. Naturally, we are surrounded by the officers and we are not in a position to know the objective facts. It is, therefore, much better that the Plan is actually drawn up in the villages. It may be vetted and polished at the Secretariat level but it is perhaps essential that we go to the villages and find things out. For example, there are canals but people do not get water at the correct time. When they do not want it, they get it in surplus. Then there is a good deal of corruption in the Irrigation Department.

I have said recently and the Home Minister will give thought to the setting up of a high-power Commission in regard to the improvement in the administration, that is, what steps should be taken at the Secretariat level, at the Directorate level and at the district level, and what improvements should be made, and what delays come in the way of the quick implementation of these schemes.

The success of our Fourth Five Year Plan is an important matter. I would merely say that this Plan has a special purpose and it is essential that in the course of the next five years, we should be in a position to give the basic necessities of life to the people—food, clothing, shelter, education, medical facilities. If we cannot provide these things, well, the Plan has no special significance for me. I know that there are various other factors which lead to general economic development and those steps have to be taken, but these direct issues have to be tackled.

Another problem is that of prices. It is one of the things greatly troubling the people. It disturbs me. It should be possible for us, in the course of the Fourth Five Year Plan, to supply the basic necessities of life to the people at a reasonable price, which should be within the means of the wage earners and of the middle class families.

Our objective is socialism and we have to proceed in that direction. We have to fight monopolies and we must see that there is equitable distribution of wealth and national income. This is our objective and with a view to achieving this objective, we have to execute and implement this Plan.

Readiness To Make Greater Sacrifices

EARLIER in the address the Prime Minister referred to the political situation and declared, "If Pakistan wants to compel us by use of force to discuss the main question of Kashmir, I say it is just out of question. We cannot accept it and we will not accept it come what may."

In a detailed reference to Kashmir, Mr Shastri said that the situation was the creation of Pakistan; the entire responsibility was that of Pakistan. Pakistan had indulged in aggression, an aggression of a deceitful nature. Pakistanis tried to enter Kashmir Valley and Jammu. Large numbers of them had come with arms and weapons but they were not in uniforms. However, they were all trained by the Pakistani Army authorities. All the planning was done by the armed forces of Pakistan. It was a disguised form of attack. But it had not taken much time for the world to know the culpability and designs of Pakistan.

Mr Shastri said that Pakistan had expected that on August 9 there would be disorder and disturbances in the Kashmir Valley, especially in Srinagar. This was a date on which Sheikh Abdullah had been arrested in 1954. Pakistanis felt that this was a good opportunity for them to enter the Valley, incite the people with arms and create some kind of disturbance there. Pakistanis came in large numbers. In the beginning, the infiltration created a difficult situation. But the Pakistani raiders had been tackled. The raiders, who in the beginning operated in inhabited areas, had moved to far-off areas and were hiding in the jungles.

Referring to the regular attack by the armed forces of Pakistan in the Chhamb area of Jammu, the Prime Minister said that responsibility for escalating the conflict was Pakistan's. India's strategy for the future would be considered in the light of this. He said: "We do not want that there should be a continuous conflict forced on us by Pakistan and, that they should cross into our territory and then sue for peace, in the hope that we agree to some kind of a cease-fire. This has become intolerable. We do not and cannot accept it. We have to bring this matter to an end." The Prime Minister declared: "The country will have to undergo sufferings and sacrifices and we should give our utmost to the preservation of our integrity and freedom. In this context you have also to think of the Plan. We cannot give up all our work and the most important work of economic development. It is essential even for fighting the war. We need food and weapons and many other things. Defence effort has to be stepped up. The Plan will have to be defence-oriented in the light of the new developments".

No Extra Burdens on the Poor

MR ASOKA Mehta, Deputy Chairman of the Planning Commission, said that Pakistan's gross investment in its economy was 17 per cent of its national income. We had therefore to aim at a rate of investment at least as high. We could not afford to be overtaken by Pakistan in economic capabilities.

Such an effort would require tax receipts, as a proportion of national income, to rise from 13 per cent now to 18 per cent by the end of the Fourth Plan. Through normal growth this share would go up only to 15 per cent; therefore, there was need to make extra effort to get 3 per cent more of the rising national income as taxes.

The effort, Mr Mehta pointed out, would not adversely affect the levels of living of the people. The extra effort was to be met from the *additional* incomes that would be generarated. A quarter of the additional income would go to investment, and the remaining three quarters would be available to improve our living standards. It was thus possible to improve living conditions and simultaneously strengthen our economy.

During the three Plans, Mr Mehta said, the Centre and States would together have raised Rs 4,142 crore in additional taxation. Of this amount, the contribution from increments in direct agricultural taxes

(*Continued on Page 26*)

OWING TO STRESS ON DEVELOPMENT

OUR ECONOMY BETTER than Pakistan's not only in SIZE BUT IN QUALITY

CONTRIBUTED

THE recent conflict between Pakistan and India has generated a great deal of interest in the relative economic capabilities of the two countries. The reason is obvious. In the short run, the outcome of the war may be influenced by the state of military preparedness, though as experience of the last few weeks has shown, it is by no means decisive. The result of any longdrawn-out conflict depends largely on the relative economic strength of the warring countries.

From the purely military viewpoint, the size and range of industrial capability are of crucial importance. India's capacity to produce materials of direct military significance is unquestionably superior to that of Pakistan. This superiority derives partly from the fact that we are four times as large as Pakistan. But the difference in industrial strength is much bigger than could be explained by the relative size of the two countries. Thus industry absorbs about 10 per cent of our working population and contributes 20 per cent of our national income compared to 8 per cent and 10 per cent respectively in Pakistan. We have nearly 4 million people employed in modern factory type industry while Pakistan has hardly 0.6 million.

Our industrial base is not only bigger, but more versatile and more self-sufficient. Pakistan has made good progress in developing her industries, but her development has been mostly in the field of cotton and jute textiles and other light industry. Her production of chemicals and machinery is extremely small: she does not have any large plant for producing steel and other metals.

India on the other has made rapid strides in building up these industries as part of her programme for economic development. We produce 40 times as much sulphuric acid, 20 times as much fertilisers and 10-15 times as much of caustic soda and soda ash as Pakistan. We have capacity to produce 8.9 million ingots tons of steel; Pakistan has none. Our machine-building industry is capable of producing a wide variety of industrial machinery, machine tools, buses and trucks, locomotives and wagons, and electrical equipment. Pakistan's machine-building industry is very much smaller and produces only a few simple types of equipment Table I.

Our Plans not for Building Military Machine

With a bigger and more diversified industrial base, our economy is less dependent on foreign aid and therefore less vulnerable. Compared to us Pakistan has to import a much larger proportion of her needs of metals, machinery and chemicals. Both countries do not export enough to meet all the import requirements, but the gap is bigger in Pakistan. In 1964, she imported goods and services valued at Rs 4750 million; her exports were hardly Rs 2,000 million. In other words, more than half of Pakistan's imports were financed by foreign aid. On the other hand, India met nearly 65 per cent of her import requirements by her own export earnings. Obviously, the same proportionate reduction in aid would create far more serious dislocations in Pakistan's economy than in ours.

Such industrial strength as we have is the result of our efforts during the last 15 years to promote economic development. These efforts were not intended to build a military machine, but to provide the essential basis for improving the living conditions of the people. This in fact continues to be our central problem, our major preoccupation. Thanks to the political stability and a leadership imbued with a sense of determination and purpose, we have been able to maintain a steady growth of production and employment in all sectors. Since 1951, our farm output has risen 60 per cent and production of modern industries has nearly trebled. Aggregate income has increased by nearly 75 per cent and per capita incomes by 25 per cent.

Pakistan's record on the other hand is not nearly as impressive. Between 1950 and 1960, her average rate of growth was about 2.5 per cent a year which is almost equal to the population growth. It is true that of late Pakistan has been showing a considerably high rate of growth, and her performance has received rather widespread publicity. Whether this performance will be sustained is to be seen if especially foreign aid is not available on the scale visualised in their plans.

The central problem of India as well as of Pakistan is poverty. In both countries, the vast majority of people are ill-fed, malnourished, poorly-clothed and housed; unemployment is widespread; disease and illiteracy are still far from being eradicated. India's progress since independence has been on the whole faster, and the average living standard in India is somewhat better than in the Pakistan. The average Indian is a little better fed; he is certainly better clothed, is more literate, and has a longer expectation of life. Even so, it is only too obvious that both have a long way to go before their people have anything like a tolerable life. (Table II)

By provoking military conflict to slake their lust for territory, the Pakistan leaders will only succeed in diverting the energies of both nations from this task.

I. Industrial Production, India and Pakistan 1964-65

Industries	Unit	India	Pakistan
1	2	3	4
1. Sugar	thou. tonnes	2600	312
2. Cotton Yarn	"	958	236
3. Cotton cloth (mill-made)	mill. metres	4423*	668*
4. Paper including newsprint	thou. tonnes	526.5	116
5. Cement	"	9420*	1474*
6. Fertilisers (in terms of N)	"	230	11
7. Sulphuric Acid	"	681	16
8. Soda ash	"	280	28
9. Caustic soda	"	183	15
10. Coal	"	63990	1500
11. Crude petroleum	"	1653*	469*
12. Electricity installed	mill. Kw.	9	1.4
13. Electricity generated	bill. Kwh	25.9*	2.9*
14. Steel ingots	thou. tonnes	4400	negligible

*relates to 1963-64

II. Indicators of Standard of Living, India & Pakistan 1964-65

Items	Unit	India	Pakistan
I	2	3	4
National income (at current prices)	Rs. billion	172*	38.4*
Population	million	464*	110*
Per capita income	Rupees	371	349*
Literacy rate	per cent	28	20
Mortality rate	per '000	15.8	16.7
Number per 100,000 population			
Doctors		17	14
Hospital beds		48	30
Nurses		8	3
Calories intake per capita per day (in 1961-62)		2040	1970
Per capita consumption of			
food grains	Kgs.	172.8*	149.5*
sugar	Kgs. of sugar equivalent	21.9*	19.3*
Cotton textiles (estimated from yarn)	Metres	16.0*	13.2*
Paper including newsprint	Kgs	1.13	1.05

*relates to 1963-64

Sources for Pakistan data: 1. Quarterly Economic Review—May 1965 (E.I.U.); 2. Third Five Year Plan—Summary; 3. Papers submitted to UNICEF Conference on Children and Youth (by Deputy Chief, Planning Division, Government of Pakistan)

Yojana Bhavan Diary

THE National Development Council met on September 5 and 6 under the chairmanship of the Prime Minister and finalised the pattern of the Fourth Plan.

Mr Asoka Mehta, Deputy Chairman of the Planning Commission, held a press conference on September 6 to explain the N.D.C. decisions.

The Chief Ministers of Rajasthan, the Punjab and Uttar Pradesh met the Deputy Chairman on September 6 to discuss resource mobilisation for the Fourth Plan.

Planning Secretaries of State Governments met on September 7, with Mr G.R. Kamat, Secretary to the Planning Commission, in the chair.

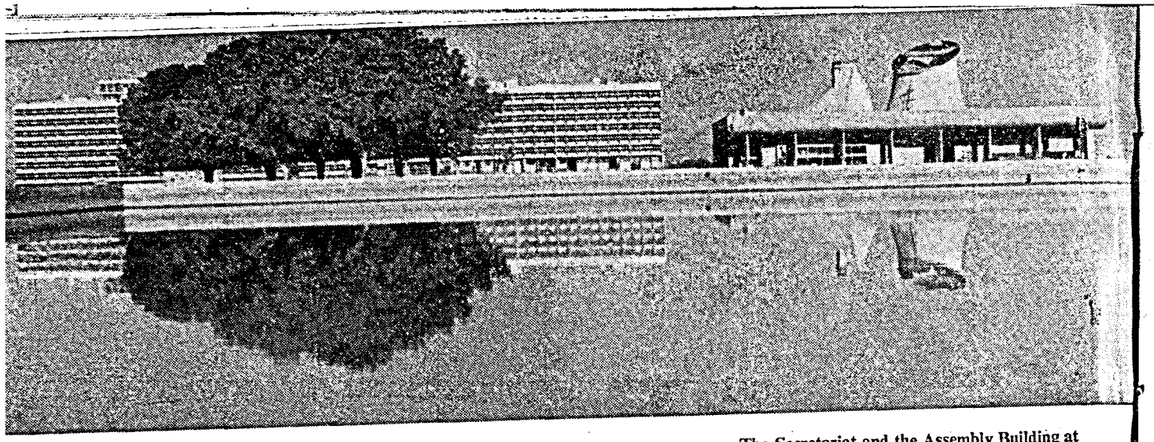
The Planning Commission met on September 14 to consider the annual Plan and on September 18 to lay guide-lines for the States to reorient the State Plans in the light of the country's defence needs.

Mr Asoka Mehta addressed the Fulbright scholars from the U.S.A. on the five-year plan.

The Research Programmes Committee of the Planning Commission met on September 4 at Vigyan Bhavan. Prof. V.K. R.V. Rao, Member, presided and the Deputy Chairman and other Members of the Planning Commission attended. About 20 leading social scientists of the country, who are on the Committee, took part in the discussions.

Mr D.P. Nayar has been appointed as Senior Specialist in the Education Division of Planning Commission.

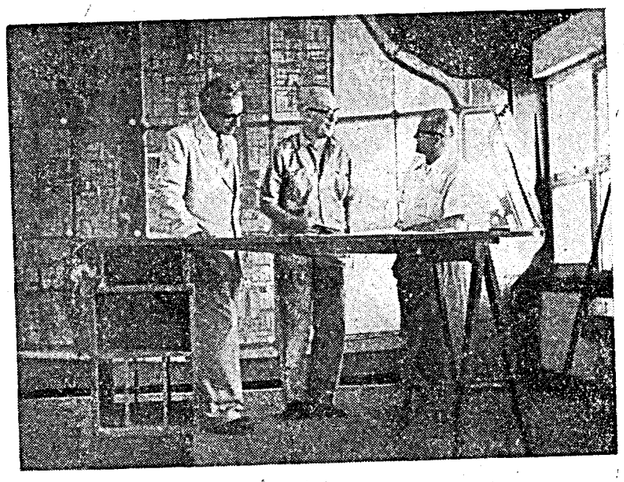
Dr K.R. Nair, Director, Central Statistical Organisation, took part in the 35th session of the International Statistical Institute held in Belgrade from September 14 to 22.



The Secretariat and the Assembly Building at Chandigarh. Below: The great architect discusses Chandigarh Master Plan with Mr. P.L. Verma (left) and Mon. P. Jeanneret, two of his colleagues.

Le Corbusier

Maker of Chandigarh





Le Corbusier with a model of Bhakra dam

By

JEET MALHOTRA

Principal, College of Architecture Chandigarh

With aching hands and bleeding feet
We dig and heap, lay stone on stone;
We bear the burden and the heat
of the long day, and wish 'twere done.
Not till the hours of light return
All we have built do we discern.

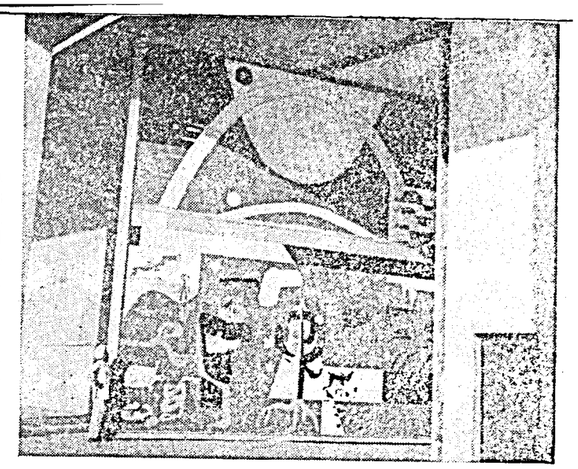
Now is the hour of light for le Corbusier when we wish *he* were here with us to discern what *he* has built. Indeed, he has left us gaping at the numerous enormous buildings which have come up as a projection of his versatile mind.

For me, he has been the most unforgettable character I have met. My first impression of him has never changed. I still remember my first handshake with him when we both were very tongue-tied for the simple reason that we did not have any language in common. Le Corbusier did not know a word of English and I was equally dumb in French. He struck me as a gigantic figure clad in khaki from head to foot, equipped with numerous pockets which apparently carried all his working paraphernalia. When he saw me staring at his unique and very original type of dress, he smiled and said that all his pockets carried different things like pencils, eraser, sketch book, old coins and his passport.

When I look back now I realise how my first glimpse of him was only an introduction to his mind—his clear, systematic, powerful and analytical mind. In all his later works he reflected that ingenuity, precision, resourcefulness and clarity which he showed in his uniform.

It has indeed been a rare good fortune for our country and especially Chandigarh to have had le Corbusier. He brought about a kind of resurrection of architecture and town-planning. He gave full vent to his ideas which were by far the most original, and the result was Chandigarh. In the Capitol complex where five major buildings were designed by him, three have been constructed: the Secretariat, the Assembly Chamber and the High Court, and the 'Museum of Knowledge' and the 'Open Hand' are yet to be built. The landscape features of the Capitol complex are also being materialised. In these works he shows himself not only as a supreme architect but also as a unique painter, sculptor and artist, all combined in one. One cannot really understand le Corbusier unless one appreciates the varied facets of his dynamic personality. The entrance door of the Assembly building reflects a master-painter's mind.

The High Court at Chandigarh, one of his first creations in India



A le Corbusier painting on the pivot door of the Assembly building

He was also a writer of no mean calibre. He wrote no fewer than 70 books on architecture, town-planning, sculpture, painting—advocating the theories he has professed and practised during his lifetime. A creator and inventor first and last, he brought out all the latent faculties in him. But all these lesser creative instincts contributed to one great obsession with him—architecture. And this explains the overpowering effect of his buildings.

Le Corbusier has left behind a rich crop of architecture and it has opened up new vistas of thinking and achievement for the young Indian architects. It is for them to avail themselves of the excellent start given by him. It will be important for us to see that his exacting standards are maintained in times to come.

Nehru was a friend and admirer of le Corbusier and often helped him in difficulties. Nehru respected his powerful ideas and said: "Chandigarh is powerful and it just hits you on the head and makes you think."

With a twinkle in his eye "Corbu" used to say that he preferred to be called "camel" and not a "crow" (Corbu means a crow). Full of the joy of life, he loved to swim, and unlike the other artists who prefer to keep aloof, he had a keen interest in human affairs and human psychology. For 60 long years he kept a diary in which he recorded all his impressions about people, nature and art.

In him we have lost not only a great architect but an incomparable artist of the twentieth century and his death is a blow to the world at large

LE CORBUSIER and CONTEMPORARY ARCHITECTURE

By
BIJIT GHOSH
Professor of Planning, School of Planning & Architecture, New Delhi



Picture : French Embassy

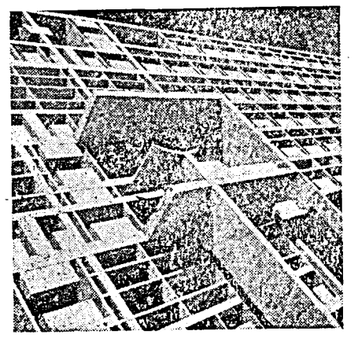
Now and then a person carries a whole nation with him to share his feeling, to see his vision and to speak his language. Le Corbusier, as an architect and painter, made a mark in this respect on his age and century. He absorbed so completely the spirit of the age, perfected it and projected it to the future that he was able to give a new dimension and direction to architecture.

From medieval romanticism to contemporary functionalism, there has been a great surge forward. Architecture has been in transition. But never before had there been so radical a change in concept and practice of architecture as in the last five decades. A turning point was an exhibition in 1922 at the Salone d'Automne in Paris of the plan of "Ville Contemporaine" (the city contemporary) for three million people and the publication of a book *Vers une architecture*—(Towards an Architecture) by le Corbusier.

The city, although planned in minutest detail, was never built and the thoughts expressed in the book were never fully realised by him. But these made the people aware of what he said: "A great epoch has begun! There exists a new spirit." While many considered the architecture of le Corbusier outrageous—some even dubbed it new brutalism—a few could immediately realise that the vision of le Corbusier was to become the architecture of tomorrow. Le Corbusier who followed his conviction consistently was the prophet of this epoch. His death by drowning off the French Riviera on August 27 was a tragic irony of fate.

Le Corbusier's real name was Charles Edouard Jeanneret. He was born in a family of watch engravers on October 6, 1887 in La Chaux-de-Fonds, Switzerland. In the art school of the same place, he studied engraving first and then murals and sculpture. At 18, he was commissioned to design a villa for a member of the faculty in the art school which was

"I HAD VERY LITTLE MONEY. THIS GAVE GREAT SCOPE FOR INVENTION AND IMAGINATION."

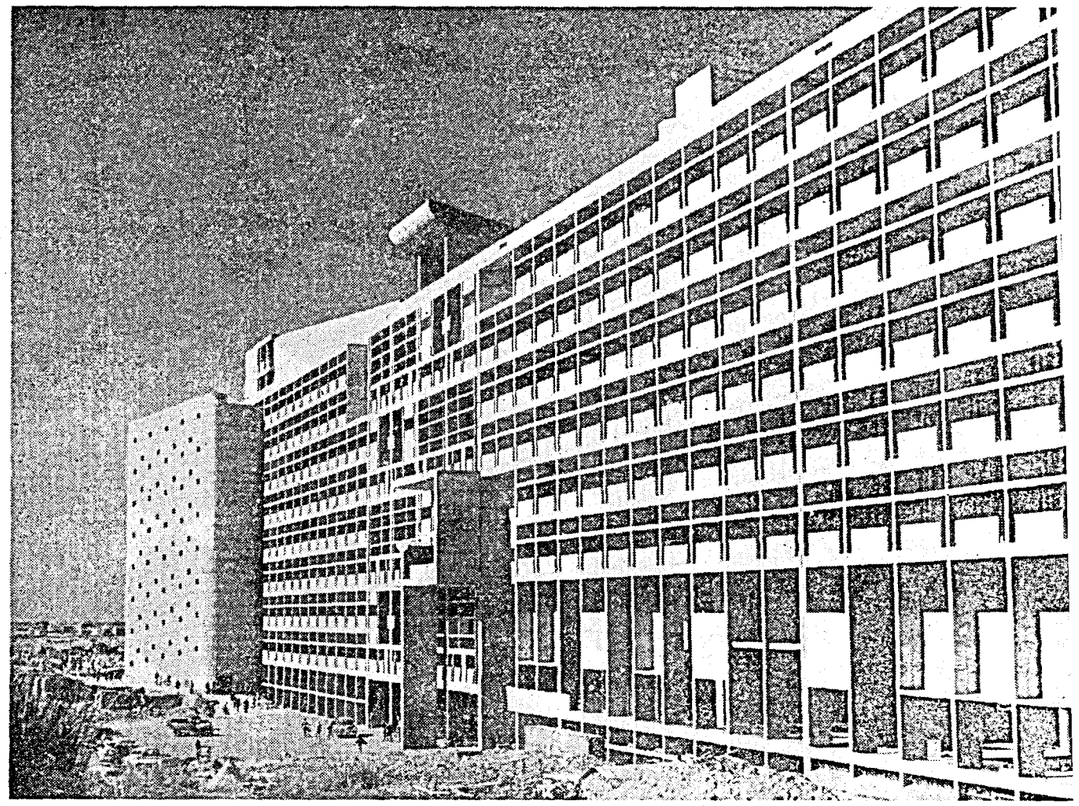


The Secretariat in Chandigarh—variety by the use of modulor.

Photographs :
Dhruva N. Chaudhuri

in fact his first assignment. The fees he got enabled him to take a trip through Italy to Venice where he worked with Josef Hoffman. Later he went to Paris (1908) and to Berlin (1910) and worked respectively under Auguste Perret and Peter Behrens. Le Corbusier was then in the making to be a master architect and much of his thought on functionalism was actually inspired by Perret. But it was not until the exhibition of his plan and publication of the book mentioned earlier that he really became famous. In 1923 he assumed the name LE CORBUSIER after his French ancestor to distinguish between two of his multiple personalities —those of painter and architect.

In 1926, he won first prize in an international design competition for the building of League of Nations in Geneva. He joined the C.I.A.M. (Congress for Modern Architecture) group in 1928. To le Corbusier, conceptual studies were as important as actual work. He perfected



The Secretariat in Chandigarh—a simple, bold and honest statement.

the concepts "city contemporary" in his plan for Paris ("Plan Voisin") and the "City Radiant" (Ville Radieuse). In pursuit of functional architecture, he developed "Dom-ino" houses, "Citrohan" units and "Villas Superimposee".

He prepared many city plans, e.g., for Buenos Aires, Stockholm, Algiers, Nemours, Bogota and Moscow and his outstanding architectural designs were the Palace of Soviets in Moscow, the Swiss Home for Cite Universitaire in Paris, an office building for National Education and Public Health in Rio de Janeiro, L' Unite d' habitation in Marseilles, rebuilding of Saint-Die, the U.N. headquarters in Manhattan (in collaboration with Oscar Neimeyer and Wallace K. Harrison) and the chapel of Ron Champ.

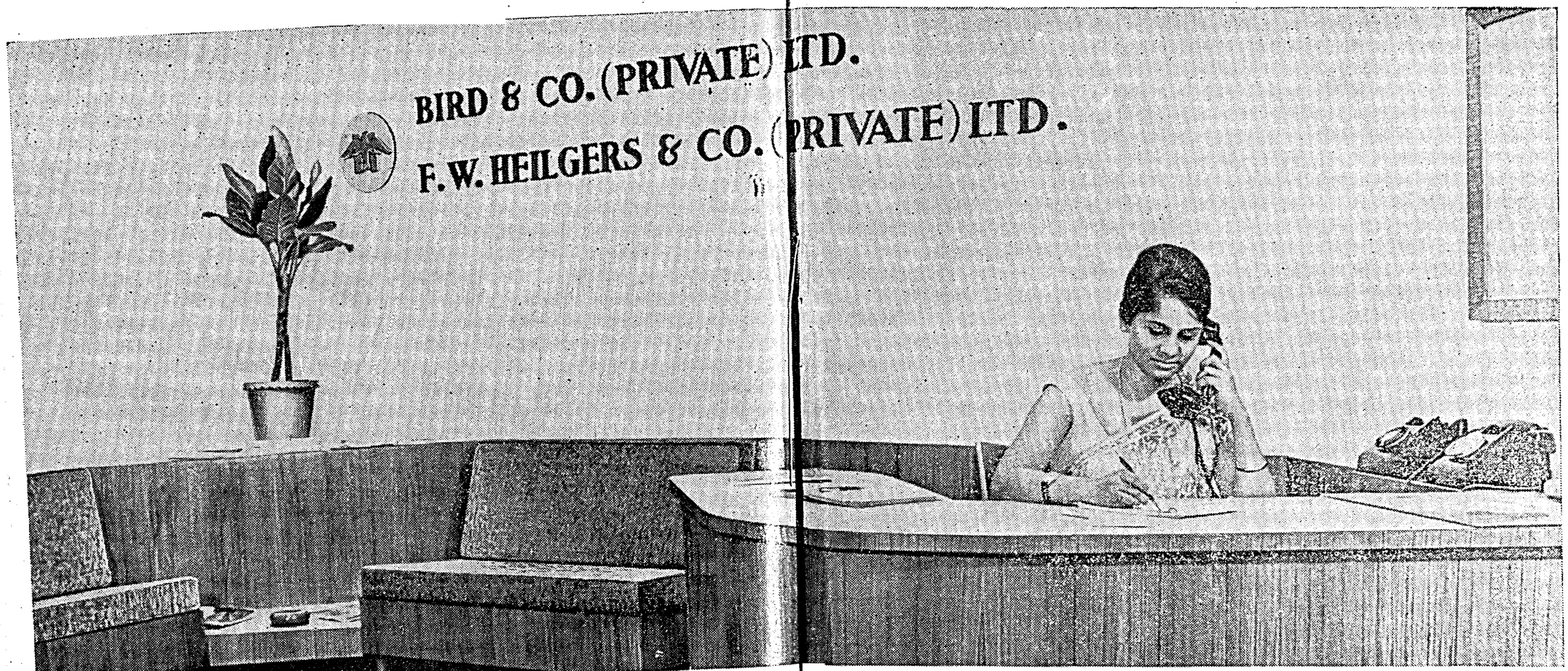
In India, he was first commissioned in 1952 for the planning of Chandigarh. He designed all the buildings of the capitol complex—the Secretariat, the Assembly, Raj Bhavan and the High Court. He was also commissioned in 1954-56 to design Sarabhai House and Shodhan House in Ahmedabad. In the same place, the Millowners' Association Building and the Museum were designed by him in 1954.

Even though le Corbusier could not apply the principles of "City Contemporaine" to Chandigarh, the Secretariat building was a fulfilment of his aspiration for architecture. What he could not realise in the U.N. headquarters in Manhattan, Chandigarh's Secretariat gave him the opportunity to do. He was extremely happy about all the buildings he designed in Chandigarh and he said: "I had a free hand but very little money. This gave scope for ideas, invention and imagination."

A Nonconformist

What makes le Corbusier a great architect of the century? The answer is his philosophy, his buildings, and his cities—in that order. In all these, one finds him to be a nonconformist.

Basically his mastery over architecture developed for two reasons. While most of us draw inspiration from tradition, from the cities in history, the vision of le Corbusier was only filled with buildings and cities of the future. Again, whatever might have been his approach to architecture, he could apply the same vision to town planning and very few had so successfully merged building into a city. He attempted in the Unite d'habitation in Marseilles to build a city in a building, to build a vertical city. To him it was clear that



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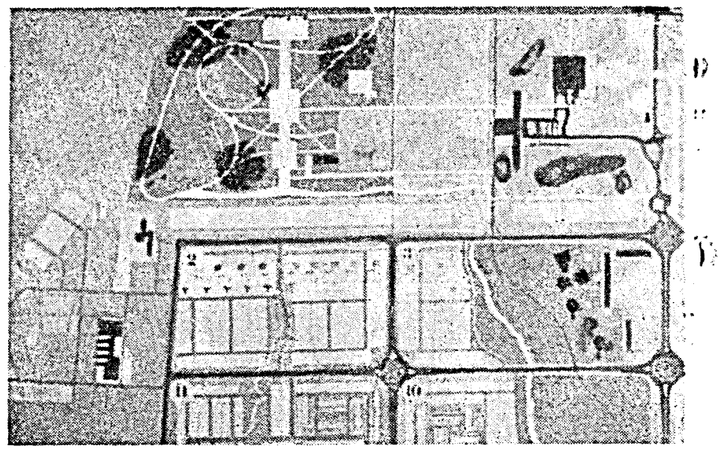
architecture in the twentieth century could no longer be isolated: the city as a whole was architecture.

Machine Art

To fit into the machine age, le Corbusier developed architecture as machine art and he emphasised both machine and art.

In le Corbusier's first apprenticeship with Josef Hoffman in Venice was his first contact with *art nouveau*—the "modern art" movement that dominated all forms of creative expression for about 50 years starting from the poster art of Toulouse-Lautrec. Most of the architects following *art nouveau*, like Antonio Gaudi of Spain, Frank Lloyd Wright of America or Alvar Alto of Finland, believed that nature is honest and so the forms derived from nature must be honest. They surrendered to voluptuous plasticity of natural form and introduced richness in ornate design by extensive use of natural materials. But those who were inspired by machine art like Auguste Perret, le Corbusier and Walter Gropius regarded the machine as essentially efficient; to them therefore the forms derived from machine were efficient.

Le Corbusier startled many people by saying "a house is a machine for living in"; so convinced was he about architecture as being an outcome of machine art. To emphasise his point of view, he considered building to be essentially man-made and it was to be built by man-made materials like concrete and steel. He never allowed the plasticity of concrete to be in excess in exaggerated natural forms; he restrained it into a structural discipline. He used concrete in its crudest, most brutal form, *beton brut*! But he realised the strength of concrete for technical requirements, he responded to the need of utilitarian requirement of living and he offered the only rational solution to the most urgent problems of his time, the building of tall structures, lightly framed and infinitely flexible in plan. He conceived building raised on pilotis is like a tree, its trunk rooted into the ground and foliage spreading above. He conceived a city consisting of many of these towers, the ground being completely released for the freedom of space, for safe movement of pedestrians. This was the genesis of



Capitol complex—Chandigarh

functionalism and architecture was interpreted for optimum use and utility. The meaning of architecture was supported by rationalisation.

Even with such emphasis on machine and its efficiency, architecture was essentially art to le Corbusier. He designed building as a pure geometrical form—as a simple, bold and honest statement. His buildings are essentially cubes or several cubes fitted within a cube, the superimposed units. The Secretariat in Chandigarh can be cited as an example. His cities essentially consist of a few such cubes lifted up from the ground and silhouetted against the sky. If contrast was necessary, he played again with pure geometrical forms, a cone or a cylinder, a pyramid or a prism.

That the machine art if not ingenious might be sickening for its monotony and regimentation made him contrive the modulor, a scale of measurement related to various proportions of the human body. The use of modulor provides a flexible choice of units and thus it introduces a great variety. This is particularly suitable for mass production of any building industry, for pre-casting and prefabrication. The use of the modulor has made the facade of the Secretariat in Chandigarh, nearly 420 metres in length, so dominating and powerful; to many it may be grotesque but it lingers in memory for long.

Space is in motion and, in every city, the general trend is to set the motion horizontally. Le Corbusier tried to set it vertically. He tried to lift every building up as if it was forced so by the pressure of a great hand (conceived as a sculpture in Chandigarh) releasing the ground space below. He also tried to hollow out buildings creating terrace gardens and to plan roof gardens in the sky. He spaced a few such vertical towers in his radiant city wide apart so that every family might have the essential joys of living—sun, space and verdure.

While *art nouveau* architects tried to merge city into nature, le Corbusier's city was essentially urban and he made a clear distinction between nature and man-made environment. He separated the buildings from ground, contrasted them by geometrical forms and planned the city in geometrical lines for optimum use and utility, and for maximum efficiency. This is quite evident in Chandigarh, particularly in the capitol complex. Whether it is Unite d'habitation in Marseilles or the Secretariat in Chandigarh, the planning of Algiers or Buenos Aires, all speak of his conviction, all point that he was basically an antinaturalist.

So le Corbusier thought, struggled and worked, and now, with his death, he leaves a band of his followers in India and elsewhere who have his convictions about functionalism and who will keep his spirit alive.

USE LIME —SAVE CEMENT

J. K. VARSHNEYA

Deputy Director (Metric Cell), National Buildings Organisation, and U.N. Regional Centre for ECAFE, New Delhi

THE country is engaged in an unprecedented building activity. The tempo of housing construction accelerated during the Fourth Plan.

Cement is one of the important building materials. But the country is short of cement and the shortage is likely to continue for some time. It is therefore essential to conserve cement and use it as economically as possible.

One of the important ways of conserving cement is the use of lime in its place. Lime has been used as a cementing material from the earliest times. The Egyptians used lime mortar in the construction of the pyramids. The Taj Mahal at Agra, the Red Fort in Delhi and the famous temples of South India were all built using lime mortar.

With the coming of cement and the non-availability of standard quality of lime, the use of lime has receded in the last few decades.

LIME mortars have certain special characteristics : they are easier to work with; they have higher plasticity; they retain water more and they do not shrink much on drying. But they have a low compressive strength. Cement mortars, on the other hand, have a high compressive strength but a low workability. The use of lime in conjunction with cement enhances the advantages. A composite mortar containing both cement and lime combines the best qualities of both.

The present practice in building construction is to use cement for every purpose. Cement is used for foundation concrete, for brickwork, for plastering and so on. To a great extent the use of cement can be replaced by lime; or a composite mortar having cement and lime can be used.

Here are some specific suggestions:

*Use lime mortar for foundation concrete including bedding below flooring and terracing. But lime mortar should not be used in places where soil contains excessive soluble salts or the water table is within 2½ metres of the foundation level. The following mortars can be used for foundation concrete :

1 lime : 2 sand
1 lime : 1 *surkhi* : 1 sand
1 lime : 2 *surkhi*

*Do not adopt R.C.C. framed structures for three-storeyed buildings. Do the masonry work of such buildings with load bearing walls in lime mortar. For buildings with more than three storeys for which framed structures are adopted, 9" walls (23 cm) may be done in lime mortar and only 4½" partition walls (11½ cm) need be done in cement mortar.

*Do internal plaster in lime mortar and external plaster in cement-lime mortar 1 : 2 : 9 (1 cement : 2 lime : 9 sand).

*Do not use cement for compounds or front ornamental walls. Do the entire construction in lime mortar.

*Minimise the use of elaborate sun-breakers, complicated cement concrete *jalis*, box type and 'U' type *chajjas* to windows, which require large quantities of cement. Provide *chajjas* simply for weather protection.

*In mass concrete, use fly ash up to 20 per cent. Fly ash is an industrial waste material available from thermal power stations.

*Make efforts to provide flat arches in place of R.C.C. lintels.

LIME used in construction should conform to the specifications laid down by the Indian Standards Institution. The Lime Manufacturers Association of India, 10 Alipur Road, Delhi-6, can be of help in procuring lime of standard quality.

It has been found that by following the recommendations listed above, 8 to 10 per cent cement can be saved in the case of R.C.C. framed multi-storeyed buildings and 30 to 40 per cent cement can be saved in the case of traditional load-bearing buildings.

BASED on chemical composition there are two types of lime.

(i) *Fat Lime* : Pure limestone with little impurities yields fat lime.

(ii) *Hydraulic Lime* : Some limestones contain clay as impurities. Lime obtained from such lime-stones has the property of setting and hardening under water. Such lime is known as hydraulic lime.

The Indian Standards Institution has classified limes as follows :

Class A : Eminently hydraulic lime which is used for structural purposes.

Class B : Semi-hydraulic lime which is used for masonry work.

Class C : Fat lime used mostly for finishing coat in plastering, white-washing and with suitable admixture, such as *surkhi*, to produce artificial hydraulic mortars.

The appropriate class of lime should be used for different items of construction.

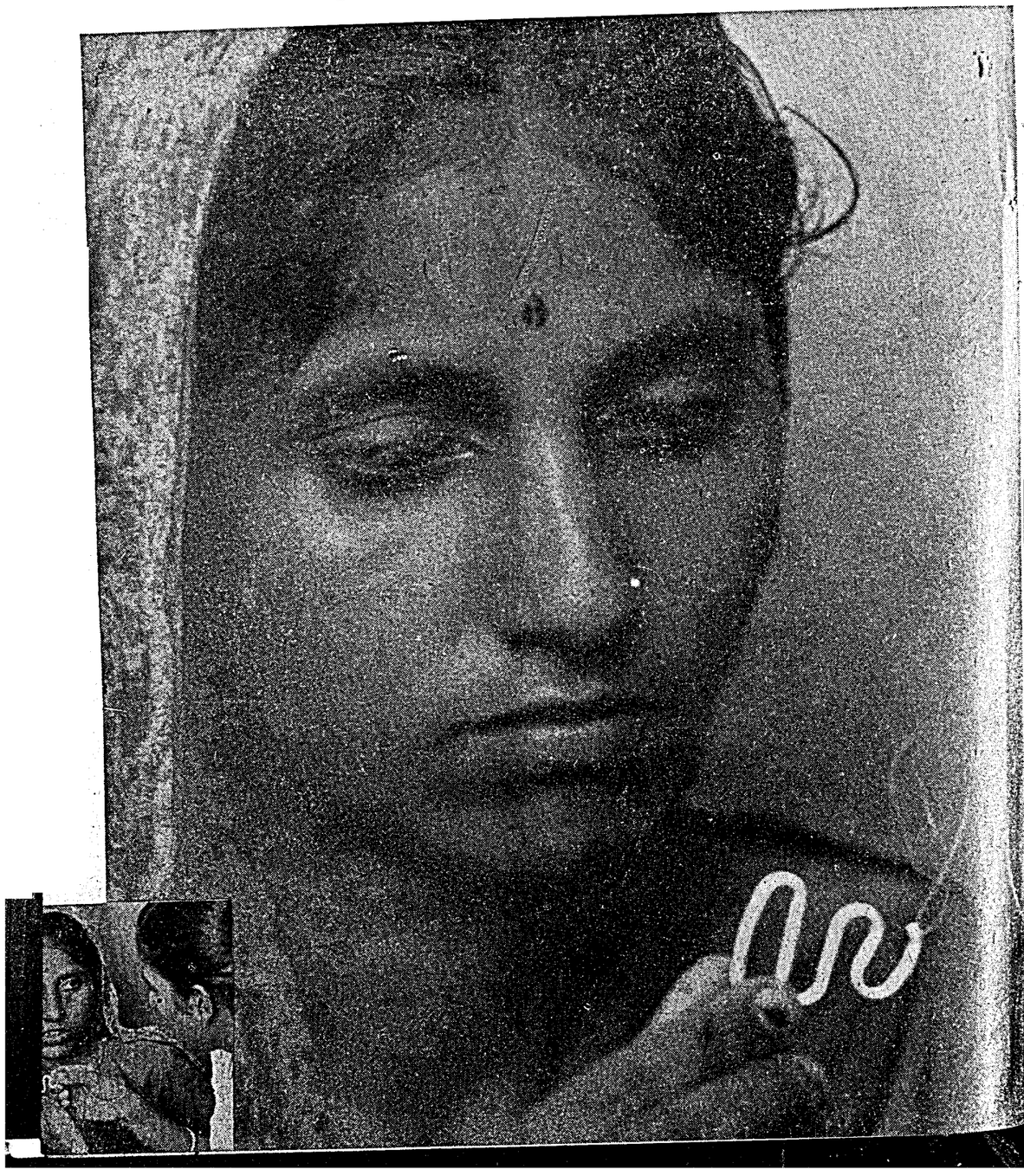
Question : Madras is reputed to have the cleanest administration in India. What is your impression ?

E.M.S. : Cleanest? I don't know. "Cleverest" is the right word in this context, I think.

—*The Illustrated Weekly*

The Loop Means Family Welfare

Report by R.K.P.
Photographs:
T.S. Nagarajan



IN Tughlaqabad near Delhi, a doctor has made a conquest. She has won the hearts of the simple womenfolk of that village. Under her patient persuasion and leadership the village women have overcome their traditional doubts and taken to family planning. Dr P. Kashyap is the Municipal Corporation's Superintendent for Rural South Delhi and one of the evangelists of the I.U.C.D. (intra-uterine contraceptive device).

One day, soon after she had begun telling the women of Tughlaqabad of the advantages of the I.U.C.D. and even persuaded some women to have the loop, she was challenged by a group of elderly and somewhat agitated women who closed in on her. She asked them what they wanted, and why they seemed to be angry.

One of the elders, a woman with a leaderly look, blurted: "Why do you come here to lead our young women to the path of ruin?" There was righteous anger in her voice. That was the signal for missiles of questions from all sides: "Aren't you ashamed to carry all your city vices



Women queue up for the mobile van at Bhagwan Nagar, a Delhi village.

Village Women Do Understand



Dr A.S. Nalwa says, "Fine! you have come to have the loop?"

The message of I.U.C.D. passes by word of mouth among village women



to our simple village?"; "Is it what a doctor is expected to do?"; "Don't you know that this *dhaga* (loop) will make our young women immoral?"

"I controlled my emotions. I tried my best to keep cool", Mrs Kashyap said to me, narrating the experience.

"I knew that the village woman is backward, ignorant. But she is upright, straightforward and warm-hearted. Go to her with the right approach and she responds so eagerly and well.

"So I lovingly told them: mothers, sisters, please don't think for a moment



Dr Kashyap at the Tughlaqabad clinic, affectionately asks Mrs Krishna, her first I.U.C.D. case at the village, "No complaints, I suppose?"

that I have anything to gain by this loop. If you don't want me here, I shall go away. But remember, like you, I am a woman. I am a mother of three daughters. I have my own sisters like you. I know how precious chastity is to a woman. So, please, for heaven's sake, try to understand me. I will be the last person to be associated with this loop programme if it has even the remotest idea to spread immorality. If it is so, I will be with you to fight against it."

The pall of anger began to lift. But there was an air of questioning silence.

"I put it across to them in a way that would appeal to their hearts straight," Dr Kashyap told me. "I asked them: don't you want your children to eat delicious food, wear good clothes, look chubby, be well-educated, get good jobs? Don't you want to remove your poverty and have all good things in life?"

"Yes, yes." There were a hundred voices in chorus.

"Then you should not have so many children. If you have two or three, then you can devote all your time to them and bring them up nicely and well. Now many of you give birth to ten or twelve children. Most of them die. Is it not being cruel to those poor innocent lives?"

"But the children are God's gifts!" an old woman said in all her naivete.

"Then why does not the same God give you money for your comforts which the rich people enjoy ?

"There was no answer. And then I went on: So this *dhaga* is not a cover for immorality. It enables you to have children when you want and naturally, when you have the choice, you won't go in for more children. But there is no compulsion that every woman should have it. Only those who really desire may. And those who want to have it removed, can get it removed. I am here only to help you.

"There was relief. The women jostled round me and the older women hugged me uttering words of affection. Thereafter I have not had to look back."

Against the backdrop of the famous fort built by the mediaeval Sultan, the Corporation's clinic at Tughlaqabad, which Dr Kashyap attends three days in a week, was a picture of cleanliness and calm. The little four-roomed building, with large open space around, is equipped not only for I.U.C.D. insertions but for curative and preventive medical treatment for all the ordinary illnesses. It has a lady doctor, two lady health visitors (LHV) and a *dai*.

"Meet our *dai*, Mrs Ram Piari", Dr. Kashyap said. "She is really the driving force of the I.U.C.D. movement in this village. She meets the village women at their homes and tells them, in her inimitable way, about the loop. And to her we owe the presence of the village women you see here".

Not only Ram Piari, but, thanks to her, there are other propagandists for the loop in the village. Most of the women who have adopted the I.U.C.D. have been persuading others. We saw Krishna, 25, the first woman to take to the loop at Tughlaqabad. She is a mother of two boys and two girls and Dr Kashyap told us that Krishna's example and words had been followed by many other housewives of the village.

"She was my first I.U.C.D. case here and I am proud of her," the doctor said, and Mrs Krishna gave us a "*namaste*", with the natural dignity of our village women.

"It is an infinite pleasure to deal with these village women, you know", said the doctor. "The urban or semi-urban women go on talking in wheels. They are not generally frank. But the village woman has no time to waste. She has to get the insertion done, go back to her house, make *chapatis*, then go to work in the fields and on her way back collect cowdung for fuel. The village housewife's day knows no leisure. And, although they are undernourished, most of them have no vaginal complaints unlike many city-bred women."

"Have they no complaints about the loop?" I asked.

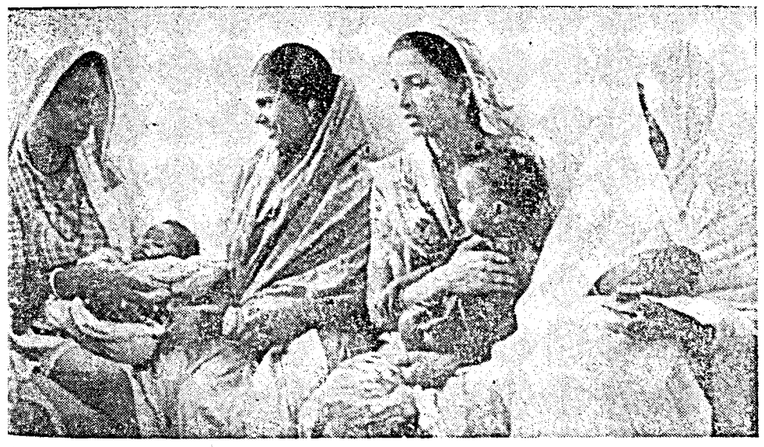
"Now, see, here is Shanti, a mother of five children, who has the loop," the doctor said, pointing at a young woman who had just then come into the room. She asked her a few questions, of course in an undertone, mindful of a man's presence. Then the doctor turned to me and said, "Look, Shanti is a working woman. She says that she has bleeding because of the loop. It causes a lot of difficulty while working in the fields. But, you will be surprised to know, when I have offered to remove the loop she gives a very polite 'no'.

"Now here is another case. She is again a labourer. She has had temperature after the I.U.C.D. insertion. I wanted to pull out her loop. Then she told me not to. I found on examination that the temperature was due to external infection and she was treated. Now she is all right and the loop remains," said the doctor.

On the day when we were there at the clinic for two hours, six women came for the loop. Five were fitted with it and one was sent back because of some physiological complaint. There was Pushpa, 25, married three years ago. She had only one child but wanted the loop for reasons of spacing. There was Batto, the village elder's wife with nine children, bedecked with heavy gold ornaments, and a milk-seller's wife, with

A mother with children waits for her turn.





Pushpa, 25, tells an older mother she is going for the loop for spacing, while next to her sits Vedvati, 28, who has had 7 children (four dead) and has come 12 days after delivery for the loop.

11 children, who had listened to the *dai*'s advice. There was Vedvati, 28, who has had seven children of whom four died and who had come there twelve days after her latest delivery. And there was (another) Ram Piari, 33, with three children and a desire for no more. Ten women came on that day for their follow-up checking after I.U.C.D. insertions. In one case, the loop was removed because the husband was against it and wanted more children.

"They should never feel unhappy, you know", said Dr Kashyap.

"After all the fundamental philosophy of family planning is human happiness. We must not try to *sell* the idea of the contraceptives. Then the people, specially villagers, become suspicious. The emphasis should be on welfare. The village clinic should be the nerve-centre of social change like the school and the panchayat. Education, I mean psychological preparation, is important. The clinic should have well-organised community programmes. Then there comes about a complete revolutionary change. I.U.C.D.'s path to success is then easy and clear."

The Tughlaqabad clinic serves a population of more than 20,000 in seven villages. Some of the semi-urban backward areas near Delhi, which have no clinic, are served by the Family Planning Institute's mobile van. The van, which is a gift to Indian women from Swedish women, goes to the Okhla Tank area on Tuesdays and Bhagwan Nagar—Khilokri villages on Fridays. We accompanied Dr (Mrs) A.S. Nalwa in the mobile van to the compound of a big Gurudwara in the Bhagwan Nagar village. By nine o'clock in the morning, when we were there, a small crowd of sixty people had gathered. Among them were men, young and old women and children.

"Why have these men and children come?" I asked.

"Well, ours is an integrated service. It is not merely the I.U.C.D. If family planning is to suceed among villagers, we should cater for their medical needs also and thus bring them round to listen to us. There has to be social involvement. From the clinical approach to the community approach is our method. And so, you see, our mobile clinic is equipped for that."

The streamlined mobile clinic, with two compartments, has all the facilities and accessories necessary for conducting even a surgical operation. It is fitted with a motor to make it air-conditioned, and has a cubicle for I.U.C.D. insertions. In the van were Miss H.Bindra, a Lady Health Visitor, and Miss J. Bhatia, the public health nurse, who were helping the doctor in handling I.U.C.D. cases.

On the day we went, the doctor said she did four I.U.C.D. insertions and pulled out the loop in one case.

"She had it in without asking her husband and he was very angry when told about it," said Dr Nalwa.

(*Continued on Cover iii*)

Books

Villages, Towns, & Cities in Asia

Urban-Rural Differences in Southern Asia: Some Aspects and Methods of Analysis. UNESCO Research Centre on Social and Economic Development in Southern Asia. United India Press, New Dehli. 147 pages.

Julia Abrahamson

THIS is the third study on urbanisation sponsored by the UNESCO Research Centre on Social and Economic Development in Southern Asia. Two previous volumes dealt with *Social Implications of Industrialisation and Urbanisation: Five Studies in Asia* and *Urbanisation in Asia and the Far East*. The present volume examines further some of the problems discussed in the second study, with special consideration of the role of small towns. It is the product of the thinking of representatives from several countries in Southern Asia who met in a regional seminar in New Delhi in December 1962. The thirty-six participants were drawn from various disciplines of the social sciences.

The Seminar "had a three-fold purpose...": (1) "to review criteria and categories of urban-rural differentiation and relevant sources of information as well as...studies of urbanisation trends and patterns in the countries of Southern Asia" and, hopefully, to establish the extent to which such categories and studies were comparable; (2) to analyse some of the major assumptions in the classification of settlements, consider their validity, and list the evidence needed to verify them, and (3) "to consider...policies for urban dispersal and for the promotion of planned regional settlements, with special reference to the place of small towns" in such planning.

Papers were presented dealing with the statistical and geographical background, with the pattern of rural-urban migration and indices of rural-urban differences, and with foci of social change.

The discussions based on these papers considered such questions as: Can census definitions and categories of urban places in the different countries be compared? How clear are the distinctions between the known characteristics of urban and rural areas as well as between towns of different size groups in any one country? Do urban settlements in the countries of Southern Asia portray types of social structure which are clearly distinct from those found in rural settlements? Is migration to large cities predominantly rural or urban in origin? Are variations in the social structure of towns associated with their population size or with other characteristics? Is urbanisation spreading downward from the big cities and/or upward from the small ones? Under what circumstances is urban and industrial decentralisation economically feasible and socially desirable?

The participants in the seminar could not have expected to arrive at definite answers, and they did not. In a thoughtful introductory chapter. Mrs Ruth Glass, Director of Research, Centre for Urban Studies, University of London, who was in charge of the scientific direction of the seminar, assesses the problems considered, the findings, and the value of the seminar. She stresses the following points :

Knowledge of the processes and implications of urbanisation in developing countries is limited by several factors. The approach and analysis are largely conditioned by Western thought and experience, which follow lines of demarcation between rural and urban matters and between the various disciplines of the social sciences. The research and literature to date have been largely focussed on large cities, on the one hand, and on villages, on the other, with little research attention given to small towns in Asia. The official definitions of "urban" and "rural" and criteria of "urbanism" vary from country to country and sometimes even within the same country. Urban-rural differences are becoming more and more inconsistent; some areas categorised as rural have an urban occupational structure since their residents are commuters to cities, while some agricultural or fishing centres may be more urban in outlook because they cater for tourists.

"In a sense the negative conclusions reached by the Seminar were the most positive ones" because they high-lighted the scarcity of reliable information, pointed out the hazards of interpreting data on the basis of arbitrary definitions of "urban" and "rural" and emphasised the need for caution in making generalisations about urban-rural differences. Generalisations based on the assumption of the similarity of small towns were rejected. In several countries of Asia, towns are distinguished from one another not only by size but by age—whether they are old or newly developed as the result of major industrial projects—by function, and by capacity for socio-economic change. Inter-urban differences are at least as great as those between so-called urban and rural settlements. This has come about because of internal migration. Since the major movement of population in most countries in Southern Asia is directly from villages to large cities, the contacts between the two are often greater than those between towns and villages. "Apart from literacy—a significant exception—none of the existing demographic, social and cultural indices show a consistent sharp contrast between urban and rural areas nor a pattern of differences matching that of the hierarchy of urban settlements, ranked in terms of population size."

The Seminar's concern with rural-urban differences has relevance to planning and the practical considerations involved in the development of small towns as "counter magnets" to prevent the continuous growth of large cities.

The volume would have been strengthened by the inclusion of more of the background papers, particularly those by W.F. Wertheim, I.P. Desai, R.K. Mukerjee, and Dr Karol J. Krothi, dealing respectively with urban characteristics, small towns, rural-urban differences in social characteristics, and "Urbanisation—Through Large or Small Towns?" One wonders why these were omitted; why only the papers relating to definition of urban population and population statistics and movement were selected; also whether a more simply worded text and a lesser number of tables might have made the publication more interesting and useful to a wider audience.

The volume however, presents valuable information based on scholarly research; it points up controversial questions; it probes assumptions which call for examination. The book is worth a place in the libraries of social scientists, planners, and others concerned with urbanisation for the illuminating introduction and conclusions by Ruth Glass alone. An added bonus is the bibliography on aspects of urbanisation in Southern Asia, prepared by Dr Ashish Bose.

Mrs Julia Abrahamson is Programme Director of the Baroda Community Development Service sponsored by the American Friends Service Committee.

QUOTATION BOX

I wonder whether we always require China and Pakistan to unite us and nothing inside our own country inspires us to it.

—Acharya Vinoba Bhave

The only abnormal feature of the otherwise normal life at Amritsar is that instead of taking shelter, as they should during Pakistan raids, people rush to rooftops. They like seeing the marvellous marksmanship of the men operating Amritsar's anti-aircraft guns.

—Mr Inder Malhotra in "The Statesman"

Pakistan has found it the final insult that India is not obsessed by Pakistan as Pakistan is obsessed with India.... The Pakistanis have assumed an attitude of defiant equality towards India and in the military field make claim to superiority. This nonsense has got to be knocked out of the Pakistanis heads and, unfortunately, it has had to be done by force.

—A correspondent of "The Statesman"

One experiences there (in Punjab) an overpowering sense of normalcy. At a point near the border, our tanks lumbered forward to meet the enemy but through the pall of dust raised by them one could see farmers fussily preparing their fields for the impending wheat sowing.

—Mr Krishan Bhatia in "The Hindustan Times"

The Pakistanis have spent eighteen years trying to get a settlement in Kashmir of the kind satisfactory to themselves. At the start they very foolishly tried a tribal invasion.... and (were) beaten back... They tried a flirtation with China... They tried to use the popular appeal of Sheikh Abdullah for their own purposes, which are not his, and saw him rearrested. Last month they tried force. And again they will probably fail.

—From article "Pakistan Can't Win" in "The Economist", London

While travelling in an Army jeep towards the Haji Pir Pass, in the area of J & K till recently in Pakistani occupation, an Indian Army observer saw a large number of people peering inquisitively at him.

He stopped to enquire the reason. A 70-year old villager with a grey beard told him, 'We have not seen any vehicles for 17 years in this area. Most of the children are seeing a motor vehicle for the first time in their life.'

—From a Press note

I was dealing with sophisticated and extremely well-briefed men, but men who would suddenly, as if it were the most natural thing in the world, come out with such phrases as: "In the places where the thought of President Mao is correctly applied, the rice harvest has greatly increased".

—Mr K.S. Karol on Maoism in "New Statesman", London

I do not know if one can judge oneself.

—Mr G. L. Nanda

In a guided democracy as in a "basic" or "people's" democracy, "spontaneity" requires a high degree of organisation.

—R.S. in "The Hindustan Times"

If some cranky fellow should organise a competition to assess who has got the largest number of personal friends, I will come out with the first prize.

—Mr S.K. Patil

OUR GNATS

From Page 3

turbo-jet. And propellers give greater control and slower take-off and landing speeds. So they are used in heavier aircraft. At higher speeds the pure jet is the best.

The most important advantage of the jet engine is that it is extraordinarily light compared to an internal combustion engine and its propulsive efficiency is three times more at great speeds. Jets consume more fuel than the piston engine.

In the modern fighter planes driven by turbo-jet engines the wings are thin and of short span, generally well swept back. The pilot's cockpit and armaments are well forward in the nose and the jet engine is at the back. The cockpit is air-conditioned and pressurised and the pilot wears protective pressurised clothing. Automatic ejection-type seats are installed to provide emergency means of escape from fighters. When this equipment is operated, the seat and the pilot are blown out of the plane after which a parachute opens automatically.

All available space in the fuselage (main body) of the fighter is used to store fuel, ammunition, guns, radio, radar, computers, navigation devices, cameras, power plant and other equipment. The air-to-air missiles are fitted on each wing tip. Provision is also made under the fuselage or wings for mounting of bombs or rockets.

From the days of pistol duels, aircraft armament has travelled far to air-to-air missiles. At the beginning of the Second War the fighters carried six or eight machine guns in the wings, and bombers had revolving guns. As the war progressed, intensive defence research made it possible for the fighters to carry 20 mm. cannon which could fire 100 rounds per gun, and later rockets. The guided missiles now fitted to many of the fighters fly at 3000 km. per hour and give approximately 70 per cent direct hits on targets at a maximum distance of 3.35 kilometres.

Rs 815-Crore Fourth Plan for Madras

Every village to be electrified
Every village to have protected water supply
Every Harijan family to get a house-site
Free and universal primary education



EVERY village in the Madras State will have been electrified by the end of the Fourth Plan. The State has made a provision of Rs 30 crore for the programme of rural electrification. The programme will help both agriculture and rural industries.

The Fourth Plan of Madras envisages a total outlay of Rs 815 crore, which is bigger than the outlay of the State on all the three earlier Plans put together. A Plan of such a big magnitude is deemed necessary considering the high density of population in the State, which is 669 per square mile as against 373 for all-India.

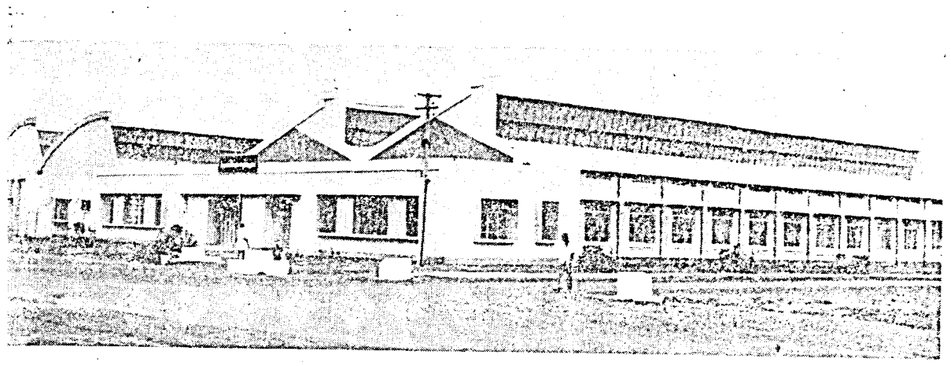
The Plan keeps in view the targets and objectives of the national Plan and seeks to bring about their fulfilment. The first priority, as in the national Plan, is assigned to increasing agricultural production.

The total expenditure on the Third Plan is expected to reach Rs 340 crore. The Third Plan has achieved the targets that the State had set itself in the fields of power, minor irrigation, general and technical education, small-scale industries and roads. The State took up, in the last two years of the Third Plan, a crash programme for pushing through schemes calculated to yield quick returns in the short run. The programmes of minor irrigation and rural electrification were intensified.

By the end of this year, most of the villages with a population of 2,000 and above would have been electrified and 2.35 lakh wells would have powered pumping sets.

Intensive cultivation programmes have also been introduced, as a result of which the consumption of nitrogenous fertilisers is estimated to have risen to 4 lakh tonnes in the current year from 1.15 lakh tonnes in 1961-62. High yielding strains of crops have been adopted on a wide scale.

During the Third Plan, agricultural production in the State increased to 65 lakh tonnes (compared to 53 lakh tonnes in 1961-62—an increase of 22 per cent during the five years). The Fourth Plan aims at achieving a production of 82 lakh tonnes of food grains, a further increase of 26 per cent.



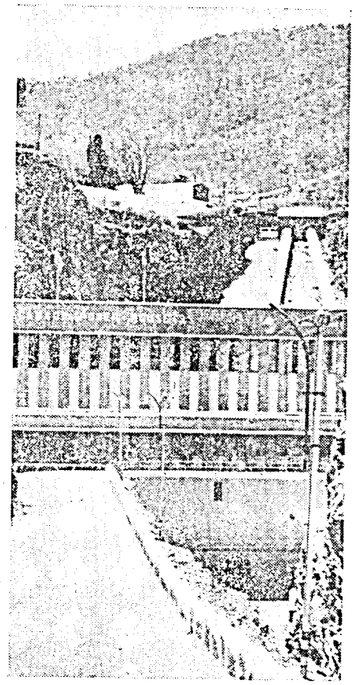
Left : The industrial estate at Ambattur. Below: Third power house of the Kundah hydro-electric project built with Canadian aid (see YOJANA July 19, 1964.)

To achieve this target of food production, the Plan emphasises adoption of modern methods of cultivation, application of improved seeds and fertilisers, minor irrigation and rural electrification. An additional 2.5 lakh wells will be provided with power to work pumping sets. To encourage the use of fertilisers in rain-fed lands, the State proposes to introduce a scheme of subsidy. Also, more fishing craft will be mechanised and deep-sea fishing developed.

Apart from minor irrigation, a few more schemes of medium irrigation will also be taken up for exploiting the marginal surpluses. The old irrigation systems will be improved. The irrigation channels in the Tanjavur district will be modernised and the Periyar channels improved. The problem of drainage in the Kaveri delta will be put on a systematic basis. A large area in the delta gets water-logged on account of heavy run-off from north-east monsoon rains. Upland drains entering the delta have therefore to be diverted without affecting the irrigated crops. A scheme costing Rs 5 crore has been included in the Plan for this purpose.

The programme of industrial development follows the policy of encouraging the private sector with provision of necessary economic overheads. However, during the Fourth Plan the State will take a direct part in the development of industries and concentrate on establishing medium-sized basic industries producing raw materials and intermediaries for big private industries. It will set up factories to produce consumer goods such as yarn, sugar and cement, with a view to influencing the prices of these commodities. Co-operatives will be encouraged to take up the production of consumer goods. As for major industries, the oil refinery and the Salem steel plant are the main projects proposed.

A programme of developing power generation is necessary to meet the needs of both agriculture and industries. By the end of the Third Plan, the installed capacity in the State would be 1,140 MW besides 400 MW to be commissioned at Neyveli. The Annamalai hydro-electric scheme, the Basin Bridge power station and the Kodayar hydro-electric scheme will be completed during the Fourth Plan. Eight new schemes with a total installed capacity of 1,575 MW and costing Rs 138 crore are proposed to be undertaken. An outlay of Rs 217 crore has been proposed in the State's Fourth Plan for power programmes. Besides, the Neyveli thermal power station will have to be expanded and the proposed atomic power station at Kalpakkam near Madras established in the Central sector to meet the growing power requirements in the State.



Social services will receive greater attention. Free and compulsory primary education will be introduced throughout the State by the end of the Fourth Plan. Textbooks and uniforms are proposed to be supplied free to poor children in primary schools. Backward classes will be given more facilities. Rs 80 crore will be spent on the expansion of education at different levels.

The programmes of developing communications, water supply, and medical and public health facilities aim at bridging the gap between rural and urban areas in regard to the essential amenities of life. Every village will have a protected water supply or a pipe line. Lands are being requisitioned in order to allot them to Harijans and one lakh house sites have thus already been distributed during the past three Plans. This programme will be accelerated to provide a house site for every Harijan family in the rural areas. Besides, all poor people will be given house sites by the end of the Plan period. A sum of Rs 15 crore has been earmarked for this programme.

FOURTH PLAN TASKS *From Page 7*

and in irrigation rates was only Rs 95 crore, a mere 2.6 per cent! Balanced development required more investments in agriculture and more savings from agriculture, because agriculture constituted a very large proportion of our economy and income.

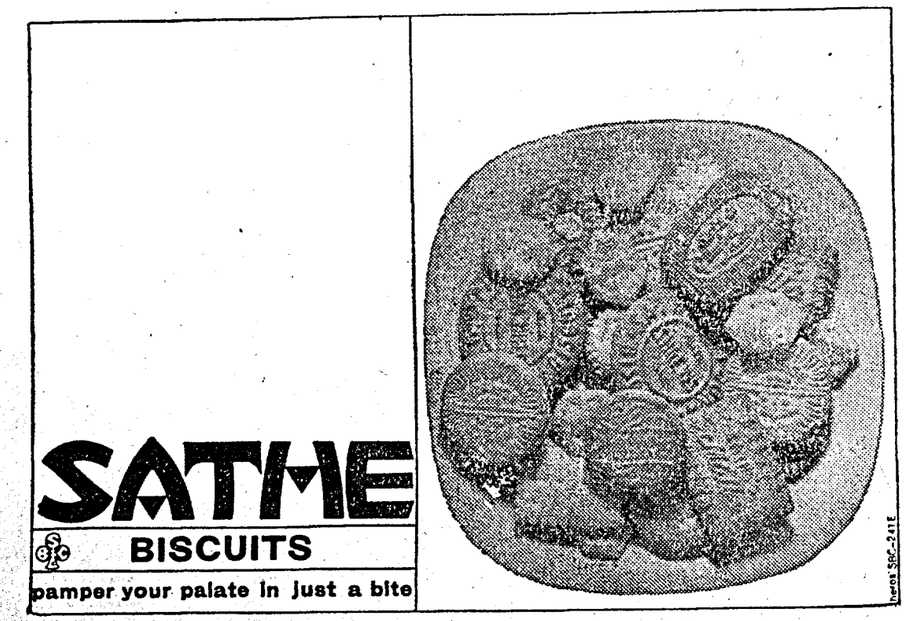
During the next five years, over administration, defence and development, the Governments would be spending nearly Rs 20,000 crore. Even a 2 per cent economy, rigidly carried out, all along the line, would yield Rs 400 crore for the Plan. Such purposeful economies had to precede and accompany all efforts at mobilising resources, existing as well as additional.

Mr Mehta said in conclusion: "The claims of defence obviously have the overriding priority. But in a large measure they do not conflict with, but in fact reinforce, the needs and design of development. As we repulse the onslaughts of aggression on our land we shall be achieving greater solidarity among our people, a sharpened sense of sacrifice, greater efficiency in effort and discriminating understanding about priority needs. These insights and understanding will help our development efforts equally."

Several Chief Ministers of States made brief observations after the Prime Minister had spoken. Mr Mohanlal Sukhadia of Rajasthan said that the Plan should be given defence-orientation and each State should take suitable steps in common with other States. Mr S. Nijalingappa of Mysore said higher agricultural production would best be achieved by extending agriculture. Mr. K. Brahmananda Reddy of Andhra Pradesh stressed the need for economies in administration and for a regional approach to economic problems. Mr K.B. Sahay of Bihar said that if effective action were taken against floods, agricultural output could go up substantially in Bihar. The farmers had become keenly fertiliser-minded and there was considerable scope for rural employment in suitably located industries. Mr P.C. Sen of West Bengal suggested higher inter-State sales tax, higher excise duties for sugar, tobacco and mill-made cloth and passenger tax for those travelling on the Railways, in order to increase resources. Mr. Balwantrai Mehta of Gujarat thought that the size of certain sectors like irrigation and industries might have to be increased, with the Central Government helping the financing of some major projects. Mr V.P. Naik of Maharashtra referred to procedural delays in taking decisions and thought there could be greater delegation of decision-making power.

JOWAR RECORD

In 1964-65, the production of jowar was 9.81 million tonnes, the highest so far and 7.4 per cent more than that in the previous year. According to the all-India final estimates by the Directorate of Economics and Statistics, 18 million hectares of land were under jowar crop in the year, an increase of 0.3 per cent over the previous year.



SALUTE TO SCHWEITZER

THE SAGE OF LAMBARENE TAUGHT AND PRACTISED 'REVERENCE FOR LIFE'

Ram K. Vepa

ALBERT Schweitzer is no more, and in his passing the world has lost one of the wisest voices of the century. He has been a symbol of sacrifice and dedication, providing inspiration and guidance to millions all over the world.

The life of Albert Schweitzer is almost out of a story book. When, fifty-two years ago, Schweitzer decided to undertake medical work in the heart of the French Congo (now styled the Republic of Gabon) he was no romantic, fascinated by the gloomy mysticism of the Dark Continent. Although only 38, he had already built up a considerable reputation as a philosopher and musician. His biography of the great German musician, Johann Sebastian Bach, had won acclaim. It seemed as if a fruitful career lay before him as a distinguished European savant; but when the inner call came to him, Schweitzer embarked on a new career to serve the people of the African continent.

Renunciation is the keynote of his whole life; but his renunciation was not negation of life but a way of seeking fulfilment. At Lambarene in Gabon, remote from Western civilisation, he established a hospital "to minister unto the maimed and the sick". As he buried himself in the rain forests of the Congo basin, he really went into the heart of civilisation.

At Lambarene, Albert Schweitzer gathered around himself a small but devoted band of doctors, men and women, who, animated by similar ideals and loyalty led a simple, almost Spartan, existence. The hospital itself, although a 400-bed institution, is no gleaming antiseptic affair. Its tin roofs and ramshackle wooden buildings merge easily with the shabby environment. In fact Schweitzer had intended his 'jungle clinic' to be easily accessible to the poor and illiterate, who, he argued, would feel out of place in an ultra-modern hospital with chromium plating and white overalls.

For decades after 1913, the outside world heard little of the white Doctor who was rendering service to fellow man, deep in Africa, and it was not till the Nobel Peace Prize was awarded to him in 1952 that the world began to take serious notice of him. It is doubtful whether Gandhiji himself had known much of the kindred soul. His autobiography *Out of My Life and Times* outlined his attitude to life and its problems, while an even earlier work *On the Edge of the Primeval Forest* described his position, both literally and metaphorically. In his work *The Kingdom of God*, Schweitzer sought to provide a personal interpretation of the teachings of Jesus Christ. "Christianity", he wrote, 'has constructed an elaborate dogma but it has not really comprehended that the mission of Jesus was to enable everyman to discover the Kingdom of God in himself." His monumental work, however, was *The Philosophy of Civilisation*, conceived in four volumes, of which only two have been published.

Although Albert Schweitzer is respected by millions and even venerated by some as a near saint, he is not without his share of detractors. There are some who see in his life mere escapism; others regard him as sentimental, patronising and even colonial. They point out that the actual impact of his work in Africa is no more than that of other missionaries. An educated African is said to have remarked that he would rather die unattended than be treate at the hospital at Lambarene. Per haps the most significant criticisn of Schweitzer is that he lived in a age before the Frist World War "hardly knowing or caring that century and a continent have passe him by"; in many ways, it is said Schweitzer is an anachronism in continent where the wind of chang has been blowing hard, liberatin millions of people not merely from colonial domination but also from voodoo and witchcraft.

It is true that the world of mid-sixties is a vastly different place from that of 1913, when Albert Schweitzer first set out for Africa. Yet, in all this tumult and upheaval, the spirit and purpose of man has changed but little, and before Albert Schweitzer is dismissed as a relic, one may pause to examine the symbolism of his life and achievements. Why, it will be asked by later generations, did he have to leave everything and bury himself for more than five decades in an utterly alien environment? The answer is best given in his own words: "I decided I would make my life my argument. I would advocate the things I believed, in terms of the life I lived and what I did". One recalls the life of Gandhiji who, impelled by a like motive, remoulded himself and his country. "I did not want my ideas to become ends in themselves", Schweitzer wrote, "the ideas took hold of me and changed my life. Resistance to those ideas would have been impossible." How very similar are the "ideas" of Albert Schweitzer to the "inner voice" of which Gandhiji had often spoken!

What then are these "ideas" which had influenced Schweitzer? "No single phase of my own philosophy", Schweitzer said, "is more representative of my thinking than Reverence for Life. Ethics is nothing else than reverence for life. In reverence for life, religious feeling lies before us in its most elemental and most profound form". In choosing for his service the people most outwardly alien to him, Schweitzer was affirming, in practice, his innate belief in the sacredness of all life. It is in this ability to make a sustained sacrifice for a principle, even as Socrates, Christ or Gandhi did, that

between
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AS THE PLAN MOVES

LUBRICATING OIL PLANT TO BE BUILT

A lubricating oil base stock refinery will soon be set up in Bombay under an agreement signed on September 15 between the Union Government and Esso. The agreement was being negotiated for the past six years.

The plant will have an annual capacity of 1.45 lakh tonnes of lubricating oil, of which 55 per cent will be high-grade automobile base oil and the remaining 45 per cent medium-grade industrial type base oil.

The plant will be built in two years at a cost of Rs 7.2 crore.

A new company will be formed in which the Union Government and Esso will be equal partners.

Lubricating oil is the costliest of petroleum products. We import Rs 4 crore worth every year.

SUGARCANE OUTPUT UP

The production of sugarcane is estimated to have increased by 16.4 per cent in 1964-65, the production being 122.13 million tonnes compared to 104.92 million tonnes in 1963-64.

PACT WITH YUGOSLAVIA

India and Yugoslavia have entered into an agreement for co-operation in the development of atomic energy for peaceful purposes.

VILLAGE VOLUNTEER FORCE

The Ministry of Community Development and Co-operation has urged the State Governments to mobilise the Village Volunteer Force fully to meet the present emergency.

The new tasks for the V.V.F. will be to guard the village from infiltrators and foreign paratroopers, and watch and protect means of communications and industrial installations. It will also supplement the regular police and other forces deployed in the area.

SNIPPETS

The Banana and Fruit Development Corporation has prepared a breakfast food for jawans. The food is based on banana powder and contains 16 per cent protein and adequate minerals and vitamins.....The output of iron ore during the first six months of the current year was over 10 million tonnes, 10 per cent higher than that in the first half of the previous year... Uttar Pradesh has so far re-forested 45,640 acres of degraded forest lands for raising the supply of timber for industries and wood for fuel...The Hindustan Shipyard, Visakhapatnam, will produce six ships every year...In 1964, there were 8,161 newspapers published in 44 different languages in India...Protection to the safety match industry will be withdrawn.

SIDE TRACK

Courage

THE whole land is thrilling to reports of simple courage on the part of jawans, generals and civilians. The jawan Ayub Khan who hails from Rajasthan (our answer to the Pakistan President of the same name) and who smashed a tank in pitched tank battle, Havaldar Abdul Hamid who, lone-handed, destroyed three Pattons before being cut down by a fourth, gunner Raju, a city's saviour and darling, whose deadly aim will go into military history, the unnamed pilot who gave his life to break up the Sargodha radar system, the Punjab villager who pinned down an armed Pakistani paratrooper with a thick piece of wood, the station master of a small village who prepared 400 meals every day for jawans—these are the stuff of which India is made.

Three years ago Mr Nehru said that if the Chinese attack had come like a thunderbolt, the response of the people of India also come like a thunderbolt.

Between then and now there is an even greater sternness of will. The kind of confidence that has been seen in the two weeks after Pakistan pushed its forces into Chhamb is of the kind that can stand not only successes but setbacks. With this kind of civilian morale, we can wage a long struggle and make the world appreciate the rightness of our policies and the strength of our people.

A typical example of our people's courage was given to us by a teacher in Delhi University. One day he discovered that the large number of labourers, men and women, who were working on a building in the University had all disappeared. When he didn't see them for a second day he asked the contractor. He was told that after the aerial bombings around Jodhpur, the panchayats of the villages had written to all their people to come back home. And the building workers had all gone back to where danger is.

Fewer

ON April 21 this year there were 9,257 family welfare planning centres in the country. On may 21 the number stood at 13,901.

The August issue of *Family Planning News*, which gives these figures, says that this marked increase is "because of supplementary information" received from the various States.

The journal gives a useful account of the Central Family Board's recent meeting and a seminar of family planning officers. The proceedings were not without light moments. When the job specifications for various kinds of family planning workers were being discussed, one member moved that the proposed sentence "The family planning health assistant must pay frequent visits to the auxiliary nurse midwife" be revised by dropping the word "frequent". Everyone agreed.

Yojana, as an ardent advocate of the movement, will not be mistaken if it pleaded for fewer pictures of seminarists in such journals. The August issue has fourteen pictures. All of them are of discussion groups and of dignitaries, and none is of family planning camps or of the ordinary men and women who have to become converts to the faith.



IGNORAMAN

Wants to Know

We have smashed
Pakistan's
Pattons
How shall we deal
with the
Pattons
in our offices?

VILLAGE WOMEN ADOPT THE LOOP WAY

(*Continued from Page 21*)

'So we had to take it out. It is actualy a hard task to get over the ignorance of people. Another woman in whom we inserted the loop had bleeding. She went to an untrained *dai*. The *dai* terrified her saying that t was *bijli ka tar* (electric wire) that ve had put in and then pulled it out herself. It created complications."

"Do you give other contraceptives lso?"

"Yes. We have our Voluntary Depot Holders to whom we supply ll kinds of contraceptives except he loop. They propagate them mong the villagers and supply them ith the contraceptives".

In Bhagwan Nagar village itself we went to Siddharth Basti, a colony of Harijans. The Voluntary Depot Holder there was Tara Chand, a tailor. He told us that besides him, other social workers also occasionally visited the Basti and preached family planning. Among them was a Buddhist monk. When the Harijans faced him with the question "Are not children gifts of God?" the monk countered, "The sun is also a gift of God, but don't you hold an umbrella when you don't want the sun?"

Thus the message of family planning spreads to the villages with the help of enthusiastic doctors, persevering *dais* and itinerant social workers.

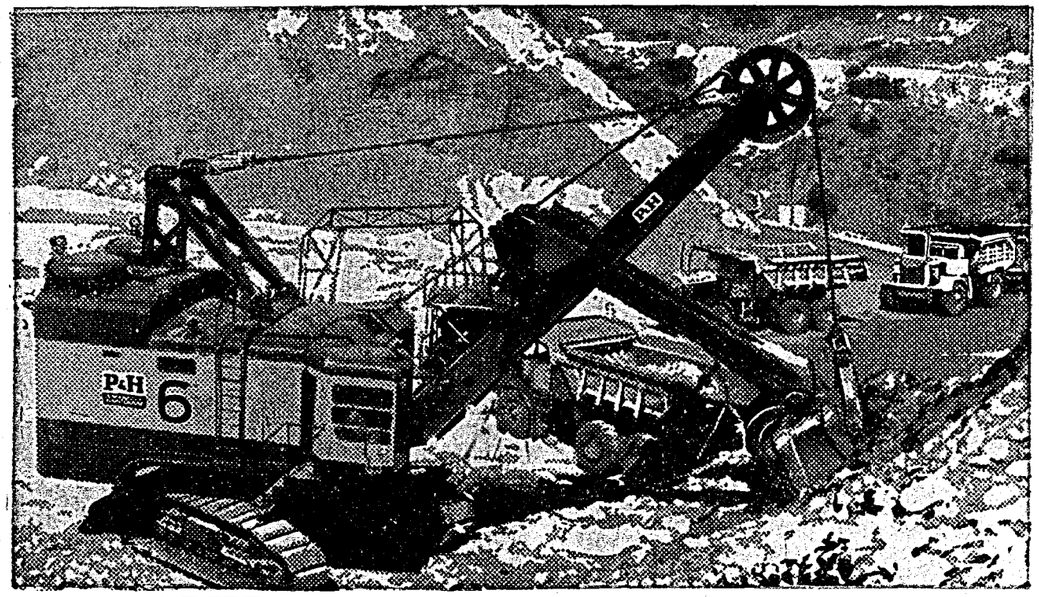
Collector's Item

A road sign near
a Mysore school :

BEWARE OF SCHOOLS

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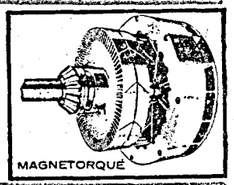


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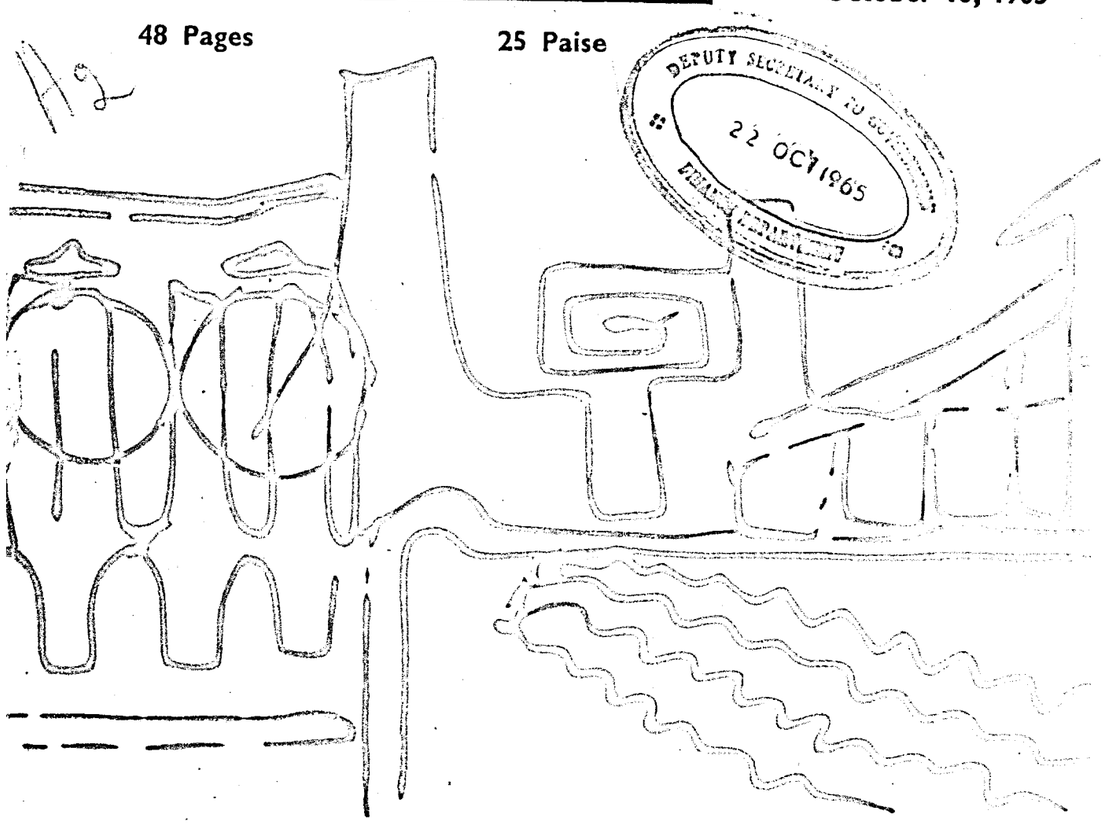
YOJANA

NINTH YEAR

20

October 10, 1965

48 Pages — 25 Paise



IF THE EXPERIENCE OF THE RECENT PAST HOLDS ANY LESSON FOR US ALL IT IS THIS: WE MUST ENDEAVOUR TO BE AS SELF-RELIANT AS POSSIBLE. IN THE ULTIMATE ANALYSIS IT IS THE STRENGTH OF THE NATION ITSELF WHICH MATTERS MOST AND WHICH IS OUR BEST SAFEGUARD.

—THE PRIME MINISTER

ABOUT YOJANA

Yojana seeks to carry the message of the Plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

The Advisory Board of the journal consists of the Minister of Information and Broadcasting, Minister of Community Development and Co-operation, Minister for Agriculture, Mr T. N. Singh, Mr Shriman Narayan, Mr Akshaykumar Jain, the Secretary, Ministry of Information and Broadcasting, and the Secretary, Planning Commission.

Although published on behalf of the Planning Commission by the Ministry of Information and Broadcasting, *Yojana* is not restricted to expressing the official point of view.

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TO EDITORS

Some of the articles in this issue are being released through the Press Information Bureau for publication in newspapers and periodicals. In case Editors desire to republish any other articles, they are requested to write to us.

Editor, YOJANA

This Special Number is the first of several YOJANA issues in which the concept of SELF-RELIANCE will be examined.

Among the contributors to the next issue will be :

B. R. BHAGAT : *Foreign Aid and Self-Reliance*
G. K. CHANDIRAMANI : *Educating the Technicians*
D. K. GHOSH : *Importance of Exports*

Also in the next issue :

CHANCHAL SARKAR : *Pakistani Propaganda*
J. P. CHATURVEDI : *Parliament and the Emergency*
MINA SWAMINATHAN : *Telling Children*
HUMAN ELEMENT ON THE BORDER

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YOJANA

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ECONOMIC EFFORT FOR DEFENCE

ASOKA MEHTA

DEFENCE must have the top priority in all our efforts and in all our resources.

When a nation dons the armour, when its manhood is challenged, it is not enough for the fighting forces to put forward their best, it is necessary for the people as a whole to share the incandescence of common purposes and function in unison and concord. That involves more than rephasing of Plan priorities; it means social solidarity with accent on equality.

The needs of defence increase vastly if the nation has to face a prolonged shooting war. Where an uneasy truce exists, the defence preparations have to be kept at the stage where active hostilities can be promptly met.

The limitations on our preparations can come from foreign exchange, from scarce materials, from scarce trained personnel. There need be no limitation from other resources, such as availability of rupee finance or general labour supply.

While in the short run the scarce resources in men and materials have to be met by greater deployment of them for defence needs from civilian use, in the main we must overcome the scarcities by accelerated programmes of production and training. The persistent scarcity will be of foreign exchange, particularly because we have normally been depending considerably on external assistance.

Foreign exchange resources can be augmented by a determined drive to push up exports. That would involve attention to quality of production, the requirements of external markets, and rigid restriction on internal consumption where exports are possible. Till now we have been functioning in almost the opposite manner.

The other way is of reducing pressure on foreign exchange by undertaking in a bigger and meaningful manner import substitution. We have recently increased the custom duties, and it will be necessary to exercise rigid control on imports. Through ingenuity and innovations we must strive to substitute with indigenous production, what we have been accustomed to rely on imports. Here is a challenge to our industrialists, scientists, technicians and engineers.

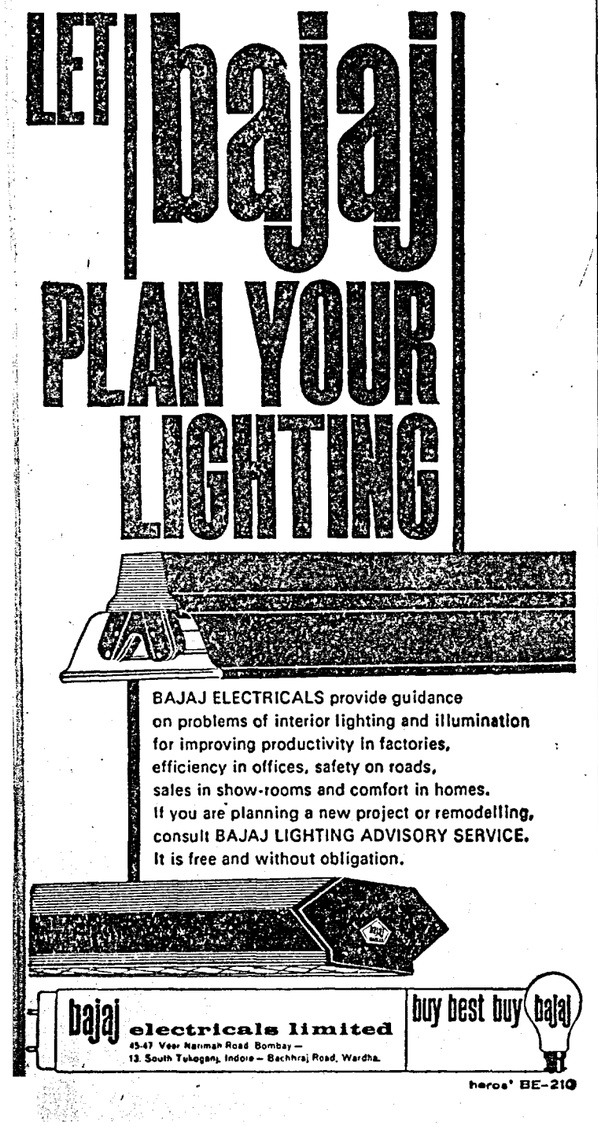
We are considerably dependent on external supplies for a variety of spares, components and equipment for continuing the production capacities we have built up. They account for imports of Rs 200 to Rs 300 crore a year. Through effective designing and engineering it course would require, first, adequate capacity of foundry, forging and machining, and, secondly, larger supplies of special steels, alloy and tool steels. Their production programme has to be pushed forward and accelerated with determination. Our steel plants, with some ingenuity, can provide the critical needs even now. Then there will be the widening needs of non-ferrous metals. We must observe the strict priorities in use here. But that is not enough. It is necessary to launch a sustained drive for collecting non-ferrous metals tied up in domestic uses and refine them for critical defence and industrial uses.

The Fourth Plan has been drawn up to improve our self-reliance in economic life and, therefore, in defence. These programmes have to be pushed forward with determination. Their foreign exchange needs, where inescapable, have to be found after the urgent defence needs. So high must be their priority. They are the industries that provide the widening base for both our development and defence. It would be unwise to counterpoise defence and development—they in fact reinforce one another in many areas and activities.

We have so far failed to bring into purposeful communion and co-operation our scientists, designers, engineers and technicians. To achieve that co-operation is among the *sine que non* of defence preparedness. The old habits of viewing things from the angle of one's limited speciality, or judging a man's worth by the economic rewards he can claim, must give place to a common focus of efforts and dedication. While institutional devices to these ends are important, emotional adjustments are even more important.

In agriculture, we have to work for self-sufficiency in food and fibres. Full utilisation of irrigation is obvious, so must there be multiple cropping and attention to quick maturing crops. Potatoes and other tubers that give more yield per acre but demand more care in cultivation have to be given urgent attention. As we are unlikely to have all the chemical fertilisers we need, the drive for composts and organic manure has to be stepped up decisively.

There will be increased demands on our financial resources for defence. To meet them should we cut down our educational or health programmes? I do not think so. We should meet the basic needs of all our people. That is necessary to maintain the nation-wide support for our defence. Non-basic demands of the better-off must be postponed. There has to be a sharp rise in savings and even in taxes. The jawans cannot give their lives while we hesitate to give up our



Why should education be cut down and thereby deprive our rising generation of essential intellectual equipment and opportunities? The barriers to efforts could be of materials and trained men. Both can be increased over time but not immediately. Public finance can be so organised that it does not impose a third limitation. If teachers are available, why keep them unemployed and our children illiterate? Such an approach has little in common with defence orientation.

The effective use of our manpower for soil conservation, afforestation, minor irrigation and road construction should be a part of the general effort at mobilising our people. To allow human and material resources to remain unused, because we cannot work out the necessary fiscal discipline, is to exhibit gross weakness. The solidarity among the people, the upsurge of understanding and agreement among the political parties provide the opportunity to improve organisational efforts and push forward for fuller use of our idle manpower and neglected resources in soil, water etc.

The distributive trade will have to show social discipline it has not cared to develop in the past. While State intervention in key areas will have to increase, and co-operative efforts strengthened, the distributive trade can vindicate itself if it organises itself for self-discipline. Its organisations can seek authority to make their members conform to social discipline and standards. Self-administration in trade can develop if the common objectives are recognized and worked for.

There is the need for neighbourhood groups in towns and cities and *gaon* groups in villages. The needs of civil defence, of vigilance, of sharing limited supplies, of regular collections for defence etc. would require such organisational effort. These community groups can spearhead production drives as well as look after the urgent needs of its members through better organised distribution. There are untapped resources of leadership in our country. They need to emerge and make these community groups the principal source of mobilisation of people and resources. The pride of democracy lies in combining spontaneity with discipline.

Modern defence is deeply embedded in civilian life. A large complex of economic and social efforts is needed to sustain the fire power of the jawans. These brave men can fight with undivided minds when they know that their homes are secure and their families and their neighbours all over the country are cared for. When enemies press from many sides and the frontiers are far flung, any part of the country can become the battlefield. The organised preparedness, seeking its daily discipline in productive and community work, has to be maintained all over the country, because none can say who will be in the fire line, and we are determined that nowhere shall we flinch or falter.

Defence preparation is not just conceding the claims of defence, it is to accept and assimilate some of the discipline and dedication of the jawans. When the defence forces and the people get closely related together, the jawans cherish the affectionate support of the people, and the people partake of some of the disciplined functioning of the armed forces. One-way defence orientation will in effect weaken our defences. Defence, in the world of today, demands, let me repeat, the donning of armour by the whole nation.

The ordnance factories have met the challenge with imagination, initiative and competence

BIG STRIDES IN DEFENCE PRODUCTION

STRESS ON BUILDING UP ABILITIES RATHER THAN ON GETTING READY-MADE SUPPLIES

A. M. THOMAS

Minister of Defence Production

AN important objective of our defence thinking and planning in India has always been the attainment of self-sufficiency in the shortest possible time and in as large a range of defence stores as possible. Even when we have sought assistance from friendly countries, and offers have been available for direct supply of arms and ammunition, we have shown preference for assistance in the form of supply of technical know-how and plant and equipment for the production of these items in India.

Ordnance Factories

Since the Chinese aggression in 1962, Defence production has been given considerable importance. Many ordnance factories work round the clock and a number of schemes have been launched for production of new types of arms, ammunition, vehicles, general stores and other equipment. Some of the important items so established since 1962 are the semi-automatic rifle and its ammunition, and improved version of carbines, tank gun, heavy mortar, aircraft gun ammunition, a new mountain gun and new type of anti-tank ammunition.

A considerable portion of our equipment in the ordnance factories is very old and a number of schemes have been undertaken to modernise these factories not only for the production of new items, but also to enhance the rate of production of a number of existing items.

In recent years there has been spectacular increase in the total value of issues from the ordnance factories. From Rs 41.88 crore in 1961-62 the value of production increased by three times to Rs 111.34 crore in 1963-64.

At the end of 1962 there were 20 ordnance factories. In a period of three years, four new ordnance factories have been established for the manufacture of items ranging from cables to high explosives. In the course of another three years from now, four more ordnance factories are expected to be established.

Ordnance factories have also manufactured so far over 5,900 Shaktiman trucks, 11,200 Nissan one-tonne trucks and 4,500 Nissan patrol jeeps to provide transport to the Army as well as the Border Road Organisation. Indigenous content of Shaktiman is over 70 per cent, that of Nissan one-tonne truck over 38 per cent and of Nissan patrol jeep over 31 per cent. A composite vehicle factory is being set up shortly to expand further the production capacity for these vehicles.

Ordnance factories have also so far manufactured over 1,000 tractors of four different types, which have been of invaluable assistance to the Army as well as the Border Road Organisation.

The production of snow garments, winter garments, and cotton garments has been stepped up in ordnance factories. In some cases the increase has been as much as 300 per cent. Bulk production of a new type of man-dropping parachute is also to commence shortly and production has been established of a special type of pack plaster for paradropping of jeeps.

An assignment on which the ordnance factories look back with great pride has been the manufacture of mountaineering clothing and equipment of all types for the successful Indian Everest Expedition this year. The members of the Expedition have been very happy with the quality of this equipment.

Since the emergency declared in 1962 we have obtained maximum assistance from the civil industry for the manufacture of armament components and general engineering stores. So far orders worth over Rs 15 crore have been placed on civil industries. It is a matter of considerable gratification to us that the civil industry generally has risen to the occasion and done its best to meet the high demands placed on them.

Aviation

The Hindustan Aircraft Limited was established at Bangalore in 1940 for the assembly of trainer aircraft, fighters and bombers. Since then the factory has never looked back. Among the projects of manufacture carried out by the factory at Bangalore were the assembly and manufacture, under licence, of the Prentice trainer aircraft and Vampire jet fighters. In 1957, it was decided to manufacture under licence the Gnat fighter aircraft which in recent action against Pakistan has proved to be the redoubtable foe of both the Patton tanks and the Sabre jets of Pakistan.

In October 1964, the Hindustan Aeronautics Limited came into being

in which the Hindustan Aircraft Limited was merged. Amongst the current manufacturing programmes of this Company are the Gnat fighters, Avro 748, Alouette helicopters and their engines, light aircraft, basic jet trainer, supersonic jet fighter HF-24 and MIG-21 aircraft. Besides the factories at Bangalore and Kanpur, a complex of three factories is being set up at Nasik, Koraput and Hyderabad.

Electronics Equipment

Bharat Electronics at Bangalore was registered in April 1954, and the number of types of equipment and the value of production in this factory have been progressively increasing year by year. At present the factory manufactures over 70 different types of equipment ranging from tiny transmitters for upper air observation to high-power transmitters and sophisticated radar equipment also and various components, such as valves, transistors, capacitors and crystals.

The production of electronic components is essential for a rapid development of the electronic equipment industry. Bharat Electronics Limited has accordingly set up facilities for the production of receiving valves, germanium semi-conductors, silver mica and ceramic capacitors and piezo electric crystals. The new manufacture programme will include manufacture of sillicon semiconductors, transmitting tubes, magnetrons and X-ray tubes.

Ship Production

The Mazagon Dock at Bombay and the Garden Reach Workshop at Calcutta were acquired by the Government of India in 1960 for the purpose of ship repair and ship construction. These workshops can undertake a variety of work ranging from construction of passenger-*cum*-cargo boats, ferries, light naval craft, river steamers, flats, water boats, pontoons, etc. They also have capacity for a considerable amount of general engineering work. A frigate construction project is currently in progress at Mazagon Dock Limited and projects for the manufacture of air compressors, road rollers and marine diesel engines are in progress at the Garden Reach Workshop at Calcutta.

A measure of the volume of work that is being undertaken in the public sector undertakings under the Defence Ministry may be obtained from the fact that over Rs 30 crore worth of production was attained in 1963-64.

Research and Development

Modern armament technology is developing so fast that it is often said that many of the items get obsolescent even while they are on the drawing board. This merely highlights the need for defence research and development to keep pace with the technological advances and adopt them continuously to our defence needs. The Research and Development Organisation in the Ministry of Defence has been fully aware of its important role and has lived up to our high expectations. The Research and Development Organisation covers a wide field of armament, electronics, engineering equipment, aeronautics, food and general stores, physiology, naval research, psychological research etc.

Inspection

With every production organisation in the Ministry of Defence is associated an independent inspection organisation which ensures that production of high quality is continuously maintained. The Directorate-General of Inspection covers a wide range of defence stores such as armaments, ammunition, vehicles, engineering stores, electrical stores, etc. that are produced in ordnance factories, public sector undertakings and the civil sector.

When we were engaged in our defensive action against Pakistan recently the Governments of U.S.A. and U.K. suddenly withdrew the assistance which they had been extending to us to strengthen our border defences against China, in spite of the fact that we took care not to use equipment received from them against Pakistan and in spite of China's collusion with Pakistan to reactivate the multiple fronts in our north and north-eastern borders.

To a situation that was designed to generate widespread alarm, the entire nation has reacted with remarkable equanimity and a supreme sense of confidence in its strength. In the cultivation of this confidence, the ordnance factories, the Hindustan Aeronautics Limited and other organisations in the Defence Production Department have played no little part.

Self-sufficiency in defence production has been a challenge to the thousands of technicians and factory workers engaged in this most important field. They have made a great contribution to our survival as a Nation. When we consider the Himalayan proportions of the difficulties we encounter day after day in the design and development of new items and new techniques and in the achievement of ambitious production targets in the ordnance factories and other undertakings, we can say with pride and joy that the challenge has been well met, with imagination, initiative and competence. It is a performance of which the fighting services, because of their intimate association with defence production, and the patriotic public are justly proud.

Chennai Jayam

The South India Shipping Corporation recently added *Chennai Jayam*, a new ship, to its fleet. The *Chennai Jayam* is the first of the five 38,000-DWT bulk carriers which a West German firm has been building for the Corporation. The remaining four ships are expected to be delivered in a year. The total cost of the five carriers is estimated at Rs 14 crore.



IGNORAMAN

Wants to Know

Hasn't the fighting proved that one Pakistani is not even equal to one Pakistani ?

INDUSTRIES MUST GIVE UP OUTSIDE RELIANCE FOR SPARE PARTS: BIG NEED FOR STANDARDISATION AND INTERCHANGEABILITY

WE MUST SAVE AT LEAST RS 200 CRORE THROUGH IMPORT SUBSTITUTION

T. N. SINGH

Minister for Industry

For some years now, with the increasing pressure on our limited foreign exchange resources on maintenance account, emphasis has been laid on the need for setting up industries and evolving new techniques which will result in avoidance of import or substitution of hitherto imported components by those indigenously produced.

It may appear paradoxical that as the country's industrial production has progressed our import bill has gone up steadily and that, despite the setting up of new industries which were expected to produce goods imported so far, the need of foreign exchange on maintenance account has grown steadily. This increase is not due to the fact that our new industries have not achieved the objects for which they were set up. The fact is that owing to larger production both quantitatively and qualitatively even a much smaller percentage of imported components and raw materials has totalled up into a big bill. In recent years a number of industries have been set up which are producing goods hitherto imported. Thus our import substitution programme in many directions has progressed well. Yet the success of this programme has also meant a larger import bill in terms of foreign exchange outgo.

In order to understand the full implications of the import substitution programme it will be desirable to go a little more into details. When units were set up, say, to manufacture electrical fans which were until then imported, it was an effort in the direction of producing a consumer article as a substitute for what was imported until then. But it was found that in order to keep up the production at capacity level to meet a larger demand for fans we had to import certain raw materials as well as spares and components. Subsequently in order to avoid import of raw materials we had to set up certain basic industries both for metals and basic chemicals. The operation of these basic industries has in turn meant large imports of components and spares and certain chemicals.

Production of basic raw materials and chemicals is, by its very nature, a time-consuming process. Developing of mines for all kinds of essential minerals and their refining takes time. But the demand for these metals comes into play the very day a consumer industry is set up that utilises these raw materials. The setting up of an electrical fan industry, for instance, will require steel, pig iron, copper, and insulating material. And it is not easily possible to find substitutes for these basic materials from indigenous resources. It is possible, for instance, to substitute copper with aluminium in case of electrical equipment. It is also possible to substitute plastic for rubber as insulating material. But we do not produce much rubber or petro-chemicals. Thus setting up of one industry leads to other demands and the process goes on at least in the first decade or or two of any industrialisation programme.

While there may be some limit to what one can do in regard to substitution so far as basic and raw materials are concerned, it has vast scope in regard to spares and components for Indian technicians and engineers. A way to facilitate production of substitute components and spares is to organise intensive work on interchangeability of spares and components. As we have imported capital goods from various countries, the spares and components required for each of them differ very much. These necessitate placing of orders for their supplies in ten different countries. During the last World War a great deal of work was done on the problem of interchangeability of parts and components in the U.S.A. and they succeeded in reducing their number considerably with the help of technicians and engineers. We need a similar effort in our country also. Once we can achieve the objective of interchangeability of parts to the maximum and prepare or adapt designs and specifications for them, it will be possible for our engineering shops to manufacture them in the country.

During and immediately after the Chinese invasion in 1962 a great deal was done in the country on the question of substitution of raw materials by those indigenously produced. But progress in the direction of import substitution so far as spares and components are concerned has been slow. Pakistan's

invasion has underlined the need for prompt action in this direction.

A very promising beginning has been made in the Hindustan Machine Tools towards evolving certain interchangeable parts so far as machine tools are concerned. This technique has to be adopted more generally. There is also the need of standardisation of our machines and machine tools. Two very important bases on which import substitution so far as spares and components are concerned can be organised are standardisation and interchangeability of parts.

Within the Shop

Another important decision which our industry has to take, in order to keep the machines going, is to decide firmly on manufacturing, in their shops for their own use, such spares and components as are being imported until now. This kind of improvisation is inevitable in the existing circumstances and must be resorted to in a big way.

We have difficult times ahead to face. Our slender foreign exchange resources are required for many more important purposes, including the defence of the country. Therefore whatever can be done to keep our machines going by manufacturing worn-out spares and components should be done. A determined effort in this direction alone will give us a large saving, probably of the order of Rs 50 to 60 crore a year.

I feel we should aim at an ambitious programme of import substitution both in raw materials and components and spares with a view to making a saving of the order of Rs 200 crore a year. It is an ambitious programme, I admit, but with the development of steel alloy industry in the near future and larger availability of steel, pig iron and aluminium it should not be difficult to achieve this objective.

SEED TESTING

Seventeen seed testing laboratories are being set up in the country this year—one in each State and the Union Territories of Delhi and Himachal Pradesh. The U.S.A. has supplied equipment worth Rs 24,000 for each laboratory and the services of an expert.

Mass Toughness to Match Jawans' Courage

DEFENCE CONSCIOUSNESS

By *KARNI SINGH, M. P.*

INDIA is a land of warriors. For centuries we have fought battles for the protection of our hearths and homes and also reluctantly sometimes in the service of foreign conquerors and invaders. Wars and battle scenes are, therefore, not new to us. Modern warfare, however, is a little different, as battles are not always necessarily fought on the front but civilian populations in cities way back in the hinterland stand as much a chance of being destroyed as those on the front.

It is not surprising, therefore, if the citizens of a country as a whole who are involved in a war or those who sit on the brink of war, should develop a high sense of defence-consciousness. The higher the education the more the defence consciousness that can develop in the mind of the individual. The more our education level is increasing in the country, the more is this feeling getting deeper and deeper embedded in the thinking apparatus of the Indian masses.

One thing has been proved beyond doubt : that the Indian soldier is essentially a brave man. He is not frightened of facing any odds, no matter how tough. The battles on the Indo-Pakistan border have amply proved this. What we need today is a larger industrial base within the country, building the most modern armaments with a continuous supply, so that never does the soldier feel "out-gunned" or, in other words, at a disadvantage compared to the enemy on account of inferior equipment.

The civil defence measures adopted by the Government as well as the wonderful work by All India Radio in covering the war have done a great deal to arouse the necessary defence consciousness among the people. When the present conflict with Pakistan is over and India can settle back to a peaceful way of life, our entire thinking has to be changed from the present slow peaceful pace to a highly developed and speeded up defence orientated outlook. The Five Year Plans, the budgets, the approach of our politicians and people in general to everyday problems will have to be geared to take future wars in our stride. Be it non-alignment or the building of nuclear weapons, a new thinking must emerge in the country, as it is clear that we shall have to live with unfriendly neighbours for many decades to come.

As matters stand at present, it is only when our country can stand on its own feet and can talk to other belligerent countries from a position of strength can any respect be gained for us in their eyes. The Chinese, in their present threat, have obviously underestimated India. They thought that by threatening India with aggression they could get us on our knees. The Chinese have to be made to realise that India is a country which is not frightened of anybody, be it Pakistan, or China, or even both together. We are prepared to fight for our national integrity and for our self-respect The saying goes that a coward dies a hundred deaths but a brave man dies but once. This indeed is a motto which the Indian soldiers have amply lived up to. We are not frightened of death on the field of battle, and the prestige and self-respect of India is far dearer to us. Is it surprising, therefore, that, living as we do with these unfriendly neighbours on our borders, the Indian people have a highly developed sense of defence consciousness amongst the people?

Within the next ten years we shall be in a position to meet the major part of demand for petroleum products

TOWARDS SELF-SUFFICIENCY IN PETROLEUM PRODUCTS

HUMAYUN KABIR, *Minister for Petroleum and Chemicals*

NO country in the world—with perhaps one or two exceptions —is completely self-sufficient in petroleum products. Even a country like the Soviet Union imports certain types of transformer oil and some axle oil from Rumania. The United States imports certain specialised products, certain types of catalysts and additives because, in the economics of international trade, there are obvious advantages of such interchange. The idea of complete self-sufficiency—that every country will produce everything—is in fact untenable in the modern world.

Having said this, I would like to state that India today is already surplus in motor spirit. We shall soon be self-sufficient in high speed diesel oil. We shall increase considerably our production of kerosene and reach near self-sufficiency by 1971. We are now thinking of setting up new lubricating plants. Apart from Barauni, Madras and Haldia in the public sector, an agreement has recently been signed with ESSO for the construction of a jointly owned lubricating plant at Bombay. Within the next ten years or so, India will meet the major part of her requirements from her own production in most petroleum products.

Oil and Natural Gas Commission

All oil policy starts with crude. Unless there is crude to refine, there cannot be any oil industry. The Oil and Natural Gas Commission, set up to explore and produce crude oil, has proved the existence of reserves in several new areas. Since the time we have had a whole-time Chairman for the Commission, there has been a great improvement in its functioning. Both in exploration and production, there has been substantial progress. Technical experts have also been put on the Commission as members by virtue of their special knowledge.

The Commission has set before it an ambitious but realistic target. Our present proved reserves amount to over 100 million tonnes. We have found in Assam itself some additional reserves and we are hoping to find some more in the Gujarat area. In the new offshore areas which we are exploring, there are hopes of having fairly large supplies.

Drilling in Iran

We have also gone out of India and are drilling in the offshore areas of Iran. Since at one stage it was proposed to abandon drilling at 3,000 metres, the very fact that drilling is still continuing and has gone beyond 3,500 metres and may go to 4,000 metres, suggests that something might be found. We cannot yet say anything definitely because oil is a very tricky business. One cannot be sure of oil till one has actually found it by drilling.

Exploration Efforts Intensified

The Oil and Natural Gas Commission has done exceedingly well during recent months. Its exploration efforts in India are being intensified. In addition, we are exploring the possibility of joint enterprises with foreign collaboration, wherever suitable terms are available. We are using contract drilling in appropriate cases for speedy exploration and exploitation of difficult and prospective offshore areas.

Once crude oil is produced by a Government agency in India or abroad, our aim is to secure full utilisation of such oil. Depending on the needs of the country, utilisation of our own crude will first be in the refineries fully-owned by Government. Where there is surplus, such crude is supplied to existing refineries and will be supplied to future refineries that may be constructed with foreign collaboration.

Foreign Exchange Savings

If Government can import crude oil at prices cheaper than those obtained by the private refineries, we shall ensure that the private refineries must either match these prices or accept the Government crude. In pursuit of this policy, we have been able to persuade the Phillips Petroleum Corporation to accept a reduction in the price of imported crude which will give us a saving in foreign exchange of almost a crore of rupees a year.

Again as a result of persistent efforts, private companies have in recent months reduced the price of crude oil twice. In December 1964, the prices of light Iranian and light Arabian crudes were brought down by two cents per barrel, which mean an annual saving of about Rs 20 lakh in foreign exchange at the present level of imports.

Discussions have led to further reductions from July 1, 1965 of a greater magnitude. The price of light Iranian crude was further reduced by seven cents and of Kuwait crude by four cents a barrel. The crude oil mixture in one

of the refineries has been reduced by five and a half cents per barrel. Together these reductions will give a foreign exchange saving of about Rs 2 crore per year.

Since May 1965, the supply of Ankleshwar crude to the Bombay refineries has been stepped up from 2,250 tonnes a day to 3,000 tonnes a day and will be further stepped up to 5,000 tonnes a day from January 1966. The increase already achieved has led to a foreign exchange saving of approximately Rs 8.5 crore a year. These measures, therefore, add to a total annual foreign exchange saving of about Rs 11.5 crore.

We have also been able to secure a substantial reduction in the price of finished products. Of this, the most recent and perhaps the most significant is an arrangement for supply of aviation petrol from a western source at a discount of nearly 24 per cent. This single transaction will save the country foreign exchange to the extent of about Rs. 1.5 crore.

Refining Capacity

It is Government's policy to create new refining capacity so that the country may be self-sufficient in as many petroleum products as possible. It has been and continues to be our policy that all new refining capacity shall be wholly Government-owned when the crude oil belongs to Government. There may, however, be need for collaboration arrangements so long as substantial foreign exchange costs are involved in refinery construction. We recognise that foreign collaborators provide finances for refinery construction only in the expectation of selling crude oil. Even in such cases, it is our aim to limit our commitments for purchase of crude oil to as short a period as possible and also to provide that such contracts do not conflict with the fullest use of indigenous crude or Government-owned crude.

As a further step towards economic independence in this field, we are taking steps to promote indigenous manufacture of refinery equipment as expeditiously as possible.

Private Refineries

Our existing agreements with private refineries are under revision and it is our aim to replace such agreements with normal industrial licences. Negotiations to this end have made considerable progress.

Some of these refineries have been pressing for some time for an expansion of their capacity. This will have to be judged in the context of our programme for constructing refineries during the next few years. Our programme provides that, before the end of the Fourth Plan, practically every region in the country will have one or more refineries. Economics of transportation makes it clear that expansion of any particular refinery will then be justified only in the light of the demand in the relevant area of supply and this will apply to private refineries as well.

Public Sector to Become Dominant Partner

Our consumption of petroleum products is going up fairly fast. By 1971, the crude oil which we shall need may be of the order of about 27 to 28 million tonnes to give us finished products of about 24 to 25 million tonnes.

Our present refinery capacity in the country is about 8 million tonnes in the private sector and about 7 to 7.5 million tonnes in the public sector. It is the policy of the Government to see that the public sector becomes the dominant partner. Obviously we must build more refineries in the public sector to achieve this position. I expect that by 1971 almost two-thirds of the total refining capacity in the country will be in the public sector.

Distribution

The Indian Oil Corporation has done exceedingly well in the recent crisis of local shortages of kerosene and diesel oil. It must, consistently with judicious investment of scarce resources, expand its marketing operation so as to control a major part of the business. We expect to achieve this position before the end of the Fourth Plan. Once this happens, IOC's relations with other companies will be placed on a sound basis.

Remarkable Progress of IOC

In distribution, the Corporation has made really remarkable progress. Its total sale in 1962-63 was less than 6.5 lakh kilolitres, in 1963-64 about 11.70 lakh kilolitres, and in 1964-65 it was 17.20 lakh kilolitres. In other words, the sale increased almost threefold in three years. Our target is 34.5 lakh kilolitres for 1965-66—an increase of almost hundred per cent in one year. IOC is already the second largest distributor in India. We surpassed Caltex some time ago. We have now surpassed ESSO. Burmah-Shell is the only company which has a larger distribution than IOC, and it is my expectation that within the next three years or so, IOC will be the single largest distributor in this country.

Petrol Pumps

For some time now I have been thinking of some kind of national policy about retail distribution. At present there are too many pumps and sometimes one finds pumps of the same company within a few hundred yards of one another. Also, one sees clusters of pumps of different companies within very short distances. I am thinking of rationalising this and have given a hint to the private companies that this kind of indiscriminate multiplication of pumps will not be allowed in future. We are working out a policy so that there can be some kind of rationale in distribution and the pumps which belong to different companies have some ratio to the amount of petroleum products which they actually handle.

Designing Our Own Thermal Plants

Five Soviet specialists in designing thermal power stations will be deputed to work as consultants with the Central Water and Power Commission for three years, under a contract signed recently between India and the Soviet Union. These experts will help to develop the Thermal Designs Organisation of the C.W.P.C.

The contract is in pursuance of the agreement signed for this purpose between the two countries in June last.

Planning For A Self-Reliant Democracy

TARLOK SINGH, *Member, Planning Commission*

THE present emergency takes us back to some of the fundamental premises of economic and social development and gives to them a new sharpness and urgency. In a matter of weeks, the wider context in which a country lives and works can change radically. A national crisis throws up new problems; it also brings forth new possibilities and new opportunities which can do much to increase the capacity of the people to bear greater responsibilities and labour together for larger goals.

Self-reliance has been a basic objective of India's planning for about a decade. Progress in this direction, though steady and well-marked, has not been conclusive enough. Rising demand for non-project imports for procuring components and raw materials, pressure on the part of much Indian enterprise for collaborations, frequent resort to foreign consultants for design and other know-how and the inadequate measure in which India's own scientists and technologists have been pressed to find immediate, practical answers to unresolved problems, are illustrations of a gap which has been allowed to persist. Yet, through the very processes which have been under way, facilities and talents are at hand for reducing this gap and even eliminating it through intensive and purposeful effort over a short period of years.

Changed Role of Planning

The emergency now upon us, while changing the character and purpose of planning, also enlarges its scope and role in our national life. Hitherto, we have tended to think of plans as being spread in terms of a year or five years or longer periods. Plans covered wide ground, their special feature being increasing comprehensiveness in the economic and social fields. The objectives were defined broadly rather than pointedly. Time dimensions were not precise enough and, if those concerned took longer to execute the tasks entrusted to them, explanations were given and accepted readily. Planning has now to become wholly problem- and task-oriented. The emergency marks out the more from the less essential. It demands concentration of effort and resources. Failures cannot be excused. Explanations cease to be relevant. Performance becomes the single test to be applied. Resources strictly follow priorities. Planning assumes all the characteristics of a military operation designed to succeed—precision in objectives and targets, well thought-out strategy and tactics, an assured line of supply, co-ordination in action, command and responsibility, and bold initiative in the field.

In any modern country, there is close inter-dependence between the quality and range of the defence effort and the strength of the economic and industrial base. The economy supports defence; defence guides and stimulates the economy. This inter-dependence is as good as the planning that lies behind it. There has to be co-ordination between defence and economic planning in considerable depth, continuous and sustained, followed through every branch of activity in all its intricate detail. A major lesson of the national emergency of 1962 has been impressed upon us once again, with even greater force. Economic planning must comprehend the entire national effort, including defence and the needs of defence, both immediate and long-term, in all their varied aspects. Short of this, defence receives much less support from the economy than it has a right to, planning contributes much less to national security than it can. Fortunately, India's economy has now reached the stage when such co-ordination can bring the maximum benefit both to defence and to economic development.

Economic and Social Objectives

Self-reliance for defence and development is not to be confused with autarky or with the approach of isolation. Its essential purpose is to put the indigenous resources, capacities, expertise and institutions to the maximum advantage and to achieve a high degree of initiative and autonomy of action in vital sectors of national life. In pursuing a policy of self-reliance in her development, it would be necessary for India to work for wider and more intimate relations with a large number of countries and, as far as possible, to strive for continuing two-way partnerships. Along with economic bonds, cultural and other links will have to be equally fostered. To the extent to which, for a period, the flow of capital resources and know-how has to be in larger measure from the developed to the less developed nations, international and multilateral arrangements would merit special support. Such reorientation should lead eventually to greater balance and diversification in relation to other countries as well as to a more purposeful advance within the economy.

A self-reliant economy has to be viewed as a major aspect of a larger objective—the building up of a self-reliant, technologically progressive socialist democracy.

In recent years the concern for economic advance and the role assigned in it to economic aid and private foreign investment have tended to push back some of the broader social and economic aims and institutional changes which are an essential ingredient of India's scheme of development. The technological aspects of a policy of self-reliance are undoubtedly of great importance, but such a policy has to be pursued continuously over years and must involve some degree of hardship and deprivation and deferment of benefits for all sections of the community. Therefore, its real strength will lie in the degree of mass support and mass satisfaction which can be generated while specific economic objectives are being pursued. The struggle for self-reliance will be a long-drawn one, involving years of effort and acceptance of stern ways of living. It has, therefore, to assume the shape of a national movement from which no one can stand aside and which encompasses every facet of life and activity. The springs of action and the ultimate sanctions of such an all-embracing effort must lie deep within the soul of the people, giving to each individual and each group the sense of sharing in a common endeavour.

Administration and Leadership

Of the several lines along which action should proceed changes in administration and in the style of work come first. These become a pre-condition for securing greater participation and response from the people. Each point in the administration has to be enabled to carry a greater load of decision-making and responsibility for action. The main task of the higher levels of administration is to provide clear direction, ensure the essential resources needed, fix responsibility and insist upon results. In time, larger changes of a structural nature will also be required but, for the present, there has to be concentration on increasing the capability of each organisation and, within it, of each individual to act to the maximum extent on their own initiative. No unit within the administration can do much without co-operation and team work from other units. These processes must be so organised that behind each specific task it is possible to identify an individual who has the necessary authority and can be held accountable. One of the first tests of the approach of self-reliance should, therefore, be the conferment of larger powers and responsibilities within the structure, reduction of references and consultations and greater emphasis on drive and decision. For large number of individuals engaged in implementing the present plans the reorientation demanded by the new circumstances of the country involves intensification and speeding up rather than a basic change in the tasks to be accomplished.

Closely connected with administration is the larger role of non-official leaders at every level. In recent years, although new institutions for providing opportunities to non-official workers have grown through Panchayati Raj, co-operatives and other agencies, reliance on the machinery of administration has also increased. In consequence, contacts between non-official workers in different walks of life and the mass of the people have tended to become more formal and functional and therefore less intimate. This has reduced the ability of non-official workers to influence and motivate the mass of the people. The potential of leadership available at the local level, both in urban and in rural areas, and through institutions such as trade unions and co-operatives, is still very considerable. The policy of self-reliance has to be fully understood by non-official workers closest to the people. Only then will they be able to help translate it into practical action and assist groups of citizens such as peasants, workers and others to assume greater responsibility.

The concept of self-reliance implies that the greatest possible effort that can be physically made at each level will be forthcoming, the next level above being asked to provide only the minimum assistance and support needed. This notion has to be applied within every village and neighbourhood and, progressively thereafter, to the larger entities of which they form part, such as block, district, city, State and so on. It is through such self-reliance, organised by local leaders working in partnership with the administration, that it will become possible to ensure that every citizen has a task cut out for him, a duty to render, a defined role in the larger national effort. Once the scope of the idea of self-reliance is understood, the media of mass communication assume critical importance. In this respect the traditional thinking and practice will not be equal to the challenge without a great deal of new effort. Resources on a large scale will have to be made available for reaching the people in every possible way.

Redefining Economic Tasks

The considerations stressed above are in a sense of a preliminary nature, setting certain essential conditions for achieving self-reliance. The crux of the economic problem turns on availablility of foreign exchange, of scarce materials, of needed capacities and of food and other consumer goods. At the very least, whatever turn events may take, the foreign exchange assumptions on which planning has been based in recent years will change in a fundamental sense. The objectives of industrial production must be redefined as clearly as possible, so that the available capacities may be put to the best use. Given these objectives and the selective approach implicit in them, the key to action is given by these four words: Improvise, Adapt, Substitute, Conserve. It is in this context that scientists and technologists engaged in industry, in research institutions and in universities have to be drawn in a meaningful and rewarding way into the national effort. Ways have to be found for giving to many thousands of them working in teams specific problems to solve. Tasks facing each industry and each branch of the economy have to be broken down, the existing knowledge and resources assessed and, in accordance with clear schemes of priorities, all the available talent put to work. The truth is that there is even now an extraordinarily large unused or partially used reservior of ability and knowledge in the country. To the extent this reservior is drawn upon effectively, it will grow and add to national wealth. This is also a time to consider calling back to India many of the scientists, technologists and other specialists who are still serving abroad. They should be offered worthwhile opportunities to work in vital tasks at home. This thought has come up from time to time, but there is need for a new approach and one supported by the necessary organisation and flexibility in administrative and financial procedures.

(*Continued on Cover III*)

The stultifying and dangerous dependence on food imports must end—and it will be done

Self-Reliance in Agricultural Production

V. K. R. V. RAO, *Member, Planning Commission*

It is not befitting either the dignity or self-respect of a nation with a total cropped area of nearly 390 million acres and a net irrigated area of 70 million acres to be an importer of food-grains. The position becomes worse when it is remembered that even with imports, the availability of food in nutritional terms is much less per head in India than in many other countries with a much smaller area under cultivation. That after fifteen years of planning India should still find herself in a state of dependence on foreign supplies to keep her food economy going is not a matter of pride to the planner. Above all, it is a matter for profound regret that the bulk of the food-grains we import from abroad is not even paid for by us from our free foreign exchange resources but comes as a gift and a loan under various PL 480 provisions from the United States. Recent events have brought in a new dimension to the problem and faced the country with the possibility of a break-down in its food supplies at a time when she is fighting for the very survival of her sovereignty and maintenance of the secular, democratic and socialist ideals of her polity. In the circumstances, it is not surprising that both the national leadership and the Planning Commission have declared that food production should command the highest priority in our plans for economic development and that India must reach self-sufficiency in food at the earliest possible moment. Can we do it ?

I have no doubt in my mind that India can attain self-sufficiency in food if only she really makes up her mind to do so and is willing and able to put through the necessary policies and programmes for increasing her agricultural production. While it is true that Indian agriculture still continues to be a gamble in rain it is also a fact that she has perhaps the largest irrigated area in the world, and this becomes still larger if minor irrigation works are also taken into account. The average yields per acre in India are among the lowest in the world. But this is not due to the infertility of the soil or any technical impossibility of increasing production. It is due to the fact that we are not making the best use of the secure supplies of water that our irrigation system has provided us with. It is due to the fact that the efficiency of our minor irrigation works is at a low level because of the comparative absence of rural electrification for drawing water from our wells, tanks, rivers and rivulets. It is also due to the fact that our soil does not get replenished through the use of chemical fertilisers nor our crops protected by pesticides. It is also the result of our using seeds of low germinating quality, our failure to use hybrid seeds with high yield potentialities, and our sticking to seeds that are not capable of standing high fertiliser doses and therefore incapable of recording significant increases in yield. Our agricultural implements are still, generally speaking, of the primitive variety used by our ancestors during the days of the Ramayana and the Mahabharata. Our agricultural practices are still largely of the pre-scientific age and our system of crop-rotation prior even to the European agricultural revolution of the eighteenth century. The destruction even of a part of the food we grow by rats, rodents, birds, and bad storage adds to the dismal tones of the picture that I am drawing of Indian agriculture.

The dark shades of the picture grow more bleak when we look at the state of our animal husbandry and our failure to use the large potential of fisheries that our long coastline and our abundant supply of inland water areas give us. Surely, there has been something wrong with India if she has allowed these facts to continue in spite of the pressing national necessity both for more food and for freedom from dependence on imports.

Potentialities of Doubling Output

I feel overwhelmed by the magnitude of the indictment I have made of ourselves as a nation. I feel even more appalled at the implication this has on the success of our planning and the efficiency both of our planners and the implementation of the plans. But there is no need to despair. On the contrary the very facts that I have given show the vast potentialities that exist for doubling and even trebling our agricultural production. And when it is remembered that our food deficit at current levels of consumption is less than 10 per cent it should be a matter of comparative ease to make up this deficit.

Not only are our potentialities much above our immediate or even longer-term requirements, but we also know what is wrong and therefore what should be done to right the position. And we have been trying also to apply the right remedies, even though our efforts in this direction have not been adequate or sufficiently efficient to meet the needs of the situation. Thus during the fifteen years of our planning we have increased our production of cereals by 30 million tonnes. The index of agricultural production as a whole has been showing an average annual rise of more than 3 per cent. But population has been growing at the rate of 2.2 to 2.4 per cent a year, the base levels from which we started have been sub-standard from the point of view of nutritional requirements, and our distribution system has been unable to cope with the growing requirements of food in a developing economy. Hence it is that in spite of a considerable measure of success in absolute terms in the agricultural field, we continue to depend on imports and live from hand to mouth in regard to this most basic necessity of human existence.

What the food situation of India clearly reveals is not that we have done nothing to cope with it but that we should do far more than we have done so far, and do that with more vigour, more systematic planning, and a better sense of basic priorities.

Beginnings of a National Movement

This is precisely what we are now trying to do. The Fourth Plan centres on the fulcrum of self-reliance and and our highest priority is the maximisation of food production. Recent events have been a blessing in disguise, for they have made the country much more conscious of the need to solve our food problem even for national survival. The national will to become self-sufficient in food not only in terms of current consumption but also in terms of better nutritional standards has now begun to emerge in unmistakable fashion. Government, planners, and the public are all beginning to combine in one great national movement for self-reliance and self-sufficiency in food. The climate is now right for attempting a great leap forward in our agricultural production.

But mere will is not enough. What is needed is better planning and more efficient implementation. This is precisely what the Planning Commission is now trying to do. I outline below in summary form the main elements of the new agricultural planning with which we hope the country will move towards self-reliance and self-sufficiency in food:

(1) It is not enough to go in for more irrigation or increased supplies of water for agricultural purposes. It is also important to see that our water supplies are put to the most efficient use. Water management is now recognised as a 'must' in agricultural technology. Water management has to be accompanied by suitable systems of crop patterns and crop rotation, use of high-yielding seed, application of adequate and appropriate quantities of chemical fertilisers and pesticides, and adoption of improved and scientific agricultural practices. This is now being attempted in the I.D.P. and the I.A.D. districts; and attempts will be made to step up both the coverage and the efficiency of these programmes during the Fourth Plan period. In addition, special area development programmes will be undertaken in the newly irrigable command areas with a view to getting the best economic returns from the supplies of water newly made available.

(2) Special 'crash programmes' will be undertaken to utilise the irrigation potential created by the major and medium irrigation works by planned reduction of the time-lag between potential and utilisation. Simultaneously, attempts will be made for reducing the time span between the start and completion of major and medium irrigation works.

(3) More systematic attention will be paid to the stepping up of the efficiency of minor irrigation works by the installation and energisation of pump sets, accompanied by an appropriate demonstration and supply programme of agricultural facilities and techniques aimed at maximising production. Simultaneously, attempts will be made not only to increase the number of minor irrigation works but also to see that the existing ones are kept in a proper state of maintenance and those needing repair like silted tanks, wells with lower water tables, etc., brought into a state of efficiency. All this will enable the country to get quicker and larger dividends from the investment in minor irrigation.

(4) Soil conservation is another programme to which more attention will be paid. This will aim not only at quantitative expansion but at a more scientific base, taking into account water sheds, forest areas, nature and contour of the soil, and built-in provision for both maintenance and effective utilisation of the area taken up by the bunds.

(5) Seed is another, and. in some ways, a most important component in the agricultural planning that we are undertaking. Hybrid jowar, hybrid bajra and hybrid maize are all capable of bringing about substantial increases in. yield; they are also the crops whose greater efficiency will improve the economic conditions of our smaller and poorer farmers. Recent experiments have shown that certain foreign varieties of wheat and rice like the Mexican Senora 64, Lerna Rojo and V. 18 in the case of wheat and Taichung Native 1 in the case of rice are capable of bringing about large increases in yield, given water and fertilisers. Indo-Japanese varieties of paddy also promise substantial results. Attention will therefore be concentrated during the Fourth Plan period on a comprehensive seed programmes, including its multiplication, certification and utilisation, especially in areas where the availability of water and the supply of fertilisers make it possible for them to reach their maximum potential yields. The possibilities of this programme are seen from the expectation of an additional productional of 25 million tonnes by its application to an area of only 32.5 million acres during the Fourth Plan period.

(6) Fertilisers of course constitute the most important input for a massive increase in agricultural production. The Fourth Plan therefore contemplates a substantial stepping up in the use of chemical fertilisers to the tune of more than 3 to 3½ times the level reached at the end of the Third Plan period, and along with it the application of appropriate quantities and varieties of pesticides.

(*Continued on Page 41*)

DOMESTIC PRODUCTION PROVIDES 13.2 OUNCES PER PERSON PER DAY. IMPORTS ADD ONLY 1.3 OUNCES. THE NATION SHOULD BE PREPARED TO LIVE WITH ITS OWN PRODUCTION. AND THIS CAN BE DONE—WITH SOME DISCIPLINE AND A CLEAR POLICY OF PROCUREMENT AND DISTRIBUTION

WE CAN LIVE WITH THE FOOD WE GROW

Firm Policy and a Little Sacrifice Needed

M. L. DANTWALA, *Chairman, Agricultural Prices Commission*

NEXT to the requirements of defence, an uninterrupted flow of food grains to the consumers in adequate quantities and at reasonable prices assumes critical importance during the emergency. For the last few years, the food situation has been difficult. Production has not kept pace with the rising demand. The substantial increase of nearly 8 million tonnes in food grains production during the current year was not sufficient to bring down prices. The coming Kharif crop may not be on par with the last year's crop. It is, therefore, imperative to be thoroughly prepared to be able to cope with any further difficulties which an emergency may impose. If it comes to it, the nation should be prepared to live with its own domestic production; and, as we shall see with the help of a few facts and figures, this can be done. All that is needed is a firm food policy, voluntary discipline and some sacrifice on the part of the producer as well as the consumer. But the sacrifice involved will be only a fraction of what our armed forces make on the battle front.

The per capita availability of cereals in 1964-65 from net domestic production was 13.2 ounces per day. This was no more than what was similarly available in the year 1961 and 1963. During the two intervening years the per capita availability was smaller. During all these years we have depended upon substantial imports, particularly of wheat, to supplement the domestic production. As a result of the imports, the per capita availability in 1965 increased from 13.2 to 14.5 ounces per day. The increase through imports thus amounts to only 1.3 ounces per day per capita. In the aggregate the imports amount to substantial quantities, but if we can manage equitable distribution of the domestic supply, the cut in consumption would be only marginal. We hope that the imports will be maintained, but it would be wise to utilise them for building up buffer stocks which will enhance our capacity to withstand any deterioration in the situation.

The statistically calculated average per capita availabilities are, however, poor consolation if they do not become realities in every region and for every person in the country. The regional pattern of production obviously does not match regional requirements; and even the regional availability does not necessarily get equitably distributed over the entire population of the region. The latter phenomenon is not uncommon even in normal times. But in the context of shortages, unequal distribution entails serious consequences.

The basic objective of food policy must be the equitable sharing of nationally available supplies at reasonable prices, irrespective of variations in producion. The food policy adopted by the Government during the last few years has been directed towards this objective and has achieved a measure of success. One is aware that there is still much dissatisfaction with some facets of the policy and the results achieved. This is not the time for controversy, but a few facts may help to clarify the position.

Firstly, it is important to note that in the year 1965 approximately 60 per cent of wheat consumption—by non-producers—and 23.6 per cent of rice consumption was supplied by the Government at low and controlled prices through the system of fair price and ration shops. In the case of rice this was facilitated by the procurement of nearly 30 lakh tonnes of rice which constitutes as much as one-fourth of the marketable surplus in rice.

Secondly, it can be stated with confidence that, by and large, the pattern of regional distribution of cereals in 1964-65 broadly conforms to the pattern which prevailed during the period when the situation was not so difficult. Large quantities of rice from domestic procurement and of wheat from imports have been distributed to the deficit States to make good the shortage in their own production. Thus, the per capita daily availablity of 11.8 ounces of cereals from internal production in Maharashtra was increassed to 15 ounces and that in Kerala similarly from 5.30 ounces to 12 ounces by dispatches from other States.

By and large, therefore, the food policy which is being followed is on the right lines; what is needed is to pursue it with a greater degree of firmness, to expand its operation and improve its working.

The Food Minister has already announed that, in view of the emergency, all cities with a population of a lakh and above should be statutorily rationed. This would require, on the basis of 12 ounces

per day per adult, an assured supply of about 59 lakh tonnes—25.1 lakh of rice and 33.9 lakh of wheat. Besides this another 20 to 25 lakh tonnes would be required for other urban areas. If wheat supplies are to be cut owing to the reduction in imports, or the building up of buffer stocks, some cut in the overall ration and an increase in the rice componet would become necessary. Hitherto no serious attempts have been made to procure wheat and coarse grains from domestic production. It is time this is now attempted in all earnestness. It should be our aim to acquire 10 to 15 lakh tonnes of wheat and about 40 lakh tonnes of rice during the ensuing season. If the crop during the next year is not as good as the current year's crop, procurement of these quantities will necessitate a greatly improved system of procurement and the understanding co-operation of the producers. Hitherto procurement has been by and large on a voluntary basis.

In several States stocks were acquired either from the rice miller or from the trader. It will now be necessary to establish direct contact with the producer. He is after all the source of original supply. If a proportion of his produce is needed for national purpose, the Government should approach him directly rather than through any intermediaries. The small producer who produces no more than what is needed for his domestic consumption should be exempted from the levy. Correspondingly, the larger growers will have to deliver a larger proportion of their produce.

Procurement implies a fixed price and this price should be fair and reasonable by reference to the price in the ration shops. The Government has accepted the principles of guaranteeing minimum support prices to the producer. The procurement prices and the ruling market prices would be higher than the minimum support prices. This is no time to demand still higher prices for food grains. Any large-scale subsidising of consumer prices will be equally inappropriate. Heavy defence expenditure tends to be inflationary. Every attempt must therefore be made to keep down the prices consistently with efficiency of production and the need to augment it.

Under the scheme of compulsory graded levy, if it does not amount to monopoly procurement, the farmer will be free to sell the rest of his marketable surplus in the open market. It is here that the trading community has to assume the responsibility of maintaining the price line. It would be most graceful if this responsibility is discharged through voluntary discipline. The administration today has many more vital tasks to attend to; and it would be unfortunate if it is required to divert its energies to regulating the trade. Temptations to profiteer would be many and too trying to resist. But they can be curbed by the thought of the suffering and sacrifice by our men in the armed forces in protecting our life and liberty.

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We should change the pattern of our metal consumption and also learn to use what is now being wasted

NATURAL RESOURCES AND THE EMERGENCY

Fuller Use of Water, Mineral and Forest Wealth

M.S. THACKER, *Member, Planning Commission*

INDIA'S resources of ground water, minerals and land are ample. Under the Plans, we have been giving attention to their development, and also to the augmentation of such resources as are found to be deficient in relation to the nation's requirements. But much more is to be done. The present emergency underlines the need to make the country free from undue dependence on others.

Ground Water

Water is an important natural resource. Food production, pressure of industrial development, expanding population and the desire for security and higher standards of living demand that we devote greater efforts to rapid and efficient development of our water resources.

Ours is a predominantly agricultural economy, and the major use to which our water resources are put, and rightly, has been irrigation. But rapid strides are now being made in industrial development and problems of water supply for industrial use have already arisen in several industrial areas of the country. It becomes increasingly important that assessment be made of total water resources, surface and ground-water, and their use planned after taking a long-range view of the overall requirements.

With the increasing demand for water in various developmental activities, ground-water sources have to be surveyed and investigated, besides readily available surface water. Even earlier also, need for ground-water exploration was recognised. In the pre-Plan period (1950-51), out of the total irrigated area of 51.5 million acres in the country, 14.7 million acres were irrigated by ground-water. This figure had increased to 16.7 million acres by the end of the First Plan and 18 million acres by the end of the Second Plan and is still increasing.

Two organisations of the Central Government, namely the Geological Survey of India and the Exploratory Tubewell Organisation of the Ministry of Food and Agriculture, are engaged in the ground-water exploration work. They have already proved about 37,000 square miles as ground-water worthy and further work is in progress but it has to be greatly intensified.

Minerals

Coal is one of the most extensively available natural resources of the country. Since its main competitor in the field of fuels is oil, of which a large component is at present imported, it becomes essential that ways should be found to utilise coal and its products wherever possible to substitute for oil and other materials required for defence and agricultural purposes.

The reserves of non-coking coal are large in comparison to that of coking coals. Future industrialisation of the country must also necessarily be based on utilisation of the non-coking coals. Integrated projects based on utilisation of the non-coking coals, as well as the smalls, should form the basis for production of most of the vital requirements of the country, namely, fertilisers, chemicals, domestic fuel, metallurgical fuel for pig iron production in low shaft furnances, and so on. Furthermore, one-third of the production of coal is in the form of fines and positive steps should be taken to utilise them for gasification and for the production of nitrogenous fertilisers. Certain break-throughs in several of these lines have been made and large-scale investments are now required to develop the process to a stage of commercial application, so that it may meet both the emergency requirements and the requirements of long-term development of the country. The problem of fine coal preparation is paramount, as otherwise it goes to waste.

The intricate problem of cleaning and dewatering of the minus 1 mm size coals has reasonable chances of success. A break-through appears to have been achieved by which the small non-coking coals can be used for coke making for use in metallurgy. We must exploit this commercially at the earliest moment. In the interest of both the coal industry and agriculture, a process should be developed for its application on a large scale. Another necessary measure is the setting up of a cyclone furnace for burning low rank as well as higher ash fuels;

this will be of great significance to the coal and power generation industries.

The Geological Survey of India and the Indian Bureau of Mines are exploring the known deposits of copper, lead, zinc, etc. by drilling and searching for new ores. Some additional reserves of copper have been proved in the ancient workings in Bihar and Rajasthan. Because of the limited nature of known reserves of non-ferrous metals and consequent need to prevent heavy drain on foreign exchange we must resort to substitution of the important metals. Aluminium, of which, fortunately, we have large reserves, has a vital role to play in this matter.

To meet our shortages of metals we should change the pattern of our metal consumption by substituting what we have in abundance for what we do not.

We are seized of the problem of substitution of the scarce non-ferrous metals and headway has been made in the electric cable field. Copper is being replaced by aluminium in the manufacture of overhead lines and underground cables. Much greater efforts can be made in this direction.

A number of electric motor manufacturers have started using die-cast aluminium rotors in place of rotors with copper strips. This process of substitution can be extended to a number of other fields. Aluminium may also substitute tin in steel containers. All-aluminium containers are no doubt more expensive than tin-coated steel cans; but the saving, in weight and salvage value, may compensate the difference in cost. The use of zinc and lead in white paints can be avoided by substitution with titanium dioxide, a product from ilmenite which is available in plenty in Kerala and Madras. There is already a factory in Kerala which manufactures titanium dioxide. Its capacity is insufficient to meet the demand, and it should be expanded not only for meeting the internal demand, but also to export the finished product instead of the raw material—ilmenite. Titanium indeed is the metal of the future, because of its unusual combination of properties—lightness, strength and resistance to corrosion. Today it is increasingly being used in the aircraft, ship-building, engineering and automobile industries.

India's known reserves of tungsten are small, but enough to meet her present requirements for making her own tungsten steels. There are ample supplies of vanadium ore. Vanadium enables high-speed tool steels to better maintain their strength and hardness at high temperatures. In U.S.S.R., nickel and tungsten demands have been kept low by replacement with more readily available manganese, chrome and vanadium, particularly for stainless steels, tank armour and artillery-barrel liners.

Steps are under way to exploit the Amjore pyrites, rich in sulphur, for the manufacture of sulphuric acid, which would reduce our dependence on imported sulphur. To the same end, it has been decided to concentrate on the manufacture of nitrogenous and phosphatic fertilisers without or with limited use of sulphur. The recently discovered deposits of fluorspar in Gujarat and Rajasthan should be developed to meet the demand for use as flux in steel-making and as raw material for manufacturing hydrofluoric acid, essential to the aluminium industry.

MINERAL SUBSTITUTES

Mineral Commodity	*Substitutes available in India*
Antimony	Titania, Zirconia, plastics
Arsenic	Organic compounds
Asbestos	Glass fibres, synthetics*
Cobalt	Manganese, lead, iron
Copper	Aluminium, stainless steel
Diamonds	Synthetics, silicon carbide
Graphite	Synthetics
Lead	Plastics, aluminium, titanium, Zinc, synthetic resins, magnesium
Nickel	Chromium, aluminium, manganese
Phosphate Rock	Basic slag
Platinum	Gold, other platinum group metals
Tin	Glass, paper, enamels, aluminium zinc, plastics, lead
Tungsten	Titanium carbide**
Zinc	Ceramics, plastics, aluminium magnesium, lead, titanium

*Substitution is potential or experimental.

**Substitution is of lim ted scope or inferior in performance.

Since the last World War, scrap metal trade has greatly expanded, thus preventing considerable wastage of metals. The scrap is derived from the processing and fabricating plants and also from discarded articles finding their way to junk-heaps. India, like other countries, should make increased uses of scrap for the conservation of metals. In U.S.A., for example, the amount of lead now produced from scrap is twice that of the mineral product. Of antimony, about 57 per cent is of secondary origin, being mostly derived from old automobile storage batteries.

Finally India has exportable surplus of iron ore, managanese, ilmenite, bauxite, sheet mica, kyanite and sillimanite (for glass and refractory industries), talc (for special insulators), monazite (for atomic power), beryl (for fatigue-resistant copper and other alloys) and zircon (as oxide for radio tubes, etc., refractories and high temperature insulators; as metal, and in special steel alloys). These are of increasing importance in modern industries. We may, therefore, obtain from abroad supplies of other metals and materials which we lack in exchange of these.

Forests

There will be a sudden spurt of demand for construction timber, such as bamboos, poles, sawn timber and logs of small and large sizes. There will also be a demand for various timbers with specific properties for certain strategic uses. In the last War most indigenous species were tested and lists prepared of those which could be satisfactorily substituted for imported woods used for various purposes. We must take steps for determining substitute indigenous woods and also for their collection. The Forest Research Institute, Dehra

(*Continued on Page 44*)

Despite shortcomings, public sector enterprises have made an effective contribution to the economy. They must now step up efforts to make full use of capacities, develop indigenous techniques, set up ancillaries and generate financial surpluses.

PUBLIC ENTERPRISES AND THEIR ROLE IN SELF-RELIANCE

PANAMPILLI GOVINDA MENON, M.P. *Chairman, Public Undertakings Committee of Parliament*

SINCE the beginning of the First Five Year Plan, the public sector has seen a very rapid growth. From somewhat humble beginnings we have in the public sector today several giant undertakings like those producing iron and steel, oil, coal, fertilisers and electrical equipment. Besides these key industries, the public sector also produces a large variety of consumer goods and specialised items of basic and strategic importance such as drugs and pharmaceuticals, telephone, telegraph and wireless equipment, aircraft and ships. The public sector also includes internal and international air transport, shipping, certain trading and business activities, such as the work undertaken by the Life Insurance Corporation, the State Trading Corporation, Ashoka Hotels Ltd., etc.

The basic philosophy of our public sector enterprises is the building up of a socialist pattern of society. Economic considerations apart, a certain degree of responsibility is cast upon the public sector to make the economy self-reliant. If we are to progress rapidly it is also vital that we develop self-confidence, which is a sign of maturity, and break the shackles of dependence on advanced countries for every new venture. It is a matter of satisfaction that although most of our public sector enterprises are comparatively young, on the whole they have made an effective contribution towards the building up of a self-reliant economy.

Industrial Production

In 1960-61, we were producing 3.3 million tons of steel ingots and 2.4 million tons of saleable steel. At the end of the Third Plan, the production is likely to be 7.8 million tons and 5.8 million tons respectively. In 1960-61 the actual production of nitrogenous fertilisers was 97,200 tons and that of phosphatic fertilisers 53,000 tons. At the end of the Third Plan the production is likely to be 500,000 tons of the former and 200,000 tons of the latter. In 1960-61, production of sulpha drugs and penicillin was respectively 145 tons and 39.7 mill. mega units. These are only a few illustrations of the increase in industrial production largely due to the public sector.

Apart from the fact that the goods produced by these public sector industries contribute greatly to the economic development of the country they also help to save foreign exchange resources by avoiding the necessity of imports. For example, in 1950-51 when total demand for steel was 14 lakh tons our imports constituted 25.2 per cent while in 1963-64 when the demand increased to 52.8 lakh tons the imports were only 18.6 per cent. Prior to the starting of our fertiliser factories in the public sector all our requirements of chemical fertilisers were met by imports but today imports of fertilisers have been considerably reduced though the consumption has gone up from 52,000 tons in 1952 to 448,000 tons in 1962. Similarly, the imports of telecommunication equipment, machine tools, equipment for electric generation and distribution etc., have all considerably diminished.

Apart from the savings effected in foreign exchange many of our undertakings have also earned valuable foreign exchange by exports of their products. For example, the Hindustan Steel Limited exported iron and steel worth Rs 7.26 million in 1963-64. The Indian Telephone Industries Ltd. exported telecommunication equipent worth Rs 5.6 lakh during the same year.

Whenever a heavy industry is set up, a large network of other industries is automatically created. Rerolling industry, for instance, has received considerable impetus in recent years as a result of the steel plants. Hindustan Insecticides, Hindustan Antibiotics and the fertiliser factories have likewise led to the growth of chemical industries in the private sector. The oil refineries have opened up the prospects of a vast number of petro-chemical industries. A fertiliser factory, a thermal plant and a clay washing unit sprang up on the Neyveli Lignite Corporation beginning to work. Hindustan Steel Ltd. has led to the development of refractory industry.

Development of Know-how

One of the greater benefits which we have derived by setting up these great public enterprises is the acquisition of a vast know-how which is essential for building up self-reliance in our economy. There is no doubt that our engineers and technicians have been quick to acquire and develop the necessary skills in several fields from steel making to atomic energy in a comparatively short spell of time. Indian engineers can today by themselves design and construct new factories. For example, the work relating to the drawing up of project reports for expansion of the Durgapur and Rourkela Steel Plants has been handled by the Central Engineering and Design Bureau of Hindustan Steel Limited. A Planning and Development Division has been set up by the Fertiliser Corporation of India Limited for planning and developing their new projects. It has been claimed that in the field of fertiliser technology there would be nothing beyond their competence if they were able to purchase process know-how for high pressure ammonia and urea synthesis. This Division will undertake the entire work relating to the ammonium sulphate plant at Namrup.

Besides the large amount of foreign exchange that the country would be saving in consultancy fees with the development of this know-how, it will instil a sense of self-confidence in our technicians, which is vital for the efficient development of our industries. How valuable this aspect of self-reliance is will be realised from the fact that for the foundry forge project of the Heavy Engineering Corporation alone we had to pay Rs 183.68 lakh as consultancy fees. Similarly, a sum of over Rs 2 crore was paid to consultants for the preparation of detailed project reports alone for the four projects of the Heavy Electricals Ltd.

Financial Contribution

The Third Five Year Plan envisaged that by efficient conduct of enterprises and by following a rational and economically sound price policy for its products and services, public enterprises should be able to generate internal resources which should be available to these enterprises for their expansion after providing for their working expenses, normal replacements, interests and dividend.

It is satisfying to find that some of our undertakings have achieved this objective. For instance, the Hindustan Machine Tools Limited has financed entirely from its internal resources the establishment of two machine tool factories during the Third Five Year Plan period. It also expects to produce from its own resources a capital of as much as Rs 20 crore for investment in its five new factories to be established during the Fourth Plan. Similarly in the case of the Fertiliser Corporation the total resources expected to be generated by their production units over the Third Plan period are stated to be of the order of Rs 41.32 crore after payment of interest of Rs 5.16 crore on loans from Government. These resources are being utilised for the development of new projects and expansion schemes.

The Future

No one would claim that the public enterprises are working at maximum efficiency. They have several shortcomings which are perhaps inevitable in a developing country where new skills have to be acquired and techniques perfected. By and large, however, it must be said to their credit that they have achieved considerable success in fulfilling their objects. There is, however, much scope for improvement. It is my view that with greater attention both at the Government and the project level a greater contribution could be made by the public sector enterprises in building up a self-reliant economy.

The Estimates Committee and the Public Undertakings Committee of Parliament have had the privilege of examining several of these undertakings and in their reports they have pointed out several shortcomings like delays in starting of the projects, non-achievement of rated capacities, etc. Similarly, we have missed several opportunities of utilising Indian know-how and have preferred foreign collaboration. In the matter of generating financial surpluses also, better results could have been possible had the enterprises worked at optimum efficiency. In the matter of setting up of ancillary and auxiliary industries and developing indigenous capacity for plant and machinery also, perhaps much more could be done. But there is no doubt whatever in my mind that we are proceeding on the right lines since all the public enterprises are showing a keen awareness to improve their working efficiency and learn from experience.

Yojana Bhavan Diary

The Planning Commission met on September 22, 25 and 26 to consider special food production drive in view of the emergency.

On September 20 the Rural Industries Programme Committee met to discuss the administrative and technical problems and the future pattern of the Rural Industries Projects Programme for the Fourth Plan. Mr. Asoka Mehta, Deputy Chairman of the Planning Commission, presided. Besides the members of the Committee, Mr S.K. Dey, Union Minister for Community Development and Co-operation, and Mr T.N. Singh, Union Minister for Industry, also attended.

The Programme Evaluation Organisation's computer centre with four sections was formally inaugurated by Mr Asoka Mehta in Yojana Bhavan on September 23. The cost, amounting to Rs 23 lakh, is a grant by the Ford Foundation.

An eight member committee for parent-teacher participation to promote public co-operation in education has been set up. Prof V.K.R.V. Rao, Member, Planning Commission, will be the chairman and among the the members are Dr S. N. Saraf, Director (Education), and Mr H.K.D. Tandon, Director (Public Co-operation), Planning Commission.

A meeting of the members and staff of the Planning Commission was held on September 20 to express grief at the death of Mr Balwantrai Mehta, Chief Minister of Gujarat.

Women employees of the Planning Commission have started weekly collection of funds as well as gift articles for jawans.

Self-rule is incomplete, indeed insecure, without self-reliance. We have all the elements and resources for a solution of the problem. It is only a question of will and organisation.

SELF-RELIANCE IN INDUSTRY

Maximum use of capacities, skills and the faculty of improvisation

S.G. BARVE, *Member, Planning Commission*

In the light of the new situation facing the country, it is obviously necessary to take a second and hard look at the programmes of industrial development that we may take up in the immediate future. One thing, however, may be said straightaway. While a great deal more still remains to be achieved, the new situation calls for *an intensification* and *quickening* of trends already being developed, rather than any sort of breaking away from such trends. The new emergency only reinforces the need for an intensified drive towards self-reliance in industry which has already been an outstanding feature of our Plan strategy at least since the commencement of the Second Plan period. Many steps have already been taken towards development of economic self-reliance. Consider, for instance, the case of steel or of oil or of machine-building capacity or of transport and communications equipment or equipment for the generation of power. In all these vital fields, we have taken big strides in the last eight or ten years.

When foreign aid shipments were threatened to be stopped during the war, Pakistani spokesmen felt horrified at the prospect. India has an 80 per cent indigenous defence potential, they said, against 20 per cent of Pakistan. That was testimony to the basic soundness of India's planning policies. We had not chosen the easy way of only expending production of consumer goods although this also has by no means been stationary. Our main effort, however, has been towards planning in depth, that is to say not merely towards increasing the production of wealth but also towards building up a greater capacity and a wider base of *the means of production* of wealth.

Steel is the sinews of modern industrial development. Over the last eight years, we have been steadily plugging away at a programme which in the perspective aims at attaining a gross steel production fully adequate to cope with the growing demand of steel over the years. We are already now going into the more sophisticated lines of special steels and alloy steels. Special steels have a great significance for the development of a wide variety of the more advanced engineering goods—automobiles, electrical equipment, refrigeration equipment, pressure vessels and so on.

We are now producing something like a third of our requirements of crude oil. This new development in oil exploration commenced only in 1957. If we go on steadily developing, as we have been doing, to the full extent of our potential and physical possibilities in regard to oil exploration and exploitation of oil resources, we would attain a rapidly increasing measure of self-reliance. In the recent emergency, on taking stock of the position, we could reach the comforting conclusion that at a pinch, should all imports even be stopped (which was unlikely), we could carry on in the country for our defence and essential requirements for months ahead and even indefinitely.

We have built up a great deal of machine-building capacity in the recent years. I shall cite only a few illustrations. We now make the bulk of sugar plant machinery, cement machinery, textile machinery, the normal range of machine tools, diesel locomotives, wagons and coaches, bicycles, fans, sewing machines, electrical pumps, and lots and lots of other things.

In consumption goods, we now make a wide range of our normal requirements, sugar, cement, paper, the whole wide range of rubber goods, drugs and pharmaceuticals, cellulose fibres, etc.

Dimensions of Self-Reliance

The issue of self-reliance must be considered in its several dimensions. First, there is the question of producing consumer goods including durables, most of which we can make ourselves now. It may be that the total production of some of these may not be, and indeed is not, large enough; however, there is no question about our capability for producing these. It is now only a question of time and adequate investment resources.

The next and far more important dimension of self-reliance is machine-making capacity. In this dimension of self-reliance also, considerable progress has

been made; further big strides are contemplated in the next five years. Thus, power equipment capacity, that is, turbines, boilers, transformers, switchgear, etc. to be established in the Fourth Plan would bring us virtually to a level of self-sufficiency. Thereafter, practically all our requirements for additional power could be found indigenously.

Take transport: In wagons and coaches we are already self-sufficient and indeed have a potentiality for export. We make diesel and electrical locomotives even today, but the imported components are rather high. We should reach 70-80 per cent self-sufficiency by the end of the Fourth Plan in this important field.

We are putting up large capacity for fertiliser production so as to be self-sufficient in fertilisers in the next three or four years. We must, however, look further ahead and develop capacity for putting up one or two new fertiliser factories ourselves every year steadily thereafter. We are planning to develop this capability by the end of the Fourth Plan.

We make about half of our requirements of machine tools today. By the end of the Fourth Plan, we should reach about 75 or 80 per cent in both volume and variety.

Today automobiles are made indigenously in India and the indigenous content is 80 or 85 per cent already.

We make diesel engines, electrical pumps, compressors, motors, lifts and most of the constructional equipment. There are certain deficiencies and inadequacies as in gear-making capacity, making of heavier cranes, making of larger compressors and pumps and pressure vessels. These gaps in machine-making capacity are being identified and we are hoping to fill them up by the end of the Fourth Plan.

Importance of Designing Talent

There is yet another dimension of self-reliance. We must develop not merely machine-building capacity but an adequate indigenous level of technological competence both in producing final products and in setting up plants.

Maybe we can do a third of a steel plant indigenously today. By the end of the Fourth Plan, we should be able to do 50 per cent or even more. I do hope Government will be in a position to decide to entrust to our own engineers the full designing and setting up of the sixth steel plant. We must be prepared to allow our technologists even to make mistakes.

We are now putting up petrol refineries with foreign collaboration. This is a new field and, of course, we need this assistance. But we must simultaneously build up the designing and engineering capability to put up future refinery units ourselves. The Oil and Natural Gas Commission are alive to this and are moving in that direction. Likewise, while for the crash programme in hand we must get our fertiliser factories built with imported know-how, we must simultaneously develop not only the engineering capacity to fabricate such plants ourselves but also the design and process know-how to plan new factories and work them.

Design and consultancy agencies are being built up; the National Industrial Development Corporation, the Fertiliser Corporation, the Oil and Natural Gas Commission, Hindustan Steel Limited are developing the design and consultancy expertise in their respective fields. In the private sector also, similar technological abilities are being constantly developed.

I must confess that we have been a little too prone to rely upon foreign collaboration and a little over-ready to avail ourselves of foreign aid just because it was forthcoming. A chastening of outlook in these matters is all to the good, I think. It will not only not slow down progress but in fact accelerate it and place it on a surer footing. There is a great deal of scope for utilising our industrial capacity and drawing on our indigenous capabilities of technological skill. Indeed some of the capacity is idle or under-utilised. It is not a bad thing that we will now be thrown back on ourselves to a greater degree.

Role of Foreign Aid and Exports

Of course, I do not advocate an economy of siege—or an economy of isolation without foreign aid. But foreign aid must be like a walking stick and not like a crutch. With the foreign aid that is already committed and in the pipe-line and given a reasonable modicum of flow to supplement it in well-chosen directions for a while, we can attain an adequate degree of self-reliance within a short time. I, therefore, do not take a tragic view of the situation at all. In fact, I look upon it as a challenge and an opportunity.

We are a large country with a very wide spectrum of nature's endowments by way of natural resources. Barring a few things like some non-ferrous metals, sulphur and phosphorus and a few other things, we possess resources for practically everything else which a modern industrial community needs. Self-reliance is, therefore, a thoroughly practicable objective for our economic policy.

However, self-reliance does not mean self-sufficiency. No country in the world produces in normal times everything that it needs. In fact, as industry develops and as prosperity grows, the volume of trade also increases. The imports of the country do not diminish but in fact grow with the growth of industry. However, self-reliance does mean two things: that in an emergency we should be able to carry on our own for the necessary length of time; secondly, that for your requirements of imports you would earn the necessary foreign exchange by an adequate volume of exports and should be able to procure these through the normal commercial channels and not be dependent upon foreign loans or aid for the purpose. Foreign investment within the terms of the national policy is welcome as an addition to the pool of investment resources available because while it comes it helps quicken development. Its cessation should, however, not mean a drying up of imports, without which the economy would grind to a standstill.

If imports normally are likely to increase with the growth of industry, how would the country's foreign trade be balanced? A healthy industrial growth should

(*Continued on Page 22*)

The lesson of the war is that eve
country must be ready to defend its rights—alo

The Fight Has Strengthened U

K. C. PANT, M.P.

ALTHOUTH the cease-fire that has come into effect is uneasy, we might take the opportunity first to express the admiration and pride of the whole nation for the valour and heroism of our armed forces; secondly to draw up a quick balance-sheet of the last few weeks; and thirdly to lay down broad guidelines for action during the difficult weeks to come.

Military pundits of the West had predicted that with better armour and aircraft and better training, the Pakistan army had an edge over our Army. Their armour was indeed better; so perhaps were their aeroplanes. But man to man our forces have proved their superior mettle, even though our army was fighting with one hand tied behind its back.

This war was not of India's choosing and we had made it clear from the very beginning that it was not our objective to destroy Pakistan or humiliate it. Militarily, our objectives were to defend ourselves against aggression, destroy enough of Pakistan's war machine to discourage recurrence of aggression, and to demonstrate conclusively to the world that the Kashmir issue cannot be settled by force. These objectives we have achieved.

Pakistan's objective was to annex Kashmir through surreptitious aggression. In this it failed miserably and, in the process, exposed the hollowness of its claim to the support of the people of Kashmir. Pakistan's designs were thwarted by the patriotism of the Kashmiri people and the prompt action of the Jammu and Kashmir Government.

Having failed in this attempt Pakistan resorted to open aggression and President Ayub spoke of a war to the finish, while "hatchet-man" Bhutto sopke of "war for 1000 years". China staged a wholly artificial drama to demonstrate its support for its new-found friend. In the end, both Pakistan and China had to climb down.

Stronger in Our Ideology

So we have reason to be satisfied with the outcome, and not only in purely military terms. The Indian nation has been immeasurably strengthened by this baptism of blood. It has emerged with greater faith in itself, a clearer sense of purpose and direction and a firmer commitment to its basic principles. Many interested persons abroad have tended to play down India's success in establishing a secular democracy. They have always insisted on referring to "Hindu" India merely because Pakistan left them with no choice but to call it "Muslim". In the same way they loved to play up the divisive forces at work in India. Well, the people of this country have given them a categorical answer. When it comes to defending the territorial integrity of the country, every Indian, regardless of his religion or language, regardless of his political affiliations, is an Indian first and an Indian last. Those who expected to see communal riots in this country have been confounded. Unity on the home front has been our greatest political triumph.

Pakistan has no *locus standi* in Kashmir. If it nevertheless presumes to lay claim to Kashmir, it is only because of its Muslim population. Eighteen years ago, when the cou try was divided on the issue of r ligion, it might conceivably have be possible for Pakistan to buttere its case by casting doubt on Indic secularism. But there is no roo for doubt today. Even those wl espouse Pakistan's cause must co cede that secularism is a reality India. What is, then, their ain Do they want India to abandon efforts to build a modern state me ly because Pakistan cannot outgr the mentality, approach and ou look of the middle ages?

Dynamic Diplomacy

In this context, there is great ne for a vigorous diplomatic offensi to explain our case. Pakistar attack and its unholy alliance wi China must be exposed. I feel th special envoys should be sent abro to the nerve-centres of world opini to project our case properly. V have a powerful case. It must n suffer by default.

Both Pakistan and China have do their worst and we must keep u our guard against both. As far Pakistan is concerned, we must ma it clear in the coming negotiatio regarding withdrawal of armed pe sonnel that we will not revert to position which exposes us to anoth attack. Both the U.S.A. and the U.I failed to curb Pakistan's aggressi designs. Had the U.S.A., in tern of President Eisenhower's assurance been firm with Pakistan when Paki tan used American tanks in Kutc Pakistan may not have dared i adventure in Kashmir. Had tl U.N. been prompt to expose Paki tan as the aggressor in terms Gen. Nimmo's report, it may ha chastened Pakistan and curbed i However, that was not to be.

Looking to the future, we may expect to be subjected to pressure to come to a political understanding with Pakistan. The argument may be used that only then can we fight China. That we must think in terms of a clear-cut policy to contain China goes without saying. That we would welcome a friendly and strong Pakistan as neighbour need not be doubted. But we must make it clear now and here that we are not prepared to give up our vital interests—that we will not be bullied or pressurised into giving up strategic military gains in Kashmir except perhaps in lieu of political gains we consider worthwhile. This should be the clear guiding principle of our negotiations with Pakistan and the U.N. Another point of principle on which we should insist is that the agreement between Pakistan and China under which Pakistan ceded Kashmir territory to China must be annulled.

Lesson—Self-Reliance

This war has shown us that when the chips are down, every country must be prepared to defend its rights —alone. The three weeks of fighting have driven home the importance of self-reliance and now we must reappraise all our policies in the light of the lessons learnt. Even though it may mean a great deal of sacrifice we must aim at producing sufficient armaments as early as possible. The new spirit which has been created must be directed into constructive channels. Let us step up production all round and build up our second and third lines of defence on a permanent footing. We must not slide back into the old ruts.

India must also give fresh thought to the question of producing nuclear weapons. We have the raw materials; we have the scientists and the know-how; we have most of the equipment. Till China exploded an atom bomb, India's policy to refrain from producing its own nuclear weapons was understandable, perhaps also desirable and wise. India also appreciates the Big Powers' anxiety to prevent proliferation of nuclear weapons. But the question is: Can India expect the Big Powers, which stand helplessly by while China openly and insultingly takes advantage of India's military preoccupations on another front, to risk their cities if and when the Chinese war-lords drop an atom bomb on India ?

Can India expect the U.N., which is afraid to differentiate between the aggressor and his victim, to intervene? Today China is not a nuclear threat, but it is bound to become one in the matter of a few years. Will India then resign itself to living under the shadow of this dark, unspoken threat? If India is to achieve its destiny, it must not live in weakness and fear; it must be a source of strength for all who cherish freedom and oppose tyranny.

Let us remember Mahatma Gandhi's words. This is what he said :

"I am a man of peace. I believe in peace. But I do not want peace at any price; I do not want the peace that you find in stone; I do not want the peace that you find in the grave. Where there is only a choice between cowardice and violence, I would advise violence."

Self-Reliance in Industry

(*Continued from Page 20*)

develop a corresponding export potentiality to pay for the imports that would accompany the growth in industry. It is this failure to develop an adequate export potentiality with its growth which is the real weakness of our recent industrial development. A review of policies bearing upon this complex issue is undoubtedly one of the prime requisites in the wider context of a policy of self-reliance.

Today we are in the transitional stage of industrial development. The problems are relatively easy both when a country is fully undeveloped or when it is fully developed. When a country is fully developed, the setting up of a new factory presents no problems. You engage the necessary consultancy services, order the necessary equipment and facilities, sometimes purchasing items of machinery even off the shelf, assemble them on the site and there goes the factory! On the other hand when you are completely undeveloped, there is no alternative but to order out the complete plant from abroad and to entrust a turn-key job to your foreign consultants. The real difficulties are met with when you are in the transitional stage; when you can make some of the components but not the entire machine; or some of the machines but not all those which are needed for the plant; or do not possess indigenously the process know-how; or have not yet built up the consulting, designing and engineering capability for putting up a complex plant such as a fertiliser factory or a steel plant. There are all manner of difficulties to be faced in this situation: foreign technical collaborators, whom you must engage because you have not got the technical know-how, frequently impose conditions which, apart from their royalties and fees, entail wholesale importing of machinery where only a few components would have done; entire plants even though some of the machinery could be supplied indigenously and so on. If you are also dependent upon foreign assistance, this may not be available in free foreign exchange and you may be forced to accept the technology and equipment available only in the aid-giving country and so on. India happens to be in this stage at the moment. There is no alternative to it but to press on with the job deciding each case as much to the national advantage as possible, using indigenous technologies and machinery even if it may not be quite up to the mark. The situation calls for a spirit of enterprise and daring combined with a full rapport between the organisational and the technical levels.

Swarajya is incomplete and indeed insecure without 'swavalamban'. There is no question about private and public sector in this context. Economic self-reliance appertains to the national sector as a whole. Industrial capacity, technical skill and the faculty of improvisation must be identified and put to work wherever found. We have all the elements and resources at hand for a solution of the problem. It is only a question of will and organisation.

A CENTRAL AUTHORITY NEEDED TO LOOK AFTER PRODUCTION FOR DEFENCE

K. B. MATHUR, *former Chairman of the Railway Board and of Bharat Heavy Electricals*

WE have just passed through a terrific phase of military operations against Pakistan's aggression. Ceasefire has since been implemented. But the Chinese are still massed on our borders in a threatening posture. Collusion between Pakistan and China in their nefarious designs has been established beyond doubt. Their further moves are utterly unpredictable. It has also been amply demonstrated that we cannot rely upon the Western countries for maintaining our supplies during an emergency. This is a serious weakness in our defensive arrangements. In such a predicament we cannot rest on our oars and must as a measure of urgency make an earnest bid to develop self-reliance.

Luckily, the combined apparatus available in our civil and defence factories has an extensive potential, capable of being turned to diverse needs. It has all to be harnessed and channelled in a co-operative and purposeful endeavour with urgency and dynamism.

For the achievement of this objective, a high-level Central Co-ordination Authority (C.C.A.) should be set up under the Ministry of Industry, to sponsor and co-ordinate the entire activity, somewhat on the lines of the Directorate General of Munitions Production during the last War. A monolithic organisation is apt to get bogged down in red-tapism, lack punch and dynamism, and may prove self-defeating. A go-ahead nucleus, with a sense of purpose, supplemented by necessary aides drawn from time to time from different industries is all that is necessary. Its further evolution should rest with the developing needs.

The essential demands may be broadly classified under the following heads:

(a) Ammunition for air and ground warfare;

(b) Components and spares for the maintenance of the military equipment in good fettle;

(c) Facilities for repair and replacement of damaged or disabled equipment;

(d) Maintenance and development of the entire transport, communications and power generation equipment; and

(e) Maintenance of the supply of hardware, raw materials, medical equipment, medicines, etc. to sustain our activities.

The Defence authorities should carefully assess the gaps in their own productive potential, so that the supplemental facilities elsewhere may be regrouped and reinforced. Action somewhat on the following lines may have to be undertaken:

(a) The Central Co-ordinating Authority (C.C.A.) may quickly assess the quantum and nature of the task.

(b) The Defence Department should furnish the working drawings and detailed specifications of items which have to be farmed out to civilian workshops. If they need any staff assistance in doing so, the C.C.A. should arrange it from the available sources.

(c) C.C.A. should form representative teams of technical experts who should meet as often as required and the defence demands should be farmed out with their consultation to the various civilian manufacturing units.

(d) Technical personnel needed for strengthening the Defence workshops should be arranged from civilian sources in consultation with them.

(e) The entire resources of the country for technical training should be pooled to build up the additional force required consistent with the pattern of demand. Intensive training arrangements should be instituted accordingly.

(f) A number of mobile squads should be formed for salvaging damaged equipment from a war zone to an area in our territory close by, where reclamation and minor repair work could be attended to. Mobile workshops should also be arranged for this purpose. These should be manned by civilian staff who may be drawn from the Railways out of their extensive nucleus of accident gangs, or motor mechanics and other sources. Major repair works may be entrusted to nominated Railway workshops. A well thought-out scheme for this purpose should be kept handy for implementation at short notice.

(g) To supplement the manufacture of shells for heavy guns and bombs etc., the task may be entrusted to one or two Railway workshops as was done during the last War.

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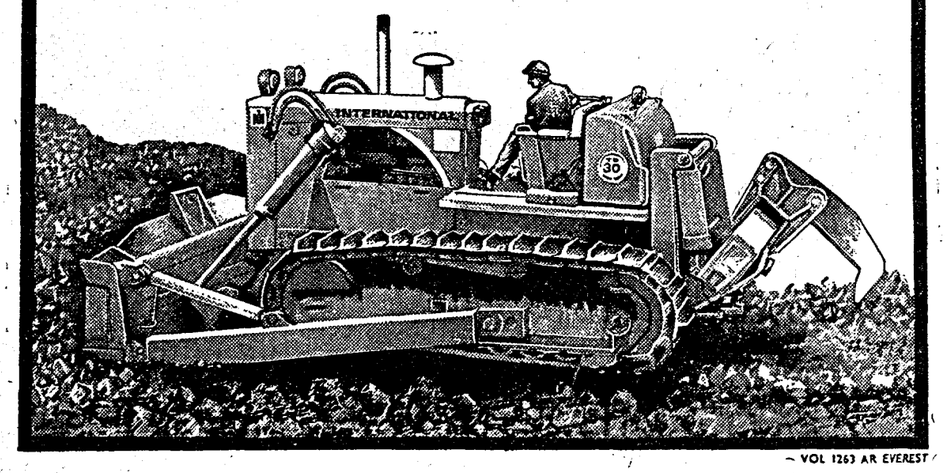
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(h) The manufacture of some of the components involving alloy steel castings may present some difficulty. Considerable knowledge and experience, however, is available. In the private sector, Martin Burns, Mukands, TELCO, and in the public sector, the Heavy Engineering Corporation, Ranchi, the Durgapur Alloy Steel Plant, Chittaranjan and Ichhapur Gun & Shell Factory possess a mine of knowledge and information which should be pooled unreservedly for this purpose. The Foundry Forge Project at Hardwar should be pushed through.

The combined strength of all these, with whatever further knowledge and experience we can acquire, should help us through.

Machining is not likely to present much difficulty as we now have a large spectrum of machine tools and their operatives. Tooling for a variety of products may initially present a problem, but it is not insurmountable. Considerable capacity for manufacture of jigs and tools is available, and it should be pooled. If we earnestly pursue this task with vigour, much of the problem is likely to be solved in a short period.

(i) Scientific research should simultaneously proceed to find substitutes and innovations.

(j) All difficult items of production with their drawings and specifications should be entrusted to a technical task team which should be specially charged with the problem of evolving solutions for indigenous manufacture. Persistence and perseverence will break through the obstacles.

(k) The technique and technology of forging of gun barrels is already known to some of the Defence workshops. This should be further improved and perfected by continued experimentation. If any aid is needed, this is the time to seek it without delay. Their output can be supplemented by the Heavy Engineering complex where requisite facilities are coming up. Tank manufacture otherwise is fairly simple and, until the Defence Department get their own unit in commission, pooling of the manufacture of specialised components between our engineering workshops can achieve the task.

The Heavy Electricals complex has a variety of tools for precision work, and can supplement the Defence output. Non-ferrous castings of a complicated type can also be produced by them.

The motor car industry is another well equipped complex which can turn out some of the components for aircraft. It may be recollected that during the last war this industry in the U.S.A. gave a radical boost to aircraft manufacture.

The aircraft industry, therefore, does not stand unaided.

Coming to electronic relays and instruments etc. the facilities available with the Defence Department are substantial. These should be suitably adjusted, and supplemented by whatever aid is available elsewhere. The Atomic Energy Commission has also made some advance in this sphere. Personnel is not likely to prove restrictive, as it can be supplemented by the electrical industry; if necessary by giving specialised training. Some of the detailed designs and specifications, however, may be lacking. A special task team for examining the possibilities should be set up.

In respect of Transport, Communications and Power, we certainly can hold our own in an emergency.

The Government has already initiated action to conserve scarce materials for essential requirements and should initiate action to stockpile for any emergency.

In the sphere of Chemicals, Plastics and Synthetic Materials needed for defence equipment, we have made some advance, but a lot more remains to be done. The scientific men should bend their energies to this important task. A careful analysis should be made to determine what further developments are needed.

Ultimately it is the organisation that matters. In the entire industrial sphere there is a considerable diversity of technique and technology. With this comprehensive background we can certainly enter new lines of production, and make an earnest bid to cover the gaps. Technical acumen is not lacking, but it is dispersed all over and has to be mobilised and reorientated. Pooling of resources, co-ordination, objectivity and vision are very much in demand.

Men are at their best when confronted with a crisis. Radar which has proved so effective and potent is really a product of the last War. So are a number of improvements in electronics. Scientific, technical or technological advance does not descend from above; nor is it the preserve of a chosen few. It is the product of a persistent, conscious and devoted human endeavour. Under the stimulus of a crisis, human ingenuity can rise to untold heights. The portals of knowledge in the outside world may get blocked or restricted. Our sharpened wits should, therefore, be mobilised to face all eventualities.

Pooling of the massive resources of the country for a purposeful course is indeed a formidable task. Diffused direction cannot be commended as it is apt to lack the punch that is needed. A central cohesive force is, therefore, fundamental for activating and energising the entire machinery so that it may move with harmony and momentum towards the objectives in view. Intelligence and resourcefulness are not wanting. A vast reservoir of scientific and technical ability is also available, supported by machine tools and equipment of a large variety. Additional forces can also be mustered with the extensive facilities in hand.

Undeterred by confronting difficulties or setbacks, let us gird up our loins with courage and determination to overcome the odds in this challenging task.

The Indian Railways occupy an important position as the first and foremost nationalised undertaking in the country. By sustained efforts, they have not only made considerable progress in the drive towards self-sufficiency but are also building up considerable potential for an export market.

SELF-SUFFICIENCY HAS BEEN THE WATCHWORD OF THE RAILWAYS

KRIPAL SINGH, *Chairman, Railway Board*

THE massive efforts made by the Indian Railways in the wake of Independence were based on the knowledge that the key to their progress lay in the building up of a domestic rolling stock industry in the quickest possible time.

It was a sick railway system that India inherited after Partition with rolling stock badly dilapidated due to the economic depression of the '30s followed by the ravages of the second World War and the crippling effects of Partition. The tasks of rehabilitation and replacements were onerous in themselves; added to these was the problem of putting more rolling stock on the line to cope with the rapid increase of traffic under the stimulus of Five Year Plans.

The foremost consideration in the expansion schemes of the railways was, therefore, given to the setting up of production units for the manufacture of rolling stock. The first to be established was the Chittaranjan Locomotive Works in West Bengal for the manufacture of steam locomotives. This was followed by the Integral Coach Factory in Madras set up for the manufacture of passenger coaches. In the light of modern trends in motive power, the manufacture of electric locomotives has also been started in the Locomotives Works at Chittaranjan, while a new factory is coming up at Varanasi in Uttar Pradesh for the production of diesel locomotives. The requirements of wagons are being fully met largely by production in the private sector supplemented, in the recent past, by manufacture in certain Railway workshops.

The emphasis on self-sufficiency has led to one of the most notable achievements of Railways in the post-Independence period. Apart from helping in saving valuable foreign exchange, the drive towards self-sufficiency has given a big fillip to indigenous industry, the acquisition of valuable technical know-how and the perfection of production techniques. The production units of the Indian Railways have made significant progress. Efficient techniques have facilitated a continuous improvement in out-turn with progressive reduction in costs and the undertaking of more difficult items of manufacture. These units have proved that in technical skill and productivity the Indian worker is second to none and has the capacity to adapt himself quickly to new techniques.

Chittaranjan Locomotive Works

Although the question of manufacture of locomotives had been considered in the past, effective steps in this direction were taken only after Independence. The present site in Chittaranjan was selected after a fresh survey, keeping in view the availability of water and power supply from the nearby Ajoy river, the Maithon dam and the hydel power station. Construction started in 1948 and the township and factory were completed in less than three years within the sanctioned estimate of Rs 14 crore. Production was launched on the day India became a Republic—January 26, 1950. On November 1, 1950 the first steam locomotive was driven out of the assembly lines by President Rajendra Prasad.

To begin with, the production target was set at an annual out-turn of 96 WG locomotives to be achieved by 1954. This was raised to 160 WGs in 1957. These targets have been consistently surpassed. With the rapid strides in electric traction, the need arose for the manufacture of electric locomotives within the country. This was undertaken at the Chittaranjan Locomotive Works and provision of additional workshop space and special plant and machinery at an estimated cost of Rs 2.26 crore is on hand. Even with the existing facilities, a start has been made with the manufacture of electric locomotives.

In the first fourteen years of its existence, the Chittaranjan Locomotive Works produced 1691 steam locomotives, 21 DC electric locomotives and two AC electric locomotives. It is scheduled to turn out 153 steam locomotives and 27 AC electric locomotives during 1965-66.

In the light of the decision for progressive transition from steam to electric and diesel traction on our Railways, it has been decided gradually to taper off the production of steam locomotives at Chittaranjan during the Fourth Plan to convert the workshop for the manufacture of electric locomotives, including traction motors and ancillaries. Work is already in progress for the provision of additional facilities and specialised equipment for the change-over. In the coming year, Chittaranjan is expected roughly to double the electric locomotive production while continuing with large-scale steam locomotive manufacture as well, making in all approximately 200 steam and electric locomotives.

Out-turn in the Chittaranjan steel foundry, which went into production in November 1963, has reached about a third of its ultimate capacity of 10,000 tonnes per year. The foundry is now providing castings for steam locomotives and is programmed to take on, in the near future, castings for electric and diesel locomotives as well as manufacture of manganese steel track crossings.

Integral Coach Factory

The Integral Coach Factory, one of the largest coach building units in the world, was set up at a cost of Rs 7.3 crore to attain self-sufficiency in passenger coaches. Production was inaugurated by Prime Minister Jawaharlal Nehru on October 2, 1955. Since then the Factory has not only exceeded the output targets but also diversified the production. A furnishing unit at a cost of Rs 3.69 crore has since been added to the Factory.

The integral coach, the most modern in design, embodies three major factors for ensuring comfort and safety to the travelling public, namely smooth running, light weight and strength. The design incorporates an all-welded trough floor, integral with the body, which enables the working forces sustained by the coach to be borne by the entire body including the skin. Another important feature is what is known as 'anti-telescopic end construction', which reduces the possibility of the coaches telescoping in the event of an accident. Though an all-steel coach, the integral coach is much lighter and weighs only 35 tons as against the conventional coach which weighs 42 tons, a factor which makes for several operational advantages.

Beginning with the assembly of a few coach shells from imported components, the factory, working single shift, reached its full production rate of 350 coach shells per year in 1958-59, a little more than a year ahead of schedule. With the gradual introduction of second shift working, the annual production rate has since been stepped up to 600 coach shells.

In ten years, the Integral Coach Factory has turned out over 4,000 coach shells and furnished over 2,000 of them. Production in this factory has been diversified to cover, in addition to third-class coaches, other types of coaches like luggage and brake vans, two-tier and three-tier third-class sleepers, first-class coaches, first- and third-class composite coaches etc. It has also turned out broad gauge AC electric multiple-unit coaches and metre gauge passenger coaches and is programmed to build metre gauge E.M.U. coaches, diesel rail cars and broad gauge coaches for the new air-conditioned express trains.

Diesel Locomotive Works

The total holding of diesel locomotives on the Indian Railways at the end of the First Five Year Plan was only 67-47 on B.G. and 20 on the M.G. During the Second Plan, main line diesel traction for carrying through freight services was introduced as a prelude to electrification on the congested routes of the Eastern and South-Eastern Railways, to cope with the rapid build-up of coal-fields and steel plants traffic which was beyond the capacity of steam traction. In the Third Plan, the concept of long-distance haulage by diesel traction of the heavy freight trains, particularly those carrying coal and ore and some long-haul general goods, has been extended to several important routes which were fast approaching saturation with steam traction.

While the immediate requirements of diesel locomotives have been met from time to time through imports, the setting up of indigenous manufacturing capacity for such locomotives has been taken up as a matter of urgent necessity and a production unit, the Diesel Locomotive Works, for turning out diesel locomotives is rapidly coming up at Varanasi. The factory has already assembled 12 diesel locomotives from imported subassemblies and turned out four with chassis and superstructure fabricated at the factory. Manufacture of the diesel engine is to be commenced in 1966 to coincide with that of the electrical equipment from Bhopal and the indigenous content of the diesel locomotive is expected to rise rapidly to about 90 per cent in the later years of the Fourth Plan.

Mechanical, Signalling and Other Railway Equipment

All mechanical signalling equipment is now being manufactured indigenously. Some components of electric signalling are also being manufactured in the country and there are plans for a good deal of expansion in this field. A decision has been taken to set up a Central Signalling Workshop of Indian Railways to manufacture modern electric signalling equipment which may go into production early in the Fourth Plan.

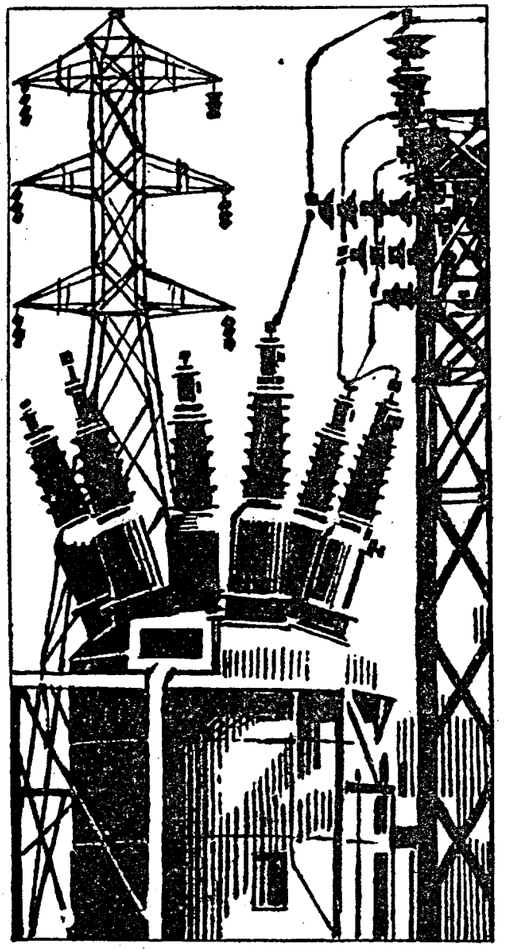
Through sustained efforts a considerable increase has been made in the indigenous manufacture of all kinds of railway equipment, including track materials and bridge girders. This has resulted in a steady decrease in the purchase of imported materials from 30.03 per cent of total railway purchases in 1951-52 to 14.27 per cent in 1962-63 and 12 per cent in 1963-64 with consequent proportionate saving in foreign exchange.

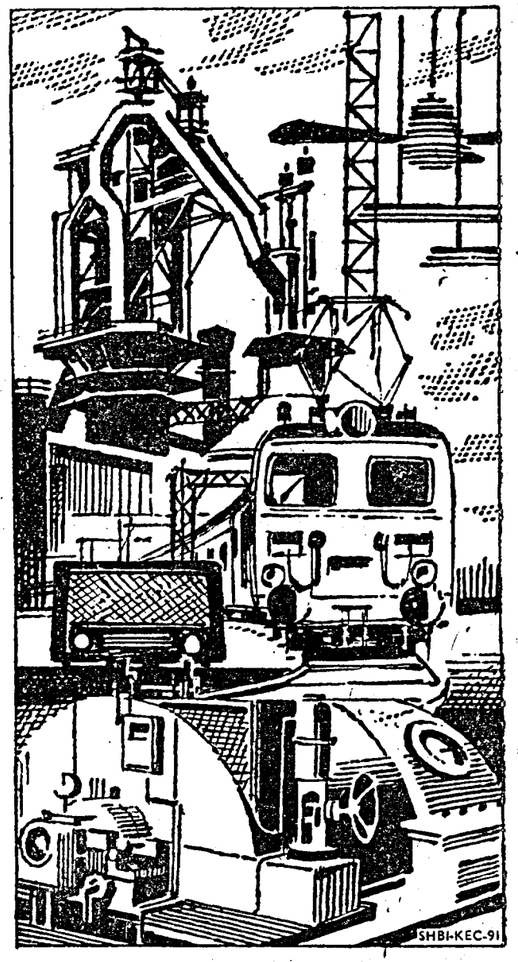
The Development Cell of the Railway Board whose main task is the development of indigenous capacity for railway equipment functions in close co-ordination and liaison with the Department of Technical Development and other Government departments and with the representatives of the industries concerned. Steps have been taken to develop adequate capacity in the country for a number of additional rolling stock components including ancillaries and spare parts required for diesel and electric locomotives and electric multiple units, as well as over-head traction fittings.

Copper and aluminium conductors and catenary wires and fittings are entirely being manufactured in

(*Continued on Page 38*)

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NATIONAL SURVIVAL DEMANDS GREATER IMPORT SUBSTITUTION

T.N. SRINIVASAN, *Professor, Indian Statistical Institute*

SUBSTITUTION of imports by domestic production has been one of the essential strategies in our development plans. The adoption of such a strategy has been dictated by a number of important considerations, the most important of which is a desire to achieve a progressive reduction in the dependence on foreign assistance. The Memorandum on the Fourth Five Year Plan prepared by the Planning Commission puts it this way: "The bulk of our imports, apart from food imports, consists of petroleum products, crude oil, metals, chemicals, machinery and equipment. These commodities will be required in increasing quantities as the economy grows in size and complexity; and, unless deliberate attempts are made to enlarge their domestic production, there can be no escape from large-scale dependence on foreign loans and grants."

The Planning Commission comes to this conclusion after making generous allowances for the possibilities of larger volume of foreign exchange earnings through expansion of exports of traditional as well as non-traditional items. Thus, if the strategy of import substitution in key sectors of the economy is not followed, either we have to scale down our plan to keep our import requirements within the limit of our export earnings and a reasonable inflow of foreign assistance or maintain the Plan size and try to obtain a massive inflow of foreign assistance. It is obvious that neither of the two alternatives is acceptable—the first because any scaling down of an already modest Plan will mean a postponement of the time point by which the bulk of our population can be provided with the basic needs of life, the second because of its political implications such as the enormous power that some large donor countries may acquire over our economic and foreign policies. I shall come back to this point later.

It is sobering to look at some of the magnitudes involved. After all, as Dr. Johnson put it,"...A thousand stories which the ignorant tell and believe, die away at once when the computist takes them in his grip." Let us examine the implications of maintaining till 1970-71 the same ratio of imports to domestic production as in 1965-66 in just three sectors: Machinery, Steel and Fertilisers. Calculations based on such an assumption will indicate the consequences of abandoning the strategy of accelerated import substitution implied in the Fourth Plan proposals. The figures are as follows:

TABLE I

		Domestic Production[1] 1965-66	Imports[2] 1964-65	Imports[2] 1965-66
1. *Machinery*: (Rs crore)				
Capital Goods		563		360
Consumer durables		141		
Intermediate goods		231		140
	Total	935	473	500
2. Iron & steel (Million tonnes of finished steel)		5.3	1.2	1.2
3. Fertilisers (Million tonnes)		0.50		0.40

[1] *Source*: *Fourth Five Year Plan, Resources, Outlays and Programmes*, prepared by Planning Commission for N.D.C. Meeting of September 5—6, 1965.

[2] Import figures for 1964-65 are based on data from *Reserve Bank of India Bulletin, July 1965* and average price data obtained from Perspective Planning Division of the Planning Commission. Figures for 1965-66 are author's estimates. Imports of machinery under intermediate goods cover imports of components and parts. This figure was estimated as 20 per cent of the value of domestic production of finished capital goods and consumer durables.

Having established the factual position in 1965-66 let us do some projections. Corresponding to the now accepted figure of Rs. 19,000 crore of net investment for the entire Fourth Plan, the gross investment in 1970-71 (the final year of the Plan) is likely to be around Rs. 5,500 crore.[5] Investment of this order will require Rs. 1,650 crore of finished capital goods at *ex*-factory prices. If the ratio of imports of finished capital goods to domestic production remains the same as in 1965-66, we shall have to import complete machinery to the tune of Rs. 650 crore in 1970-71. Adding to it the imports worth Rs. 250 crore of components and parts we get a figure of Rs. 900 crore for imports in 1970-71 under the head Machinery and Parts.

We estimate the requirements of finshed steel in 1970-71 to be around 10.2 million tonnes. This figure was arrived at by using the data on Material Balances for Steel contained in Perspective Planning Division's *Notes on Perspective of Development : India 1975-76*, after making appropriate adjustments for lower total investment and lower total machinery output implied in our calculations as compared to those of Perspective Planning Division.

The projected consumption of chemical fertilisers in 1970-71 is 3 million tonnes. Applying to this the ratio of imports to domestic production prevailing in 1965-66 we get a figure of 1.33 million tonnes as imports of fertilisers in 1970-71.

The picture that emerges under the assumption that 1965-66 ratio of imports to domestic production will prevail in 1970-71 is as follows:

It will be noted that our assumption involves a substantial increase in the domestic production in 1970-71 of Machinery (76 per cent), Iron and Steel (57 per cent) and Fertilisers (240 per cent) over their 1965-66 levels. However even with this increase we need to spend in 1970-71 foreign exchange worth Rs. 1,210 crore on imports of just these three items. Compared to this figure, the projected total foreign exchange earnings from exports in 1970-71 is only Rs 1,110 crore. It goes without saying that when we add foreign exchange requirements for imports of essential raw materials and products (such as raw cotton, raw jute, chemicals, non-ferrous metals and petroleum products), defence needs, debt service and food imports the foreign aid required in 1970-71 will far exceed the current level of about Rs 500 crore per year. We therefore reach the inescapable conclusion that accelerated import substitution is essential if we are to achieve our goals of economic development without massive inflow of foreign assistance beyond the Fourth Plan.

It was mentioned earlier that excessive dependence on imports of essential items and on foreign assistance confers on foreign countries considerable power over our political and economic policies. This power becomes particularly dangerous when it gets exercised over matters of national survival such as our defence. Even though in the past few years we have substantially increased our own production capacity in relation to defence needs, we still depend on imports for vital items such as aircraft, electronic detection and guidance systems for our Air Force, ships for the Navy, and armour for our Army. The recent action of some of the supplying countries in imposing an embargo on defence shipments to India clearly demonstrates the need for import substitution in this matter. It is implied in U.N. Secretary-General's proposals that economic sanctions should be applied against India and Pakistan if we do not come to a settlement of the present conflict. These sanctions presumably apply not only to imports of defence needs but also to our other imports. Thus considerations of national defence reinforce our arguments for accelerated import substitution during the Fourth Plan.

These arguments should not be taken to imply that import substitution should be pushed ahead with no consideration being given to the economic implications. The aim is not to move towards autarky. In determining the pattern and extent of import substitution and export promotion, economic analyses to identify in what products our long-run comparative advantage lies etc. must be undertaken. However, a discussion of this question is outside the scope of the present article.

TABLE II

	Domestic Production	Imports	
		Quantity	Value
1. *Machinery* (Rs crore)			(Rs crore)
Capital goods	1000	—	650
Consumer durables	250	—	—
Intermediate goods	400	—	250
Total	1650		900
2. Iron & steel (Million tonnes of finished steel)	8.3	1.9	170
3. Fertilisers (Million tonnes)	1.7	1.3	140

[5] In order to be strictly consistent with our hypothetical assumption of no acceleration in import substitution during the Fourth Plan, we must scale down the official total investment figure. For, this figure includes investment for faster import substitution in machinery, steel etc. Even though such a scaling down of total investment will reduce the figures for imports reported in Table 2, the author believes that the reduction will not be substantial enough to invalidate the case for import substitution.

U. K. Offers Credit

The United Kingdom has offered India two loans totalling 14 million pounds (Rs 18.6 crore). The loans are free of interest and the repayment will start only after seven years. One of them is a 'balance of payment' loan of 10 million pounds (Rs 13.3 crore) to help India to maintain a flexible import policy and the other, a 'Kipping' loan, of 4 million pounds (Rs 5.3 crore) to maintain the flow of essential supplies to Indian private industry. The terms are being negotiated between the two countries.

THE EXPERIENCE OF PAKISTAN DURING RECENT YEARS HAS EMPHASISED THE FACT THAT NO COUNTRY CAN DERIVE STRENGTH FROM EXTERNAL SOURCES

MILITARY PACTS DON'T BRING SECURITY

Case of a Country that Ignored Self-Reliance

K. P. KARUNAKARAN, *Reader, South Asia Department, Indian School of International Studies*

MANY myths were exploded during the recent armed conflict between India and Pakistan. No one will now claim that the U.S. Patton tanks are invincible or that one Pakistani, with his martial traditions, is equal to five mild Hindus. But, perhaps, the hollowness of the myth that a weak country will gain strength by joining a military alliance with a Big Power was exposed more than anything else. When the Indian Army penetrated into the Pakistan territory, neither the superior weapons which Pakistan had, nor its being a party to SEATO and CENTO, helped it. On the other hand the Pakistan Government was desperately asking for help from all organisations and many Powers with no result. Even the inherent strength of Pakistan was considerably reduced because of the fact that it was increasingly depending upon other Powers for military power and economic progress. Pakistan's foreign policy during the past few years was the story of a country moving from one alliance to another in search of security and getting it from nowhere.

Pakistan's Obsession

To begin with, Pakistan also followed more or less an independent foreign policy. In the years immediately following 1947 the Pakistan delegates and the Indian delegates to international conferences often took identical stand on vital matters of international policy connected with the freedom of the dependent people, elimination of racial discrimination and development of economically backward countries. Their main difference of opinion was in regard to matters connected with India-Pakistan disputes and primarily Kashmir.

However, one must note that even in this period Pakistan was not as independent as India was. Lacking the spiritual stamina of the Indian political leaders who struggled for freedom, the Muslim League leaders of Pakistan had an unwritten alliance with the erstwhile rulers—the British Government. During India's struggle for freedom the Muslim League functioned as the King's party helping the Government against those who were struggling to be free. In return they received British support for the demand of the creation of a separate State for the Muslims. After the establishment of Pakistan its leaders continued to have a feeling of gratitude towards Great Britain. And the British reciprocated by giving them support in the international field.

Pakistani leaders were obsessed with India and with the fact that this neighbour of theirs was larger and stronger than their own country. When the Indian Government succeeded in gaining some international prestige for India, Pakistanis began to suffer from a terrible feeling of inferiority. They began to search for alliances and friendship outside the country to compensate for their weakness in relation to India.

At first they turned towards the Muslim States and toyed with the idea of an Islamic bloc. But there was no response from the Muslim countries. Moreover, they also realised that friendship with Britain and the Muslim countries did not give the adequate strength in a world which was primarily divided between two power blocs headed by the Soviet Union and the United States. So they began to lean towards the United States for diplomatic, military and economic support. Justifying this development, Prime Minister Suhrawardy said: "The question is asked; why don't we (the Muslim countries) get together rather than be tied to a big Power like the U.K. or America? My answer is that zero plus zero plus zero is after all equal to zero." He naturally thought that Pakistan joining the Western bloc meant sharing the strength of a big Power like the U.S. He did not live long to be disillusioned. But many of his colleagues did.

As the United States' foreign policy under the direction of Mr Dulles was moving towards the creation of military alliances in Asia to contain communism and the extension of the Soviet Union's influence, favourable conditions were created for the

United States and Pakistan to come closer together. Pakistan was prepared to pay any price to have a powerful military ally. Mr Dulles was as much annoyed with the neutral countries of Asia as he was with the communist states because of the fact that the former refused to come under America's protective umbrella. Mr Dulles's outlook was, "Those who are not with us are against us." This suited Pakistan admirably because Pakistan wanted a military ally who would consider India unfriendly, if not hostile.

A military agreement was concluded between the United States and Pakistan; later events confirmed the rumour that some kind of American bases were established in Pakistan. From one such base the U-2 flew to the Soviet Union. Apart from a base here or there the most important development which took place was that Pakistan became a part of America's global defensive and offensive strategy.

Whatever the manner in which Mr Dulles expressed his disapproval of the concept of non-alignment, American military and foreign policies in this region were not directed against countries like India but against China and the Soviet Union. So in practice Pakistan became a party to military alliances directed against these two countries as well as against the communist doctrine. This was not of Pakistan's choosing. But this heavy price Pakistan had to pay for joining the military pacts. Ironically, this meant that Pakistan, in getting a powerful military ally, also antagonised a great military power, the Soviet Union. And even today, although many important changes have taken place in the international field in the past ten years, Pakistan has not completely succeeded in making the most cordial relations with the powerful neighbour in the North.

The seeds of disruption of these military alliances and pacts were there at their very inception, because, while the United States regarded the communist states as the foremost enemy, Pakistan gave the same status to India. Repudiating the right of the Americans to question Pakistan's prerogative to use American weapons as it liked, President Ayub said: "The U.S. should be mindful of the fact that, if our territory was violated, we would spend our time dealing with the enemy rather than putting the American weapons in cotton wool." What President Ayub forgot when he made the statement was that the U.S. was capable of suspending further supplies to Pakistan at any time and that this would place him in a very unenvious position when engaged in a war.

Occasionally, the delegates of the Pakistan Government to international conferences also took an anti-communist posture. For some time they did not support the representation of the Chinese People's Republic in the U.N. When the U.A.R. was invaded by the U.K. and France over the Suez Canal issue, Pakistan was unable to back the anti-imperialistic stand of many other Afro-Asian countries because of its alliance with the West.

Of course it gained some short-term economic advantages by getting aid from the West and also a sense of military strength as a result of the weapons supplied to it by the United States and the fact that it had such powerful military alliance. But its most important gain was in the diplomatic front where its stand on Kashmir was more or less supported by the Western Powers. Explaining the significance of the alliance with the West, Foreign Minister Qadir of Pakistan said in 1960: "There is the question of feeling safe and secure. The feeling of security is of much greater importance."

Towards a Dictatorship

But even with these apparent advantages, some of the undesirable repercussions of the military alliances were visible. The Pakistan Government's stand on questions connected with imperialism and representation of the Peoples' Republic of China in the U.N. was not popular with the politically conscious sections of the people of the country. The Pakistan Government began to realise that a foreign policy which went against the prevailing mood of the public could be sustained only by denying the right of free speech to the people of the country. But, as questions of foreign policy cannot be separated from internal domestic politics, the Pakistan Government was compelled to deny freedom of expression in this sphere also.

When this development was accompanied by the assertion of many other totalitarian forces in the country, Pakistan's democracy was endangered. At first it was the politicians who destroyed the democratic structure of the country. From this it was a short step to the military taking over the administration. As often happens, when a politically young, economically backward, and militarily weak country like Pakistan allies itself with an advanced country like America the military section of the smaller country acquires exaggerated importance and powers. It becomes the most modernised and efficient section of society. And it becomes difficult in such a country to maintain civilian supremacy over the military. Pakistan met with this fate when martial law was established and the military took over the central and provincial governments of Pakistan.

Prosperity Apparent and Not Real

Another highly publicised advantage of military alliances was the economic prosperity they gave to Pakistan. Not a few foreign experts and Pakistani economists have compared the economy of Pakistan with that of India and concluded that the rate of progress in Pakistan was higher than that in India. But they do not take into account the fact that while the basic foundations of long-term economic progress have been laid in India by the establishment of heavy industries, no such development has taken place in Pakistan. India has developed a public sector in this country. This was not done in Pakistan, with its inevitable political and social consequences. As the Western Powers were not interested in developing the oil resources of that country, no step was undertaken in this field. As a result, after eighteen years of freedom, Pakistan has not made much progress in growing out of a colonial economy; it supplies raw materials to industrially advanced countries and functions as a market for them. Its external economic relations are not diversified.

As little or nothing has been done for the development of heavy industries and oil, Pakistan will continue to be dependent upon other countries for oil and machinery. Consequent on the India-Pakistan war, when the U.S. suddenly decided to discontinue its military supplies to Pakistan, the rulers of that country realised the disastrous consequences of depending on other countries for economic and military support.

Even before the present armed conflict with Pakistan, many events brought home to the rulers of Pakistan the fact that foreign sources are not always reliable. Owing to the technological revolutions in warfare and the invention of intercontinental missiles and sophisticated delivery systems of nuclear weapons, the importance of military bases, such as Pakistan could offer, diminished in America's military strategy. Many Americans even began to feel that overseas bases were liabilities. In the changing circumstances, Pakistanis realised that, as far as the U.S. was concerned, the alliance was no more of great military significance.

On the other hand, when the India-China conflict flared up, the Americans began to give more attention to India. Even otherwise, there was a difference between the foreign policies of President Kennedy and of Mr Dulles. Informed sections of the people had a greater influence on Governmental policies under President Kennedy. In their opinion a politically stable and democratic India with its vast area and huge population was a greater source of strength for the democratic world than a weak and dictatorial Pakistan. When the U.S. turned towards India and began to give aid and loans on a big scale to this country, the Pakistanis were annoyed. One Member of the National Assembly, while advocating Pakistan's withdrawal from the military pacts, said: "If we do not quit quite honourably now, the time is not far off when the pacts will quit Pakistan and Americans will say 'Thank you Pakistan, we do not need you'."

Search for a New Friend

In these circumstances the Pakistan leaders were in search of a new friend. This was the logic of a new unscrupulous alliance. As their main obsession was with India, China, with which this country's relations deteriorated, became Pakistan's best friend. There was no ideological affinity between China and Pakistan—the Communist Party is even banned in Pakistan. The economies of the two countries were not mutually supplementary. A friendship with China was going against the spirit of CENTO and SEATO to which Pakistan was a party.

But all these factors were forgotten. Many agreements were signed between the two Governments and many visits were exchanged between the politicians of the two countries. Some Pakistani leaders assured their followers that Asia's most powerful country, that is China, was there to support Pakistan in any crisis.

But in November 1963, while addressing the Basic Democrats, President Ayub confessed that friendship with China, which he had been pursuing even at the risk of disrupting Pakistan's cordial relations with the West, had failed to give Pakistan the desired sense of security. He added that Pakistan would have to fight its battle alone and expected no help in an emergency from any quarter.

But Pakistan's turning towards China made its inevitable impact on its relations with the U.S. The American President postponed decisions concerning aid to Pakistan. This, in its turn, strengthened anti-American feeling in Pakistan itself.

Unenviable Position

When the armed hostilities between India and Pakistan took place, Pakistan was in an unenviable position. It had American weapons and China's diplomatic support. But with no technical help from the U.S., Pakistanis could not handle the weapons efficiently. Nor could they replace those which were destroyed or captured by Indians. With less sophisticated aircraft and tanks, the Indian forces could defeat the Pakistanis in many fronts, because they knew how to operate what was manufactured in this country. The question of replacement was also no major problem to India. The advance made in the economic front—and particularly in regard to heavy industries—has thus been a great source of strength to India. It is universally realised that Pakistan's search for security outside the country has not given it military strength or economic power in any considerable measure. Neither CENTO nor SEATO came to its rescue when it desperately called for help. Now, if Pakistan hopes to win its military and diplomatic battles by mortgaging its freedom of action to China, instead of the U.S., that hope will be as unfulfilled as the earlier one.

It is not as if no Pakistanis were aware of the bankruptcy of the policies followed by their rulers. Only, they were not allowed to express their views freely. In a Karachi political weekly, the *Outlook*, which was forced out of publication by the Government, a commentator wrote as early as in August 1963: "The fundamental fact is Pakistan cannot (as it has never really been able to) match India's military or economic power by its own exertions. What are the chances of any foreign power providing enough aid for the purpose? Realistically seen, there are next to no chances, at least at present. The West cannot do it. Russia, for its own complex reasons, is staking all its money on India. It is just not going to build up Pakistan into an anti-Indian bulwark. China is in no position to do much for us. An anti-Indian alliance of her small neighbours may be neatly logical but who will provide the basic sinews?...Pakistan's security demands not so much the armed strength, as the popular consciousness and the determination of its often distrusted and despised people to remain free. If this basic premise is courageously accepted (and let this be clearly realised there is just no alternative to this, except impotent rage, while not accepting this lesson may, in fact, gravely imperil the national security) alternatives almost immediately begin to take shape."

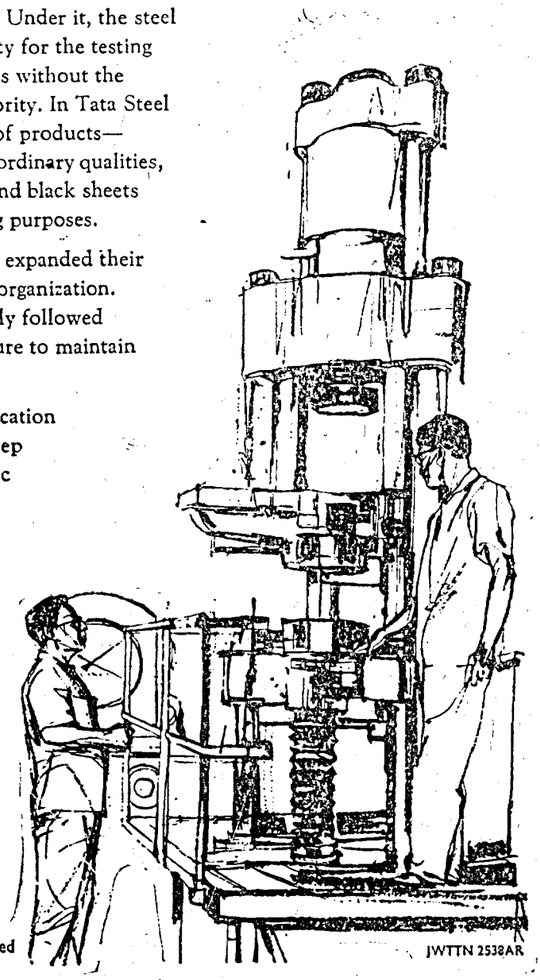
Unfortunately the Pakistan Government was not prepared to think of any of these alternatives. The recent undeclared, but bitter, war between the two countries has clearly proved that a country's search for security and strength, like charity, must at first begin at home. In the ultimate analysis a country's strength will depend upon its capacity to mobilise its own resources and stand on its own feet. Foreign assistance and alliance with foreign Powers have only a marginal role to play in this matter. This is a self-evident truth. But if proof is needed to substantiate it, the recent experience of Pakistan supplies it.

Quality control in steel

From 1st April 1965, Tata Steel have adopted the I.S.I. Certification marks scheme. Under it, the steel plants take complete responsibility for the testing and certification of their products without the intervention of any outside authority. In Tata Steel the scheme covers a wide range of products—structural steels in standard and ordinary qualities, billets for re-rolling, galvanised and black sheets and steels for general engineering purposes.

To implement it, Tata Steel have expanded their existing facilities and inspection organization. All categories of steel are carefully followed through every stage of manufacture to maintain the highest standards of quality.

The adoption of the I.S.I. Certification marks scheme is yet another step in keeping with Tata Steel's basic objective—to supply steel products of proven quality to suit the customers' needs.



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We must face more than the challenge of Pakistan and China. We must be able to deal with political arm-twisting

Long-Term View of Self-Reliance

NOT MERELY MORE MILITARY EQUIPMENT BUT GREATER ECONOMIC STRENGTH

K. N. RAJ, *Delhi School of Economics*

THE events following the outbreak of hostilities with Pakistan have been from one point of view a blessing in disguise. They have brought home to most people the essential weakness of the attention given to the development of heavy industry in Indian planning. Pakistan's inability to use effectively the sophisticated equipment it received from the United States, and its embarrassment when supplies were cut off, have also helped to destroy the belief that alliances offer a convenient short-cut for strengthening the defence potential of countries which are themselves economically underdeveloped.

The ability to manufacture military hardware is, however, only one aspect of the defence potential of a country. It leaves open other possibilities of arm-twisting, such as the thinly-disguised pressure now being applied by the United States on India by placing the supplies of food-grain under P.L. 480 on a month-to-month basis. What is gained by use of military force can be easily lost if there is no way of withstanding pressures of this kind.

It would be therefore a serious mistake if the response to recent events takes the form of only an increase in defence expenditure and "defence orientation" is taken to mean simply greater self-sufficiency in the manufacture of military equipment. Indeed if this is all that is done, without correspondingly greater attention being given to strengthening of the economy as a whole, the net effect might be to make ourselves more vulnerable to external pressure than before.

We face here in the immediate future rather difficult choices. Some increase in defence expenditure and in the investment in defence production is obviously inescapable, but if we divert resources for these purposes to the full extent considered necessary on purely military criteria there is a serious danger of retarding the growth of the economy in precisely the sectors which could make a great deal of difference to its ability to be self-reliant in the course of the next decade or so. We have to be therefore careful about the decisions we take now, particularly if they are of a kind that would make a significant difference to the country's development prospects.

Pakistan and the Concept of Balance of Power

These decisions must in the ultimate analysis turn on judgements of a political character, but even political judgements in matters of this kind should be based on an assessment of the relevant economic considerations. Thus, however aggressive the intentions of China and Pakistan might be towards India, their ability to involve themselves in a large-scale military conflict would depend very much on their economic strength. So are there economic constraints on what India can and cannot do in the near future.

Clearly, on the political plane, what is in issue in the conflict between India and Pakistan is not simply the territory of Kashmir. From one point of view—and this is what the two parties directly involved are most concerned with—the dispute is over the basis of partition of the sub-continent in 1947, more specifically on the question whether religion should or should not form the basis of political affiliation. For the rest of the world, however, this question is in itself of very little interest. What concerns most other countries is really the balance of power in South Asia, and naturally the attitude taken by them to the dispute depends on what appears to each its own interest in the region.

From the political angle, therefore, what we choose to mean by self-reliance in the present context and what we decide to do in pursuance of it would depend to a large extent on our own attitude to these issues. If it were simply a matter of preventing Pakistan from resorting to force to upset such political equilibrium as has been achieved in India in the last 18 years the task would be a relatively simple one. In fact our present economic and military strength should be very nearly adequate for this purpose (as has already been demonstrated to some extent). But since the dispute with Pakistan is tied up with the larger question of

the balance of power in this region, and there are important conflicts of interest which determine the alignments on this dispute, it is necessary to think of self-reliance in a much wider framework than of the conflict with Pakistan.

Much depends here on how immediate and serious we consider the Chinese threat to India to be and what we think are the alternatives open to us in countering this threat. If we believe that the threat is essentially of a military kind and that it might take the form of a major intervention in the near future there would be a great deal to be said for diverting resources on an extensive scale to strengthening our defences even at the expense of the country's long-term development prospects. If on the other hand we have good reason to think that it is not the immediate military threat that is serious but the prospect of a much more economically and militarily powerful China in the future such diversion of resources now for defence would be a grave mistake.

China Unable to Wage Large-Scale War

The military threat from China has been generally overrated in India since the invasion of 1962. China's economic potential is not much greater than of India and, though its political and military organisation makes it possible for this potential to be made more effective use of for defence and related purposes, it is hardly adequate for mounting a large-scale attack on India. China's food-grain output has risen less than India's in the last 12 years; its output of steel appears to be still around the level of 8-10 million tons touched in 1959 and which India will be reaching very shortly; its export earnings are not only no greater than of India but nearly a fourth of its annual earnings has had to be spent in recent years for importing food-grain and it faces therefore a much more serious 'maintenance-imports' problem than India. Very much stronger evidence of China's ability to sustain a large-scale military effort in this region (as distinguished from limited border incidents for keeping up political tension and tying down our military forces) should be forthcoming before India decides to invest a larger proportion of its national income for an immediate build-up of its defences against China.

It is significant that recent official pronouncements from China have been emphasising that it will take "at least 20 to 30 years" to build up the Chinese economy. There is no reason to think that this is meant to mislead others or that it is in any sense an exaggeration. Indeed such information as is available on Chinese economic strategy suggests that the objective is to achieve self-reliance over a period of time rather than to achieve sensational results in the short period or to prepare the economy for a major military confrontation in the near future. (Its investment in fancy show-piece projects, such as on atom-bomb manufacture, appears to be meant in part as a symbol of the self-reliance it aims at and in part as a cover for its inability to back up its aggressive political postures with strong military action.)

Importance of Machine-Building

Thus the only sector in which the Chinese economy has leapt forward since 1959, and to which it is apparently still diverting resources at the expense of other important sectors, is machine-building. Before 1959 machine-building in China was confined (as it is largely the case even now in India) to producing fairly simple medium-sized equipment. Today Chinese-built machinery is in service in several branches of heavy industry such as in chemical fertiliser plants, electricity generating stations, tractor plants, and machine-manufacturing plants themselves. Chinese machine-building industry is now able to produce complete sets of oil-refining equipment and steel-rolling machines. A few months ago China set up a domestically-manufactured hydraulic forging press capable of forging 200-300 ton steel ingots into heavy machinery parts; there are only 20 similar forging presses in the world, and only four countries (U.S.A., U.K. West Germany and Czechoslovakia) have so far manufactured them. There is little doubt therefore that China has already achieved considerable skill and sophistication in this key sector of industry.

The machine-building sector adds to both the economic and defence potential of a country. It makes it possible to manufacture domestically most of the machinery and equipment necessary for development and do without foreign aid if necessary. Under conditions of war it is easy for this sector of industry to switch over to the production of the necessary heavy equipment and materials. The ability to manufacture and supply machinery can also be an important instrument of diplomacy; a large part of the aid China is giving to developing countries in Asia and Africa takes the form of machinery manufactured in China and for which there is considerable demand today.

It is significant that while the machine-building sector has been expanded considerably in China in the last few years the capacity in steel industry has been hardly increased. The emphasis here has been not so much on increasing production of steel in terms of tonnage but on widening the range of steel products produced. More particularly the focus has been on the production of special steels required for machine-building and for manufacture of other equipment.

The other sector to which China has been obviously giving a great deal of attention is agriculture. It has stepped up its chemical fertiliser production from 0.8 million tons per annum in 1958 to 3.5 million tons per annum in 1964 (the figures in both cases relating to their nitrogen content). For this purpose it has not only been importing fertiliser plants from abroad with the limited foreign exchange available to it but manufacturing plants on their own. In this context the observations of a recent Western visitor to China and India, published last April in the *Far Eastern Economic Review*, are of considerable interest:

> "It was instructive to compare two new chemical fertiliser plants, one in Nangal (Punjab) and the other at Wuching (Shanghai)...Wuching costs $ 25 million, makes 100,000 tons a year, employs 2400 people for an average $ 30 a month—and is completely Chinese in design, construction and operation. Nangal costs $ 65 million, produces 375,000 tons a year, employs 3500 people for a similar average wage—and sixty foreign technicians supervised the installation

(*Continued on Cover III*)

We have to face two countries which profess opposing ideologies but are in cynical collusion

INDIA, CHINA AND PAKISTAN

VIDYA PRAKASH DUTT, *Professor and Head of the Department of East Asian Studies, Indian Institute of International Studies*

THE Sino-Pakistani alliance is truly born in sin. It is so demonstrably the product of the common enmity of the two with India. Both Pakistan and China are functioning entirely on the principle that my enemy's enemy is my friend. There is nothing in common between the two, neither ideology nor outlook, except the hatred for India. Each regards the other as a useful second front against India.

It is a classic case of both the countries observing the rules of traditional diplomacy, of their practising the art of *realpolitik*, without the slightest regard for ideological considerations or political values. Pakistan, a theocratic state being ruled by and for the landlord class, in intimate collusion with a professedly communist country which proclaims to be the standard bearer of the struggle against feudalism and imperialism —such is the reality of the united front between Pindi and Peking.

It is not that Peking does not know it or that it did have something different to say in the past. Only a few years ago Peking was denouncing Pakistan in no uncertain terms for its membership of the Western military alliances. It went further. It denounced Pakistan for threatening the security of India through the acquisition of American arms and military alliances with the West. When Pakistan signed a bilateral military agreement with the United States on March 5, 1959, which spoke of their "determination to maintain their collective security and to resist aggression, direct or indirect", Peking was quick to condemn it as an act of blackmail not only against China but also against India. The agreement did not specify "communist aggression", as was usually done in all these defence agreements, but made a general reference to "aggression, direct or indirect."

The Pakistani sources triumphantly claimed that the wording was deliberate and that it covered "aggression" from such quarters as India. Peking put upon it the same construction as India that it was a double-edged barrel whose one end was directed against Peking and the other against India. In a sharp editorial on March 7, 1959, the official daily of the Chinese Communist Party, the *Jen-min Jih-pao*, said that the new pacts were directed not only against socialist countries but were also "*in the first place* a threat to such nationally independent, neighbouring countries as India, Iraq and Afghanistan". (Emphasis mine.) It warned those Asian countries which "adhered to the policy of aggression" that their military agreements would only serve "to tighten the U.S. grip on them and tie them still more closely to the U.S. war chariot".

Peking also took the view then that the military agreements enabled the United States to openly build large scale military bases in Pakistan and to use them against neighbouring, peace-loving countries. It took note of the fact that newspapers in Pakistan "did not even attempt to cover up the hostile provisions of the bilateral agreement against India and Afghanistan". Peking claimed that within Pakistan "people of all strata daily increase their objections to current policies" and that, consequently, the ruling clique in Pakistan spared no effort "to bring the wolf into the house in an attempt to rely upon American power to maintain their unstable control and to suppress the struggle waged by the people at home".

Purpose : To Threaten India

It is obvious that Peking took a different view of Pakistan's alliances at the time and that it did regard them as constituting a clear and present threat to India. After this clear admission that Pakistan's purpose was to threaten India, for Peking now to protest about Pakistan's innocence and to turn the blind eye towards Pakistan's military alliances and the source of her arms and armament can only be ascribed to rank opportunism. It is also interesting to note that President Ayub's military *coup d'etat* and assumption of dictatorial power led to a deterioration of Pakistani-Chinese relations. Peking turned sharply on Ayub not only for his friendship with the Americans but also for his attempts to drive a wedge between India and China. As late as July 1959, to quote once again the official mouthpiece *Jen-min Jih-pao*, Peking berated the Pakistani authorities for their "repeated statements at home and abroad slandering the Chinese people, interfering in China's internal affairs, sowing discord in the relations between India and China and agitating for the cold war".

And this is what Peking had to say about President Ayub: "Since the Ayub Government came to power last year, the Pakistani Government has been following a policy of increased dependence on the U.S. In March this year, Pakistan signed a bilateral military agreement with the U.S. under which the United States is allowed to use armed forces and establish missile bases in Pakistan, thus taking a step further in turning Pakistan into a U.S. military springboard in Southeast Asia. This agreement seriously threatens the security of the Soviet Union, China, India, Afghanistan and other Asian countries and strengthens U.S. control over Pakistan. This policy of the Pakistani ruling clique is diametrically opposed to the interests of peace in Asia and is also opposed to the national interests of Pakistan."

Peking Changes Tune

Within almost a matter of months, Peking's tune changed and as its border dispute with India worsened, it began to find new "progressive" virtues in the Ayub regime. For Pakistan, it should perhaps be conceded at the outset, there was no other consideration in its policy of alliances than the desire to use them against India and grab Kashmir. Pakistan had no intention of fighting China or Russia, or any other communist country. It foresaw a struggle only with India and set about the business of acquiring a vast military machine for a show-down with India. It is common knowledge that at the time of the Bandung Conference, the Pakistani Prime Minister, Mr Mohammed Ali, assured Mr Chou En-lai that Pakistan had no ill-will towards China and that her sole concern in joining the Western-sponsored military alliances was the conflict with India. These assurances were repeated when subsequently another Pakistani Prime Minister, Mr Suhrawardy, went to China on a State visit.

It must, however, be said to the "credit" of Chinese cleverness that despite all the public expressions of goodwill towards India, the Chinese did not commit themselves openly and unequivocally over Kashmir. Privately they told Indian officials that they duly appreciated India's position on Kashmir and disarmingly asked if India could point out one statement in China which was inimical to India's position in Kashmir. (Later, when they fell out with India, they turned round and asked self-righteously if we could point out one statement which had supported India's position in Kashmir!) Quite clearly they left themselves room for manoeuvre in case of possible future conflict with India.

With the sharpening of the border conflict with India, the denunciation of Pakistan disappeared from the columns of China's newspapers; on the contrary friendly, and as time passed, even warm references to Pakistan began to be printed. Communications between the two were stepped up. The

nese invasion of India in October-November 1962 marked the climax after which China and Pakistan acted in open concert with each other. The boundary agreement signed between the two countries in March 1963 is too well known to need any comment here except to note that this was about territory which was in illegal possession of both the countries. This was followed by an air transport agreement between the two countries. More and more delegations went to and fro between Rawalpindi and Peking.

Odd Situation

The unholy alliance between Peking and Rawalpindi was further cemented by the visits of Mr Chou En-lai, Prime Minister, and Marshal Chen Yi, Foreign Minister of China; the first of which took place in February 1964 and the last one by Marshal Chen Yi just before Pakistan launched its massive invasion across the international frontier of Chhamb. Even during the first visit of Mr Chou En-lai and Marshal Chen Yi, the Chinese took several steps towards virtual alignment with Pakistan. They first declared that the Kashmir issue should be decided in accordance with the wishes of the people and then made it clear that they wanted it to go to Pakistan. Marshal Chen Yi talked of enduring friendship with Pakistan even after "you get Kashmir and we get Taiwan". (In passing it might just be noted that Peking had not only spoken similarly of abiding friendship with India but also of "eternal and indestructible friendship" with the Soviet Union). The Chinese leaders even expressed their "understanding" of Pakistan's joining the CENTO and SEATO—which were at least ostensibly directed against communism.

The process of political reconciliation was completed by Mr Chou En-lai's visit and the process of growing collusion was pushed forward by President Ayub's visit to China when the red carpet was rolled out and a lavish welcome given to the new "SEATO ally" of Peking. Instead of complaining about the role of President Ayub as Peking did as late as 1959, Peking now declared that ever since President Ayub's coming to power, relations between China and Pakistan had improved and President Ayub was given a great deal of credit for it. In the biography splashed by Peking's newspapers on their front pages, President Ayub's role as a loyal servant of the British army was underplayed and his contribution to the development of Pakistan's "national independence" and friendship with China was launched.

The oddest situation in the world today is that Pakistan is aligned with both the United States and China—the two mortal foes in the present day world. Both show their bias towards Rawalpindi and both want Pakistan to get Kashmir. The Americans soft-pedal Pakistan's collusion with China and the Chinese try to make it appear as if Pakistan was not and had never been a member of military blocs whose ostensible target at least was China and as if Pakistan had not been armed to the teeth with U.S. weapons, many of which were extremely modern and sophisticated. The Americans continue to believe naively and the British perversely that President Ayub is a "good fellow" (from their point of view) and if only we were to give Kashmir to him, Pakistan would then be a loyal ally; while the Chinese also continue to believe that Ayub is a "good fellow" and would not let up on pressure against India. The success and sophistication of Pakistan's policy lies in conveying these opposite impressions at the same tune in opposite camps.

Now the Soviet Union too has joined the fray and fondly believes that by taking a more neutral stand it could bring about reconciliation between Pakistan and India and thus create a united front of Russia, India and Pakistan to counter-balance both Washington and Peking. The Soviets have yet to have their illusions shattered about the objectives and values of the present Pakistani leadership. The Pakistani leadership is not interested in a united front against anybody else except India.

After Pakistan's massive armed attack on Kashmir, Peking's advocacy of Pakistan's case became more strident. Pakistan was portrayed as an innocent, small, progressive country being subjected to the pressures and bullying of reactionary India, imperialist America and revisionist Russia. It almost appeared from Chinese propaganda as if Pakistan was fighting not with American weapons but with Chinese weapons. Peking also chose to ignore completely the Pakistani appeal to CENTO for help and the actions of Turkey and Iran in raising the issue of religion. All the evidence points to considerable, even though secret, co-ordination of effort between Pakistan and China in so far as their moves against India are concerned. When U Thant came to India after talking to Pakistani leaders in Rawalpindi, President Ayub delayed his reply to the Secretary-General's suggestion for an immediate ceasefire and made the negative response coincide with the Chinese ultimatum to India. Again, the Chinese announcement about the Indian side demolishing the military structures on the Tibetan side of the border with Sikkim (thus providing an excuse to Peking not to be obliged to honour its threat) came just before Mr Bhutto announced to the Security Council Pakistan's acceptance of the ceasefire. Obviously there was foreknowledge of each other's moves.

Effort at Blackmail

It should, however, be understood that each of the two countries is trying to play its own game and that there is no complete identity of interests. Pakistan hopes to use its friendship with Peking to blackmail the United States into putting further pressure on India on the Kashmir issue and at the same time to use its links with the West as a bait for China to attempt to draw Rawalpindi into Peking's camp through full-throated support for Pakistan. For Peking, Pakistan must fit into its overall strategy and, therefore, while there may be no limit on the verbal support offered to Pakistan, there will be definite limitations on any action that Peking might feel obliged to take to help its "SEATO ally". But India as the common enemy provides a useful meeting ground. It is, therefore, necessary for us to be prepared for all possible eventualities.

RAILWAYS HELP EFFICIENCY

(Continued from Page 27)

India out of imported electrolytic copper bars and cadmium. Out of the three sizes of steel tubes used in bracket assemblies, one is indigenously manufactured and trial rolling of tubes is being done in respect of the other two with a view to develop indigenous production. Considerable progress has been made in the development of solid core insulators and it is expected that Railway requirements will be met shortly by indigenous producción. Regulating equipment has been developed by local firms with the exception of stainless steel wire rope and certain types of ball bearings.

The progress made in regard to indigenous development for overhead equipment will be evident from the progressive reduction effective in the foreign exchange element. In 1958, the total cost of imported components and materials (other than raw materials) was about Rs 24,000 per km. of single track; this now stands at about Rs 2,200. Remote control equipment is manufactured by the Indian Telephone Industries, Bangalore, only a few raw miaterials and components being imported. A collaboration agreement has been entered into with a consortium of reputed continental firms for the manufacture of electrical equipment for 25 KV AC freight locos. All the equipment required for train-lighting, namely dynamos, switch-gear batteries, junction boxes, kent couplers and cables are being manufactured locally. Indigenous capacity has also been developed for the supply of various other equipment like drivers, desk equipment, pantographs, air-blast circuit brakers, air-compressors, air-brake equipment, transformers, silicon rectifiers and batteries and other accessories.

The Indian Railways occupy an important position as the first and foremost nationalised undertaking in the country. By sustained efforts, they have not only made considerable progress in the drive towards self-sufficiency but are also building up considerable potential for an export market.

TRAINING IN LEADERSHIP

N.C.C. Has "Be Prepared" Schemes

Col. P. DAYAL, Director, Planning and Co-ordination, National Cadet Corps

ON September 1, the armed forces of Pakistan, supported by air cover, crossed the international border in the Chhamb sector. While the jawans went out to give a bloody nose to the aggressor, people all over the country rose as one man to participate in the defence effort.

Nearly 30,000 N.C.C. cadets voluntarily offered their services for civil defence. In the border State of Punjab alone, 15,000 cadets, along with the police and Home Guards, worked round the clock in safeguarding vital installations, bridges, culverts and rendering first aid. The mere sight of these youngsters in uniform, most of them in their teens, unmindful of dangers and discomforts, helped to keep up the morale of the people at peak.

To canalise their efforts more effectively, the Government of India also issued a special notification making it obligatory for cadets to help air defence and other civil defence duties when called up.

How did the cadets react so enthusiastically and perform their duties so admirably even though the notice was so short? The answer is not far to seek. The secret lies in the sound training which the cadets get throughout the year.

During the last few years, the N.C.C. has come to acquire a new look. The entire training programme has been revised. There is today more emphasis on outdoor duties, adventure and civil defence training. Since May 1965, a series of special schemes like 'Be Prepared-I' 'Be Prepared-II' and 'On Guard' have been initiated to train a large body of cadets in civil defence work.

Every Senior Division cadet is required to attend at least two camps in three years of training. The training in the camps is strenuous. It is oriented towards developing qualities of leadership and self-reliance. A few selected Senior cadets are even given rock-climbing training and encouraged to participate in mountaineering courses.

Before the cadets go to a camp, they are given theoretical lessons to cover the practical training in a camp. These lessons are in addition to the normal parade and weapon training. Cadets also go through a series of outdoor exercises, which are designed to infuse in them confidence in their ability to take decisions and act independently. Cadets learn to be self-reliant and act in a responsible and mature manner. The exercises are usually during weekends, and may take the form of bicycling tours and hikes in the countryside. Cadets cook their own meals and perform patrol duties at night. These exercises build up their stamina and make them mentally prepared for the pace of training when they go to camps.

There are various types of camps to which cadets are sent, the most popular being the annual training and the all-India summer training camps. These are of 14 days' duration and are usually held in hill stations away from the heat of the plains. The salubrious climate and beautiful new surroundings make the cadets alert and eager to explore new places and learn new things.

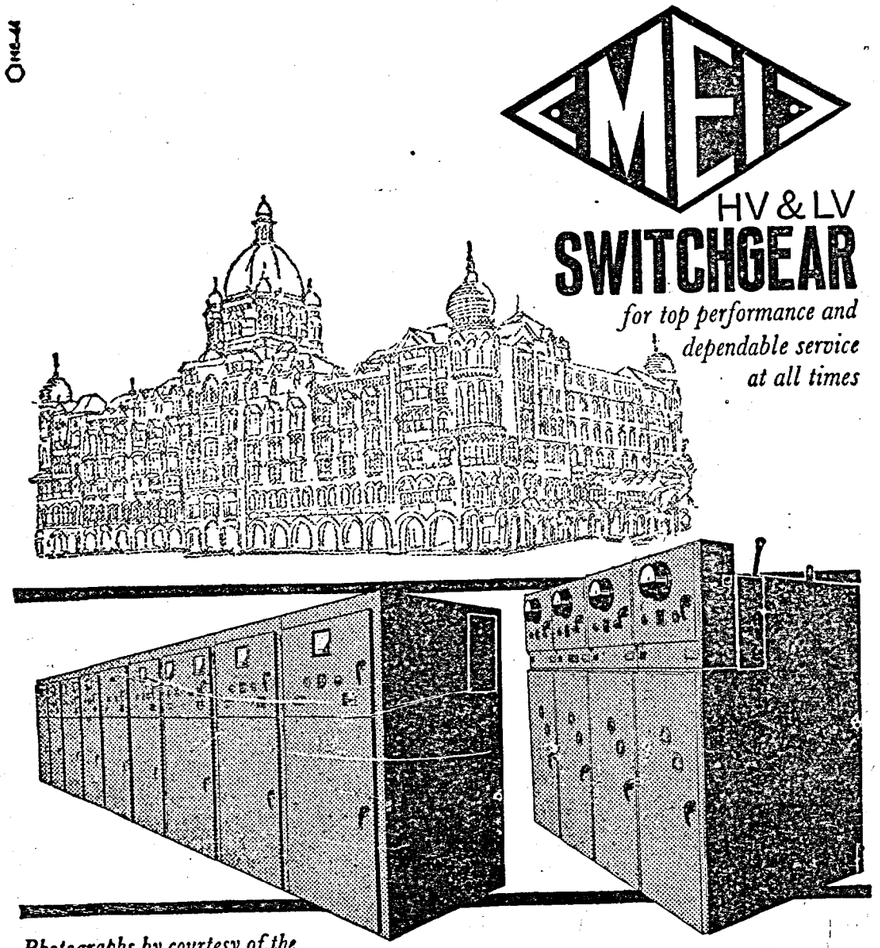
The training is rigorous, strenuous and spread over long stretches at a time. As a part of training, mock battles are staged on the hills and the cadets get a taste of mountain warfare. The cadets are called upon to put their best foot forward. Cadets coming from different places in the country share the tent with one another. A cadet from Kerala may be billeted with a cadet from Punjab. Thus the cadets share thoughts of one another and learn to respect traditions and culture alien to their own. Camaraderie and strong bonds of friendship grow up among the cadets and they go back to their home-towns not only abler cadets but better citizens.

For those cadets who show promise and are fairly well up in their training, there are camps for advance leadership, rock climbing, adventure and mountaineering. The duration of these camps is 21 days. The aim is to offer a challenge to human endeavour and introduce the cadets to purposeful leisure.

In one of the adventure courses run by the Himalayan Institute of Mountaineering at Manali in December 1964, twenty-four cadets learnt bush scrambling, rock climbing, and crossing rapid mountain streams. During the 21 days, they were out for 36 hours on patrol and solo-bivouacking. The cadets had to carry full rucksacks and tents along the banks of the Beas river. They followed no known routes and carved out their own path as they went. Some of the boys reached up to 19,500 feet and lived in the high altitude tents which they carried. Other boys volunteered for solo-bivouacking for a period of 20 hours for which exercise they lived without tents and slept only in sleeping bags, living on a restricted ration of four biscuits.

Similarly, a rafting trip on the Jamuna from Mathura to Agra was undertaken by some naval cadets of Delhi. The expedition consisted of two rafts, ten Senior Division cadets and three members of the staff. The raft was improvised from a wooden platform supported by six 45 gallon drums. It measured 10" x 8" and could carry ten people. An officer went along in another small raft with two cadets. They spent three days and nights during the winter of December 1964 and had much adventure and excitement during the journey.

Such training, although it involves hardship and risk, goes a long way in instilling presence of mind, self-confidence and a sense of responsibility among the cadets.



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Self-Reliance in Agriculture

From Page 12

All this will involve a terrific organisational effort in terms of education, research, demonstration, supplies and distribution.

(7) Increasing the efficiency of agricultural implements is another important way of increasing agricultural production. During the Fourth Plan emphasis will be laid on modern implements like tractors, power tillers, harvesters and the like, and also on improving the efficiency of implements that can be worked by animal power. Provision on an extensive scale for repair and maintenance facilities will be made, for without such facilities it would be impossible to bring about any substantial increase in their use.

(8) Account is also being taken of the need to link up credit and marketing facilities with programmes for increased agricultural production. While every attempt will be made to improve the efficiency of the co-operative system in this regard, alternative institutions will also be set up where necessary to see that lack of credit and marketing facilities does not hold up or hamper individual or area programmes for production.

(9) Modernising agriculture does not just mean provision of material inputs. Research and extension are an essential precondition of agricultural progress. Accordingly, the Fourth Plan envisages a comprehensive programme for co-ordinating and expanding agricultural research on a nation-wide scale, linking it up with the complexity and variety of the problems on the field natural to a vast country like India, giving a practical bias to the training given in our agricultural colleges and diploma institutions, and tying them up with concrete development programmes in the agricultural areas in their vicinity. The Fourth Plan also includes a comprehensive programme for rural adult education, the training of practising farmers, setting up of junior agricultural schools, and the promotion of an agricultural and scientific bias in our system of elementary and secondary education.

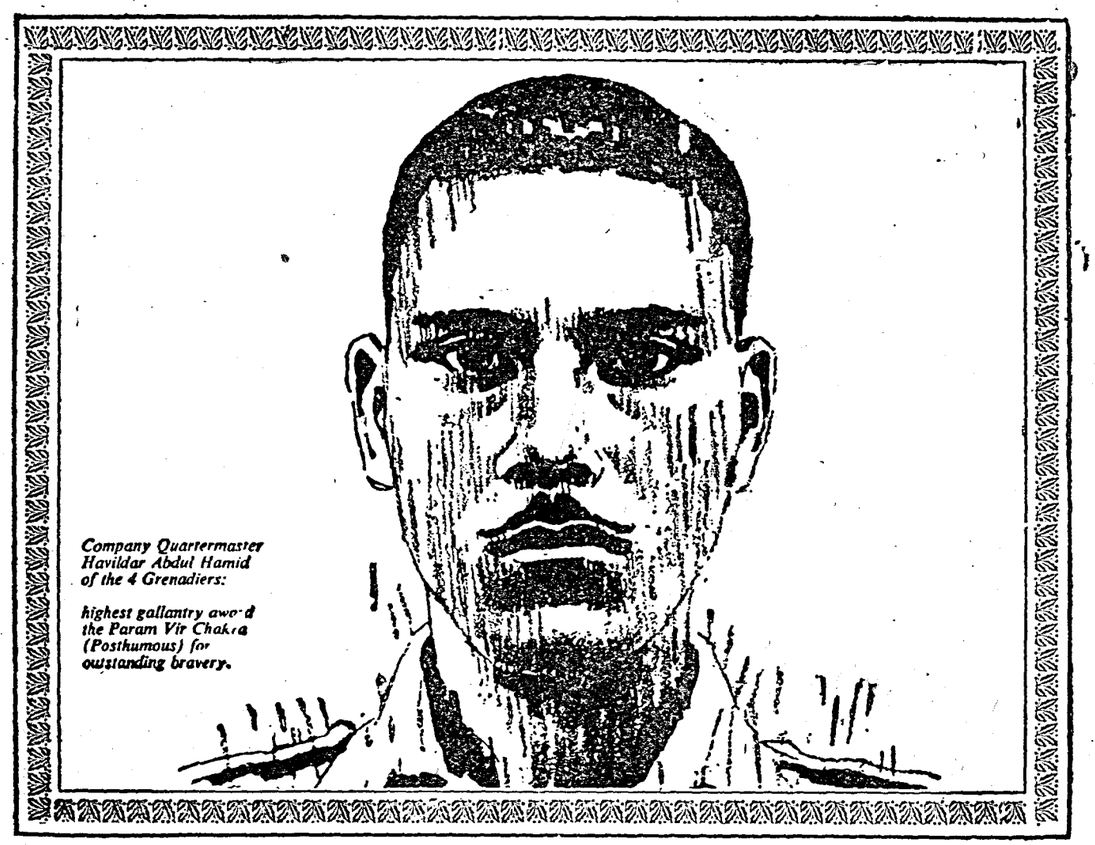
(10) Agriculture is essentially a local industry; and unless it is tackled in a planned, integrated and comprehensive manner at the local levels, no amount of national planning or national supplies will lead to the desired increase in agricultural production. That is why so much stress is being laid in the Fourth Plan on district and block plans for agricultural development, with an agricultural planning cell at the State headquarters for bringing about the necessary dovetailing and co-ordination between local and State plans for increasing agricultural production.

(11) In our system of administration—for that matter, in any system of administration—it is not possible to bring under one administrative department all the facilities and activities that go to make up a comprehensive programme for increasing agricultural production. Irrigation, Power, Credit, Roads, Fertilisers, Seeds, Implements, Research, Education, Extension—all these are vital to agriculture and yet they are and cannot but be under separate ministries and departments. Hence the need for co-ordination at both the ministerial and official levels, both at the Centre and in the States. This has been recognised and action taken to secure the necessary machinery for the purpose, though I cannot say that this machinery is working with the requisite efficiency or firmness, clarity of purpose or dynamism so essential for a massive programme in agriculture. Thus we have an Agricultural Production Board at the Centre, Cabinet sub-committees for agricultural production programmes in the States, Agricultural Production Commissioners in the States and their counterparts in the districts, and other appropriate bodies of officials at various levels. What is needed is more efficient working of these boards and officials and also better inter-communication and co-ordination with non-official individuals and organisations in the field. The Fourth Plan will concentrate special attention on this factor.

(12) Finally, and in some ways this is the most important advance that has been made in our agricultural planning, the Fourth Plan is based on a recognition of the need for having an integrated agricultural plan within the framework of the overall Plan. Thus, we will have during the Fourth Plan period an agricultural plan that will bring together not only the various programmes and targets relevant thereto but also identify and give priority to all activities in other sectors which have a bearing on the implementation of the agricultural plan. All these have to be planned in such a manner as to give them not only the appropriate inter-sectoral balances including both availabilities and outlets, but the required time-phasing and programming as well. The integrated agricultural plan will cover all the appropriate and inter-connected sectors; it will also include commodity-wise, programme-wise, and area-wise sections, all of which in turn will have the necessary inter-sectoral tie-up. It is this integrated and comprehensive agricultural plan that needs to be given the highest priority if we mean what we say by the statement that agriculture will command the highest priority in the Fourth Plan. Thus, fertilisers, pesticides, and agricultural implements should command higher priority than other sectors in industry; and agricultural education and research in education, rural transport in transport, rural electrification in electrification, and agricultural needs in allotment of cement, bricks, iron and steel, and foreign exchange. In order to see that this is done and to emphasise the comprehensive and inter-sectoral character of maximising agricultural production, it is proposed to bring out separate volumes for the agricultural plan of the country as a whole as well as for the different States which make up the Indian Union.

The Fourth Plan also contains significant programmes for animal husbandry, fisheries, poultry, piggery, subsidiary foods like potatoes, sweet potatoes and tapioca, horticulture, storage and warehousing and improved processing. Space does not permit me to elaborate on any of these items, but it is necessary to mention them to complete the record.

I hope what I have said above



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gives some justification for the optimistic undertones of this article in spite of the pessimistic overtures with which it has been started. I do believe it is possible for India to reach self-reliance in her food supplies at current levels of consumption before the end of the Fourth Plan period. I also believe that my faith is based on scientific and realistic reasoning and not on just wishful thinking. Self-sufficiency at current levels of consumption is of course not enough. What we need is also a rise in the levels and quality of our food consumption so that we may reach nutritional standards comparable to those of the developed countries. All this should be true not only for our classes but also for our masses. I am sure we will do this too, though it may take us two more Plan periods before we reach this goal. But, as Gandhiji used to say, one step at a time is enough. Our immediate task is to rid the country of the stultifying and nationally dangerous dependence on imports for our food supplies. This, I think, can be done by implementing the agricultural programmes and the comprehensive multi-sector integrated agricultural plan that the Planning Commission intends to put before the country for the Fourth Plan period.

Collector's Items

A CIRCULAR has been issued by the Punjab Government on the subject of rounding up paratroopers. The issuing authority is the Director of Public Relations, Tourism and Cultural Affairs.

Rightly so. No tourist is as unwelcome as a paratrooper!

* * *

College boys, we learn, have a new word for the stout and dim among them. These are no longer called buffaloes but Pattons.

QUOTATION BOX

But to ask India after eighteen years to deliver up portions of Kashmir she now holds would be akin—emotionally—to insisting that United States give New Mexico back to old Mexico.

—The Denver Post

Britain's parting gift...this time bomb.

—From an article on Kashmir in The Sunday Times, London

The word flexible is flexible in itself. And I therefore do not have a clear idea of the meaning of this word.

—Prime Minister Kosygin

"It has been a very bad show" by youths—"breaking windows is a favourite game of the young."

—Pakistan Ambassador to U.S. commenting on the mob attacks on U.S. offices in Pakistan

It is no more hypocritical for the Indian Government to preach coexistence and fight their neighbours (and vice-versa) than it is for the American Government to preach independence and devastate the South (in the Civil War, et seq) when it declares it.

—Andrew Kopkind in "New Statesman"

'Entertained'—that is, bored in a large number of different ways in rapid succession.

—John Wain

The armoured division consists of upward of 3,000 vehicles and when in movement along a road, the leading element might be in Ambala and the rear elements still waiting around Delhi.....To give you some indication of costs—the initial cost of its equipment works out to a figure in excess of Rs 30 crore and the recurring cost around eight crore. One round fired by all its guns—tanks as well as artillery guns—costs around Rs 80,000. A very high financial outlay indeed particularly when every single rupee comes out of the tax-payer's pocket, unlike the enemy who gets it all free.

—Lt. Gen. M. S. Wadalia

There is an inclination in Europe always to give Pakistan rather than India the benefit of the doubt...One reason seems clear. The fact that India has been able to establish itself as an independent State and take its place as an influential world power still rankles with some. Because of its capability in international affairs, its influence at the U.N. and its leadership in seeking better trading and economic terms for developing nations generally it is resented by others.

—E.B. Brooke in his despatch from Vienna in "The Statesman"

It is important too that our ambassadors should be spared humiliation. I am reminded of the time when the Government called for a statement of daily expenditure of all our envoys, insisting on the submission of the menu on every occasion they had entertained officially and the names of the guests as well. I complied cheerfully, deliberately sending the menus in French. Prompt came the request for a translation.

—Mrs Vijayalakshmi Pandit in an article on the foreign service

It was the sheer modernity of the Patton tank that was its undoing, at least in the hands of the unmodern Pakistan tankmen.

—The Military Observer of "The Statesman"

The Chinese demand the return of 800 sheep and 59 yaks alleged to have been seized by the Indian troops on the China-Sikkim border. Perhaps the Chinese frontier guards are hungry and have not had a decent meal for years.

—Mr K. Rangaswami in "The Hindu"

A woman is like a rubber tree. She's not good after 30 years.

—President Soekarno quoted in "Esquire"

Complimented on the quality of his spoken English, a West Indian once told an Englishwoman, "You don't speak it so badly yourself!"

—From a review in "The Statesman"

Perhaps the only thing that has tended to instigate Pakistan's present bitterness towards the West is the fair and at times sympathetic reporting of the situation in the West, particularly in the British press and the BBC.

—The Pakistani correspondent of "The Economist", London

The Home Ministry's case for raising the salary scale of the IAS on the ground that the present emoluments are not attracting quality candidates seems to me to be misconceived. If quality is falling it is largely the natural consequence of the sad deterioration in our educational standards... If there is a problem here it is best dealt with not so much by offering better salaries for the IAS as by raising the emoluments of teachers in the schools and colleges.

—V.B. in "The Eastern Economist"

When congratulated on receiving the Vir Chakra award, Hav. Potharaju, the anti-aircraft gunner said, "I have just done my duty. I hope I will be able to shoot down more enemy planes."

—A Press Information Bureau report

Almost every industry has been claiming to be defence-oriented... Lipsticks for army wives, are they luxury goods, or do they serve war needs, like cigarettes for the jawans?

—The Economic Weekly

Natural Resources and the Emergency

(*Continued from Page 16*)

Dun, and the Forest Departments of the States should be asked to come into this area with bigger help. Research will also have to be intensified to test the performance of various articles made from wood.

In so far as industrial products made from forest raw material are concerned, the most important is newsprint. Today the country is producing only 30,000 tonnes of newsprint per year, all in the Nepa Mills. As against this, the annual consumption is of the order of 125,000 tonnes. On the import of the balance requirements, a foreign exchange of nearly Rs 6.2 crore is paid. The Government of India, I might mention, have decided to double the production of the Nepa mills in 1966. Erection of additional equipment for this programme should be expedited. In regard to forest raw materials as a whole it could be stated that these are available within the country to tide over the emergency.

Land

Plantation of quick growing, salt-tolerant bushes and trees suitable for saline and alkaline areas such as Wilayati kikar (*prosopis juliflora*), Babul (*Acacia arabica*), Oken and Farash (*Tamarix articulata*) may be taken up in saline and alkaline areas which are lying waste. This will augment our domestic fuel supply.

The total of culturable wastelands in the country is about 20 million hectares. As much as possible, of such wastelands which can be put under crops should be cultivated and crops suitable to the areas grown. Agricultural wastelands in the country are mostly held by small owners who are not in a position to meet the cost of their reclamation. The reclamation of such lands may have to be subsidised.

There are areas with ravines and gullies which can be immediately reclaimed economically, and could be put to agricultural use. There are other areas which could be used for forestation and/or controlled grazing.

The Committee on Natural Resources of the Planning Commission has made detailed recommendations in respect of cotton, groundnut, coconut, jute and mesta, cashewnut and arecanut, and these recommendations, if followed urgently, should strengthen our agricultural base.

Fishery Resources

The Indian Ocean Expedition has estimated that only 1 to 8 per cent of the fish available along the Eastern and Western Coasts of India is being caught at present. In other words, the supplies of sea fish along the coasts of India could be increased 20 times if this resource is exploited fully, in the way in which it is exploited by the people of Japan, Great Britain or other countries of Western Europe. The supplies could be increased even more by adopting presently known methods of fish culture. The reservoirs in our river valley projects offer scope for (fresh-water) fisheries of great magnitude. What can be done in this direction is demonstrated by the experience on the Tungabhadra Dam where supplies of fish (for fish culture) have increased within a few years from 700 pounds to 300,000 pounds. Some of the slower moving rivers offer good possibilities for culture of algae which are rich in protein food.

Use of Water Resources

A large quantity of urban waste still remains unutilised and much sewage and sullage are discharged into rivers and streams causing pollution of water. By efficient utilisation of urban waste we can not only grow more vegetables but also strengthen the agricultural potentiality of the country.

About 8.4 lakh tonnes of basic slag are produced annually from the Indian steel plants which contain 45-48 per cent lime and 2-5 per cent phosphates. This waste material, if finely powdered, will be a valuable ingredient for liming acid soils which forms about one-tenth of the cultivable area. The difficulty of making this slag available in finely ground form can be solved by installing powdering plants near our steel plants.

If one were to enumerate briefly some other uses of materials now being wasted: blast furnace slag can be profitably used for augmenting the manufacture of cement; by-products of coal can be used in the manufacture of toluene and other organic compounds which are vitally needed for defence industries; minor non-edible oilseeds like *mahua*, neem, *karanj*, *undi*, etc. can be utilised to increase the production of soap and cosmetics and also to relieve the rising pressure of demand on the edible oils.

One can quote several such uses of materials which are otherwise going to waste. These will not only feed our economy but also make us more and more self-supporting. For, if any lesson is to be learnt from this emergency which has been forced on us when we were amidst our endeavour of development, it is that we should rely on ourselves.

To remind you to

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PLANNING FOR A SELF-RELIANT DEMOCRACY

from Page 10

Along with measures to reduce dependence on foreign exchange resources, we have to face up to the most urgent task of all—increasing food and agricultural production and so managing the country's food economy that imports play no more than a marginal role. Whether or not continued dependence on food imports has come in the way of the maximum effort being made to increase agricultural production, the opposite may still be true, namely, that to know that we cannot count on food imports to a significant extent should induce the greatest effort physically possible being made in every nook and corner of the land to achieve food self-sufficiency. There may still be a food gap, but through rationing and other means the shortage may be so shared as to enable the country to go through the difficult period unscathed. The successful management of the food economy becomes something more than a matter of marketing, prices, regulation and control. Producers, traders, consumers and the various administrative agencies become jointly responsible in fulfilling their social and economic obligations with complete responsiblity to the community. This is itself a good instance of the kind of combination of administrative and popular leadership and mass communication and mass organisation and harnessing of local resources which is essential for achieving self-reliance both in different sectors of the economy and at different levels of national life.

The same combination is called for in dealing with the problem of civil supplies and essential consumer goods. Here, it is equally important that consumption patterns should be reoriented so as to secure to the mass of the people their most essential needs, cutting out demands on scarce materials and vital fabricating capacities for which there are more urgent uses. Restraint in consumption is no less necessary for mobilising resources to sustain the burdens of defence and development.

These burdens are likely to be far bigger than we know or can readily envisage. The management of a mixed economy under the double strain of defence and development is an extremely complex undertaking and one entailing many risks. Here, it may be enough to refer to only one of its important components, the mobilisation of savings. The intensification of the savings movement in all its aspects is a task that cannot wait.

Solving Urgent Social Problems

Planning for a self-reliant democracy is a total effort. Economic problems are undoubtedly the most important, but they may prove overwhelming unless urgent social problems also receive equal attention at the same time. In working for self-reliance, a nation such as ours seeks to liberate itself both from external limitations and from weaknesses and failures that lie within. We have yet to redeem the promise of freedom for large numbers of our people. For millions the content of freedom is still meagre. To create enough work, to use our manpower resources in a gainful and productive manner, to extend the principle of social responsibility to the relief of distress and suffering within the community, to implement completely our programmes of land reform and social justice, are tasks wholly within the capacity of a nation such as ours.

K. N. RAJ

From Page 36

of the latest British, French, German and Italian machinery. Wuching is home-spun, almost amateurish, but with a lived-in look: Nangal is elegant and efficient but the Indian staff look almost out of place, scared to touch their sophisticated surroundings."

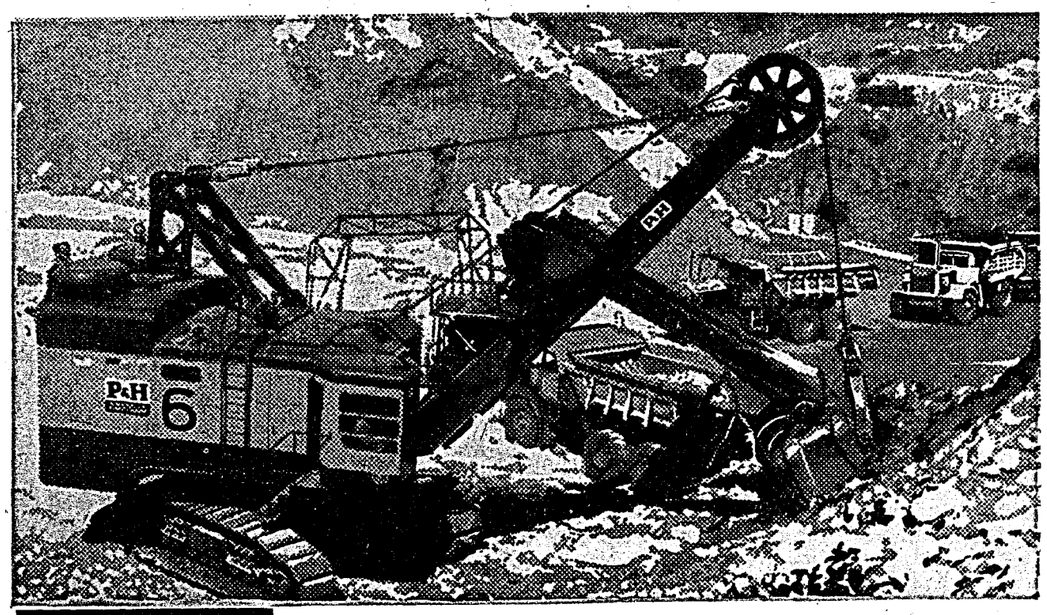
Defence Orientation

If what is in issue today in the conflict with Pakistan is not just the territory of Kashmir but something much more, and if it does not suit India's interests to accept Western notions of what the balance of power in South Asia should be, we have much to learn from Chinese policies in pursuit of its national interests. The Western view of South Asia in relation to the larger balance of power in the world requires two or more countries which are just strong enough to offset possible Chinese temptation to move in this direction, but which would also act as counterfoils to each other so that the control of the West over the region is at no time lost. If we do not wish to fall in with this scheme of things we should take care that we do not define 'defence orientation' too narrowly with reference to the immediate situation but take a longer and wider view of the whole problem.

India's position is of course different from that of China in several important respects. The Western Powers are not hostile to it as it is to China and indeed the stability and strength of India is vital to their own interests; if therefore India is prepared to demonstrate that it is not helplessly reliant on them (as we might indeed now demonstrate by taking measures for doing without supplies of wheat under P.L. 480), it would be still possible to get on India's terms their assistance in its development programme. India is fortunate to have also the continued support of the Soviet Union, unlike China. Not only has the Soviet Union no use for the kind of controlled power-parity in South Asia which the Western Powers are anxious to maintain between India and Pakistan but it is willing to give India precisely the sort of concrete assistance it needs for building up a strong, self-reliant economy.

India has therefore no need either to take aggressive political postures against the Big Powers or waste its resources on securing prestigious symbols (such as Atom Bombs) to merely establish Big Power status for itself. It only needs to recognise the points in its favour in the present international situation, refuse to submit to arm-twisting of any kind by the Western Powers (by placing food-grain supplies on ration for some time if necessary), and direct its efforts to developing as quickly as possible its agricultural, equipment, and machine-building industries. If India plays its cards well it should be able to secure assistance from a number of countries for this purpose and achieve within a few years a degree of self-reliance adequate to discourage others from trying to push it. India's own interest is after all only to be able to defend and develop, without interference, the kind of political and economic system which it cherishes.

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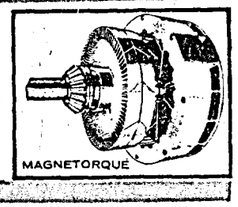


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MEANING OF SELF-RELIANCE

YOJANA

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ABOUT YOJANA

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Cover design, interpreting the concept of self-reliance, is by R. SARANGAN

Letters

FAIR COMMENT?

I WENT through the review of Dr S.C. Jain's book *Indian Rural Economics* by V. Sagar published in *Yojana* of August 1. I was distressed to read the lines: "Those who are not fully acquainted with the subject should not write books in the interest of the subject as well as in their own interest." Dr Jain, the author, may not be an expert to the extent the reviewer expects; but all those who write over a subject need not necessarily be experts or be actively engaged in an occupation or vocation relating to it. Books on agriculture, animal husbandry and rural economics etc. have been written mostly by writers who are not necessarily actual cultivators. Books written on any subject contain the expression of one's thoughts and emotions along with a point of view. I do not therefore agree with the reviewer of the book that one should not write when one does not have sufficient knowledge of a particular subject. For knowledge after all is limitless. Who is the judge of what is sufficient? What penalty does the reviewer propose to impose on such authors, as far as the question of writing books in their own interest is concerned, particularly when an individual is interested in writing on specific problems? I think reviewers should not bother themselves about the interest of the authors. It appears to me that your reviewer is frustrated and prejudiced. Perhaps he has never been an author. I have nothing to say as far as his comments on the contents of the book are concerned.

Saoner (Maharashtra) D.D. GOEL

Reviewer Replies

I am amused to read the rejoinder of Mr D.D. Goel to my review of Dr S.C. Jain's book *Indian Rural Economics*. If Mr Goel wants to defend a friend, I have nothing to say. But if his intention is to protect the interests of the subject, he has failed.

When I undertake reviewing books on agriculture or allied subjects, my objective is to bring out the best out of the publication so that the reader may know its special features and in what way he can benefit by reading the book. From this book I failed to obtain anything worth bringing to the notice of readers.

India is a free country. Anyone with money or influence can get books printed irrespective of their quality. Whether the students would gain from them or not is the responsibility of the reviewer to indicate. I am really pained to find that despite India being predominantly an agricultural country we still have to depend on foreign books on agricultural subjects. I should very much like our Indian authors to emulate the virtues of these foreign authors. I strongly feel that great harm has been done to agriculture and allied subjects by writers who are not at all acquainted with practical problems in the field or do not have any basic background of the subject. Perhaps in no other country would a man dare to indulge in writing on a subject without a deep study.

V. SAGAR

You Ask Us

AS SOON as I receive your *Yojana* issue every fortnight, I first turn to the column "You Ask Us We Tell You". If I do not get that column, I do not see other feature and get disappointed. Please do not omit that column as it is very interesting and useful.

Mysore K.T. THIMMA REDDY

PLOUGHS AND SWORDS

WE have long applied military terminology to our development plans. We have talked of a war against poverty; of long-term strategy, of food fronts and industry fronts, and of immediate and long-term objectives.

We have now actually experienced war. This is not the first armed conflict waged on Indian soil in the last eighteen years. But it is only now that the people at large could realise so vividly the nature of warfare and the essentials of what makes for victory.

The stolid unity, courage, dedication and skill with which India fought back the Pakistani invaders came as an unwelcome surprise to the professional pessimists and pooh-poohers, so many of whom pass for newspaper correspondents these days. The petty and the vain do not relish being proved wrong. But let us not spend too much of our time or passion on those who persist in misunderstanding India. A great nation must learn not to mind such things. We do what we do, not for winning the approbation of a few reporters, but for our own sake. If we fight, we fight not to prove to the world we are strong, but merely to keep our country intact. If we insist on being a democracy, it is not because we want to make a claim on other democracies on that score, but because we believe that only through democracy can our people be captains of their soul.

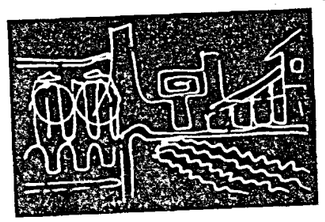
The short war has been a great teacher. The first lesson it has taught us is that of self-reliance. The lesson has been brought home in both a positive and a negative way. The negative example is provided by Pakistan. Gift tanks, gift aeroplanes and gift ammunition have not been of much avail to Pakistan. The Pakistani soldiers and airmen were just not good enough to use them effectively. This is not to say that the individual soldier of Pakistan is not brave. In the manner of gallant fighter, General Chaudhuri has reminded us that we should not underrate the courage of the Pakistani troops. Pakistan's boast of one Pakistani soldier being equal to three Indians should be dismissed as the bravado of an immature country envious of its larger and stronger neighbour. Anyway the most famous regiments of the old Indian Army did not certainly all go to Pakistan. In fairness, it must be said that man for man there was not much difference between the combatants on the two sides of the line. But there is so much of technology in warfare these days that, to fight wars, personal courage must go with training, technological knowledge and meticulous co-ordination. Our men had the advantage of superior leadership, superior training, and superior technological grounding. It was a Pakistani diplomat who wailed that India was producing four-fifths of its needs in armaments. The capacity to produce these also meant that we had the men who knew the heart of the machines. Good maintenance and skill in repairing double the strength of the forces at a general's command.

Analysts of the course of the war have also pointed out the marvellous co-ordination that existed between the Army and the Air Force. This co-ordination is perhaps the most important lesson we have to apply to the other war we have now to wage—the war of a bigger harvest. For eighteen years we have been speaking about food self-sufficiency being our goal. In these eighteen years we have had the customary share of droughts and famines, but we have been able to banish the horror and ravage that used to go with famines. This we were able to do partly owing to the increase in domestic food production and partly through imports of food-grains. The bulk of this imported food came from the United States. The country is grateful to America for this signal assistance (and the Prime Minister has recently reiterated this gratitude) but it has often been felt that the ease with which we could get food from the United States had prevented us from exerting ourselves more.

The time has come when we have to realise that the ploughshare is also a sword. In the words of the Prime Minister, self-sufficiency in food is no less important than an impregnable defence system for the preservation of freedom. This self-sufficiency must be brought about through better production assisted by better distribution. After all the shortage is only of the order of eight per cent of our needs. With the irrigational facilities we have built up, with the fertiliser we manufacture and the compost and green manure we can make, with the improved seed varieties we have developed, with the extension service we have established, with the distribution of ownership we have achieved through legislation, and with the price support policies we have announced, it certainly is within our ability to grow more and make up the deficiency. The key element now is co-ordination. To reach inputs in time to the farmer is the biggest task now of officials in the districts. "The entire team in a district," the Prime Minister has said, "has to work with a dedication in the same manner of a soldier on the battlefront." He has called on district officers to regard themselves as commanders who have to organise the drive for food self-sufficiency.

Let every district officer emulate Jayanto Chaudhuri and Arjan Singh; then every farmer will become a soldier and every plough will truly be a sword in the defence of the country.

In a complex modern industrial society, no country can be self-reliant in the sense of being completely self-sufficient. But in the new international context, we must prepare ourselves for the possibility of doing without substantial economic aid from abroad



MEANING OF SELF-RELIANCE

Not merely preparation of new priorities and estimates but a new outlook with stress on austerity, innovation and exports

B. R. BHAGAT, *Minister for Planning*

THE ink was hardly dry on the Memorandum on the Fourth Five Year Plan which was considered by the National Development Coun- recently when the country was ed with one of the biggest challen- since Independence. The N.D.C. htly resolved that the Fourth e Year Plan must be adapted and riented to meet the requirements defence. This will mean suitable justments in priority for indivi- al projects. Some of the less vital ogrammes may well have to be ferred. Within each project, a eat deal of thought and attention ll have to be given to methods reducing its cost and its foreign change content. A new exercise ll also be necessary to produce over-all balance of supply and mand in the interest of maintaining ice stability. The Planning Com- ission and the concerned Depart- ents of the Government are now gaged in working out what amounts to a new outline of a Fourth Five-Year Plan.

The basic premise of our planning now has to be a quick and determined move towards self-reliance. Even as it is, our plans of development stressed the objective of attaining self-sustaining growth in a not-too-distant future. This objective will now have to be realised as quickly as possible. Economic development in India since Independence has taken place within an environment of peace and security of our borders. We have been able, therefore, to undertake plans of development which involved considerable dependence on imported equipment and supplies, a part of which was financed by generous foreign assistance. Our strategy of development has been to secure the maximum possible growth in those sectors of the economy which enable us to reduce our dependence on foreign aid over time. This strategy has clearly paid good dividends. Today India has a nucleus of heavy engineering and chemical industries and a rapidly growing metal industry. We are on the threshold of new avenues of development in more sophisticated fields like petro-chemicals and electronics. These achievements have been made possible by our own efforts and also by the help of friendly foreign countries and international institutions. We have accepted economic aid without any strings, since our basic policy has been one of non-alignment. We are determined to pursue the same policy for future.

In the changed context, however, we must recognise the realities of the international situation and prepare ourselves to face the possibility of our having to do without substantial economic aid from abroad. The strategy of development which we have adopted so far will, therefore, need to be altered.

The import of capital equipment and certain key raw materials will no doubt have to continue. In a complex modern industrial society, no country can be self-reliant in the sense of being completely self-sufficient. The point is that we must develop adequate export capability to be able to meet all our import requirements from our own resources. We cannot clearly do this if we have to continue to import food in addition to machinery and raw materials. The development of agriculture to its full potentialities must, therefore, receive the highest priority next only to defence in all our plans for future.

For the last decade or so, we have been importing foodgrains on a substantial scale; in particular, during the last three years imports assumed a large dimension. Nearly one-third of the total supply of wheat comes from abroad, most of it under the PL 480 assistance programme. Imports of wheat last year were nearly twice as large as the marketable surplus from indigenous production. In other words, nearly two-thirds of the supply in the urban areas was from imported wheat. This degree of dependence for a basic necessity of life cannot be allowed to continue in the present context.

Happily, our dependence on imports is not as great as it appears at first sight. Taking the supply of food-grains as a whole, we import between 6 to 7 million tonnes out of a total supply of about 87 million tonnes. With a marginal increase in production and a firm and equitable system of distribution, we should be able to manage with what we produce. The utmost discipline in the matter of food is necessary. A national food policy which aims at remunerative prices for the farmer and common sharing of scarcity must be put into effect forthwith. We have already fixed remunerative prices for all important crops and it is the duty of the farmer to market as much of his produce as he can after providing for his own needs. A national food policy must be put into effect forthwith. Procurement on Government account will have to be increased substantially during the coming season so as to enable Government to secure a commanding position in the food-grains market. We had considerable success in the matter of procurement this year; nearly a quarter of the marketable surplus in rice was procured by Central and State Governments. With effort, and co-operation on the part of State Governments, it should not be difficult to increase this proportion. Traders must also co-operate with Government in this hour of crisis; those who do not should be firmly dealt with. In short, the food policy has now to move fast in the direction of socialisation of distribution.

In the industrial field also dependence on imports can be reduced substantially, if only a determined effort was made. There is no need to undermine the role of foreign assistance in our economic development or indeed in the economic development of the developing countries at large. It nevertheless remains true that one of the less desirable aspects of economic aid is to stultify local initiative and enterprise. No one could foresee the phenomenal growth which has taken place in the manufacture of machinery of all kinds since independence. This has been made possible because of the conscious Government policy to encourage production of machinery. A similar, and perhaps more strident, advance is necessary in the development of local substitutes for industrial raw materials which continue to be imported at present. Already we have made considerable progress in the direction of import substitution. Copper, for instance, is being replaced by aluminium to the extent possible; the phased programme of manufacturing in various engineering industries ensures that a steadily rising proportion of the total output is manufactured within the country. In the present context, all these efforts must be given a renewed emphasis. More important still is the need to concentrate attention on those materials which are in critically short supply and to develop indigenous production of these or of local substitutes.

In several industries, the growth of output is hampered by our dependence on a few components and materials which constitute a relatively small proportion of the total value of output in these industries; they are nevertheless of such importance that unless we muster all the skill at our command to produce these items at home, industrial output would be affected. This is true also of defence production.

Government has encouraged the development of research laboratories and increasing use must be made of these laboratories in establishing production within the country of critically short materials. Industrial units in both public and private sectors must use the facilities of the national laboratories which, in turn, must be reoriented to meet their needs. They should also establish new research centres of their own. All large public sector undertakings should set up their own research and design divisions and the practice must also be followed by large private units. Industry in developed countries like the United States spends a large proportion of its resources on research. This is a tradition worth emulating. Indian industry must now become increasingly research-oriented. Self-reliance is not merely a matter of preparing estimates or calculating targets. It is a matter of innovation and improvisation; above all it is an attitude of mind which has to pervade all our activities, whether in agriculture, industry, education or other social services.

The country has made a tremendous effort over the last few years in mobilising resources for defence and development. Further efforts will be necessary to check the growth in private and public consumption (other than defence). Self-reliance, it must be recognised, is not possible without self-denial. This is obvious in the case of those commodities, like food, which are in short supply. We cannot hope to meet the requirements of defence from our own production unless civil consumption is restrained. But this is true not merely of food. The diversion of resources to defence and development requires a general restraint on consumption. Self-reliance, without complete self-sufficiency, implies the creation of a large and growing exportable surplus. We have to learn to do with less of the things which are not in short supply, so that we may export them and earn the precious foreign exchange needed to import things we cannot produce.

Our objective is not merely to increase the production of military hardware but also to gain greater economic strength to withstand international pressures on us. It is incumbent upon us, therefore, to work with greater purpose and resourcefulness in all spheres of activity. The tasks have to be defined clearly in each field and must be fulfilled come what may. All our efforts must be given the requisite institutional shape from top to bottom. The country has got to be welded into a smooth and efficient machine functioning for the attainment of desired objectives. This will call for a quality of leadership at all levels far exceeding that we have been able to muster so far. The psychological upsurge which is evident throughout the nation today has got to be maintained and channelled into a well-defined course of action. In its new-found self-confidence, this nation of 470 million must move forward towards self-reliance and recognise no obstacles in its way.

More Articles

ON

Self-Reliance

IN THE NEXT AND SUBSEQUENT ISSUES

*

NEXT FORTNIGHT

H.R. BHATIA :
PRIORITIES IN POWER

B.N. DATAR :
MANPOWER PLANNING

M.Y. GHORPADE :
ELECTRICITY FOR FARMING

CORRECTION

A typing error crept into the second sentence of the article by Professor K.N. Raj ("Long-term View of Self-Reliance") in the last issue of *Yojana*. The sentence as printed read: "They have brought home to most people the essential weakness of the attention given to the development of heavy industry in Indian planning" instead of "They have brought home to most people the essential *correctness* of the attention given to the development of heavy industry in Indian planning."

In the tribute to Dr Schweitzer on page 27 in our issue of September 26, two lines got dropped out in printing. The last sentence, as printed, is unfinished, and reads as follows: "It is in this ability to make a sustained sacrifice for a principle, even as Socrates, Christ or Gandhi did, that..." The following words ought to be added: "Schweitzer has his greatest appeal to thinking men all over the world".

Yojana regrets these errors.

QUOTATION BOX

English sports reporting seems to be as poor as the reporting on the Indo-Pakistani conflict.

—Mr Vijay Merchant

The Patton tanks were too advanced for Pakistan.....But it reminds one of what happened to Duryodhana in the Kurukshetra battle when he used borrowed armour without having mastered its technique.

—Mr C. Rajagopalachari

Brezhchev and Khrushygin.

—Heading of article in "The Economist", London

The setback for the Patton has helped to lift Mr Krishna Menon's standing.

—"Mainstream"

If what has been done by our Army and people could be done by our politicians too, this country would have been happy and prosperous long ago.

—Acharya Kripalani

The present tendency...is to search for an Indian equivalent of the Dullesian doctrine of "those who are not with us are against us." We will find far fewer friends than Dulles on that sterile basis because Dulles at least could offer what we cannot, armed protection and economic assistance.

—Editor of "The Hindustan Times"

The growth of political corruption in India is a testament to the success of parliamentary democracy.

—Prof. Surindar Suri in "Seminar"

May I say how much I regret that so many Indians, both in Britain and India, seem to assume some hostility or betrayal of friendship if we hold that their policy has in some respects been unwise?

—Mr Kingsley Martin

Gents, ladies with infants on their breasts and children while travelling in the trains, in the real sense, put their precious lives in hands of Railwaymen.

—"Northrail", magazine of Northern Railway

It is often argued that unless the feud over Kashmir is ended there can be no improvement in Indo-Pakistan relations. In fact, things are the other way around.

—A correspondent of "The Manchester Guardian"

The theory that British progressives ought to support India simply because she is a democracy, and Pakistan a "theocratic' dictatorship" won't wash. When the Anglo-French democracies attacked the Egyptian dictatorship in 1956, Indian opinion had no difficulty in discerning the moral issue.

—Editor of "New Statesman", London

The best way for the people is to stop giving special importance to the UK and treat it as any other foreign country.

—Mr H.M. Patel

Miss Roma Mitchell, 51, has become Australia's first woman judge. Miss Mitchell will be known in courts as "Mr Justice Mitchell".

—NAFEN

How, one wonders, is it that the good qualities of co-operation and of uncomplaining courage that seem to be spread so thin on the surface of civilian life in India are found in such concentrated quantities in the Indian Army, and in the other forces too? Perhaps whatever deities preside over the destinies of India see to it that all good Indians in their/last rebirth before moksha, are born to become men in uniform.

—Mr G. H. Jansen in "The Statesman"

Journalism, we might say, is still an underdeveloped profession, and, accordingly, newspapermen are quite often regarded, as were surgeons and musicians a hundred years ago, as having the rank, roughly speaking, of barbers and riding masters.

—Mr Walter Lippmann

The common element in all the varieties of post-war capitalist planning is the large role given to the independent intellectual...In France, the independent expert is elevated to the position of master of the whole operation; in Britain he is a respected servant of the others.

—Mr Andrew Shonfield in "Encounter"

N.C.C. Cadets Participate in Civil Defence Work Girls Man Telephone Exchanges and Hospitals.

—Heading of a Press Information Bureau note

Mink Hat With A Sari
Makes Fashion History

—Heading of a British Information Service release

Aid not only with strings but with stings.

—Mr V.K. Krishna Menon

WHAT PAYS IS ADVISORY SERVICE TO INDUSTRY RATHER THAN MERE RESEARCH

From Invention to Innovation

USE OF SCIENCE FOR SELF-RELIANCE

P. R. GUPTA

One science fiction assiduously cultivated is the inevitability of progress through research. This has resulted in a crop of half-baked theories.

Three of the more popular theories that keep popping up are : 1. That a mere increase in the research budget will lead to El Dorado; 2. that the mere presence of scientific equipment in stylish laboratories will bring home the bacon; and, 3. that the mere presence of an increasing number of scientists, technologists and engineers will erase poverty, ignorance and disease.

Two kinds of people who do not necessarily help the application of science to industry are the industrialist who, seeking status symbols, proudly exhibits his testing laboratory as his research department; and the zealous scientist who regards basic research as the only true form of research.

MANAGEMENT DECISION TO INVEST IN INNOVATIONS

The conflict with Pakistan and China has brought into focus the need to achieve self-reliance in various sectors of our economy, particularly agriculture and industry. One sure way of achieving it is through speedy application of scientific research. The favourite saying of the physicist, Lord Kelvin, ought to be our watch-word : "I have thought of a better way."

Research in itself need not necessarily be the first priority in any plan for immediate increase in the national economic productivity. For industrial growth men, material, money, market and management are equally important. Some have suggested that the role of the inventor is like that of the clock-winder. Those who disagree with this view contend that the key factor is the management decision to invest in technical innovations which transform research results into a commercial reality.

If science is to promote the country's industrial development, what is required is Government initiative n creating a live link between the inventor and the industrialist.

Attempts have been made in different parts of the world to identify the conflicts and contradictions that come in the way of speedy application of research results in industry.

For measurable industrial progress, what is essential is to be first in the field of application of science which is of greater advantage to a country than to be the birthplace of the discovery. This has been well demonstrated in Japan and Germany. For instance, Germany's royalty payment per year for the use of foreign patents doubled between 1957 and 1963 increasing from Rs 40 to 81 crore.

Whatever the scale of research, it will have no perceptible impact on industrial development until the innovation process is completed. Whereas invention is the creation and development of a new idea, innovation is the act of bringing it into practical use. Between invention and innovation is a wide distance, bridged by the management decision to invest which can initiate or impede the innovation process. The basic problem is to close the 'development gap' which delays the transformation of research result from prototype to commercial-scale production.

TECHNICAL ADVISERS TO SEARCH NEGLECTED IDEAS

To bring about this innovation process needs an alert and perceptive management, one that is appreciative of scientific developments and allows the scientific outlook to permeate all levels and not just the research department.

> Such an atmosphere is fostered by engaging scientists and engineers in the production, sales and management fields. It has been stated that one scientist in production or sales is equal to two in the research department.

A progressive management neither ignores scientific research, nor waits passively for scientists to announce their inventions. Instead, it actively seeks new technical improvements and innovations through the cultivation of contacts with men of science and technology

in academic and other research institutes. It also systematically searches current scientific literature for neglected ideas, either ready for use or capable of being made ready for use by effort.

To facilitate this kind of technical perception, there must be room at the top for high-level technical advisers to brief the management executive on implications of new scientific developments. The aim of an industrialist should be to establish and maintain technical preeminence in design, quality and production.

The importance of the technical adviser to assist the management in taking decisions to invest in innovations is widely recognised in the advanced countries. A survey has revealed that in the United States, one in every two small firms has a qualified technical adviser, although only 10 per cent of manufacturing firms operate their own research and development facilities. In Germany, the number of small firms with technical advisers is one in five, while in Britain it is one in six. In the transmission of scientific ideas to industry, the receptiveness of firms is as important as, perhaps more so than, methods of communication.

Innovation brings about the growth of industry in diverse ways. It may, for instance, fulfil a well-defined want of, say, some natural raw materials. In anticipation of the shortage of petroleum, processes were developed to obtain synthetic oil from coal. Alternatively, innovation may produce a new device or develop a new process to lower the cost of production or extend the use of products. Thus, the commercial synthesis of ammonia resulted in the mass production of fertilisers which revolutionised farming all over the world and improved the yield of agricultural products many times.

Innovation may lead to the creation of a new kind of want—an automobile, a refrigerator, a new kind of plastic, fabric or rubber, and so on. Also, it may solve problems of processes or products, perhaps anticipate and prevent these problems. At times, in addition to reducing the cost it improves efficiency in handling materials, processes, products and services. Just as it develops substitutes, it also finds new uses for existing materials. Occasionally, it results in major breakthroughs that lead to the development of new industries as happened with the invention of transistors and computers.

LIAISON BETWEEN INNOVATOR AND INDUSTRIALIST

Prompt utilisation of worthwhile results, particularly by small manufacturing firms, depends largely on effective liaison between the inventor and the innovator. Such liaison is a two-way pipeline; it disseminates latest technological developments to industry and takes the problems of industry to the scientists.

With all the developments in the media of communication, it has been found that there is no way of getting the message across than the person-to-person method.

The value of word-of-mouth communication is demonstrated by the experience of the British Hosiery and Allied Trades Research Association which developed an instrument for use in factories. When it was first announced, only 5 per cent of the member-firms expressed interest in it, as judged by business-reply-paid-card response. But after liaison officers of the Research Association had visited and demonstrated the instrument in factories, 85 per cent of them ordered it.

Backwardness in firms, like poverty in people, is self-perpetuating. Often, it is due not to the absence of technical opportunities but the absence of able men in the top management hierarchy To infuse a scientific spirit in these conservative firms, which are the rule rather than an exception, requires active liaison and enlistment of the support of scientific 'middlemen'. In Britain, the co-operative research associations allocate, on an average, about 30 per cent of their annual outlay to liaison and information services. And these are regarded as inadequate.

DEVELOPMENT RESEARCH TO UTILISE INVENTIONS

It is neither essential nor desirable that all research be undertaken within industrial establishments. Often, manufacturing firms are too small to afford research departments. According to an estimate presented at the Federation of British Industries Conference in 1962, a minimum budget of an industrial research laboratory should be about Rs 3 lakh a year. The cost per research scientist including those of his assistants and materials has been estimated between Rs 50,000 and 80,000 per year.

More urgent than applied research institutes are development research facilities which assist industrial units that lack scientific expertise to utilise technical inventions. The development cost is usually formidable. After a labbratory finding is proved, its further development in order to make it a commercial reality can cost, on an average, five to ten times the amount spent during its applied-research phase. Besides, the fatality rate of new ideas in the process of development is also high. Fifty to ninety per cent of them are discarded at this stage.

In many countries, manufacturing firms which are too small to set up their own research departments take advantage of the institutes which specialise in contract or sponsored research. The United States has many such institutions, some of them working on non-profit basis, having been established by private endowments. Two of the more prominent of the latter type institutes are the Mellon Institute for Industrial Research, founded in Pittsburgh in 1913, and the Battalle Memorial Institute in Columbus, Ohio, in the 'twenties.

In Germany, industry relies considerably on universities to tackle its problems. They are investigated by post-graduate science students and become the basis of their theses. The close liaison between German industry and universities is well illustrated by an example—a rather notorious one—of the I.G. Farben group which had ensured that no discovery of importance made in the chemical laboratories of the German universities was published without its prior intimation to the firm. In Germany, there are also the famed Max Planck Institutes, 42 of them, which work for industry.

In Britain, a plan for co-operative research associations for various industries was pioneered and has now grown into a sturdy institution. Other countries, including India, are adopting similar schemes. Besides, there are trade promotion associations which do research for extending the use of a particular commodity. In this category are those devoted to the promotion of nickel, copper, lead, zinc and petroleum.

In India, a sound base for industrial research has been laid with the establishment of national councils for agriculture, medicine and industry. One of the paradoxes of industrial research in the country has been the apathy of industry in taking advantage of indigenous research facilities. Like two parallel lines, the two do not seem to meet ever. The result has been the growth of research in a virtual vacuum. It would be an oversimplification to suppose that the neglect of research by industries stems from their bias towards foreign collaboration.

The vital question, however, is whether the Government-sponsored research institutions are being used effectively to introduce to industrial firms technical innovations which may have escaped industry's notice. If not, it is worthwhile to find out what reforms in their structure would enable them to provide this essential service.

ADVISORY AID TO KEEP INDUSTRY INFORMED

The root of the problem is that there has been neglect of advisory aid because of the over-emphasis on research. Through advisory aid, various industrial units can be reached and kept informed about current technological developments relevant to them. In the early phase of economic development of a country, this service is more rewarding than research and should take a priority. In India, such aid could be perhaps best channelled through the Small Industries Service Institute which already has a national organisation that looks after small manufacturing firms.

Government can actively promote technical innovations in industry through a systematic and widespread programme of research contracts and grants to various industries. There is greater scope for such contracts in India now, with the predictable upsurge in defence-oriented industries and the trend towards self-sufficiency.

Surprisingly, one country that can boast of a high degree of 'socialised' science is the United States. In America, 60 per cent of the total annual outlay for research in industry is provided by the Government. Out of an estimated 15.1 billion dollars (Rs 7,000 crore) spent on research and development in 1964-65 in industry, about 9 billion dollars (Rs 4,250 crore) were provided by the Government. Incidentally, the same proportion holds good for the total research in the U.S., estimated at about 21 billion dollars (Rs 10,000 crore).

Besides direct stimulation of industrial research, Government can accelerate technical changes through its fiscal and economic policies—taxation measures, state of competition, labour laws, monopoly agreements on markets, prices and trade terms, and tariff and import policy.

The price of technical stagnation is high. It not only checks further rise in the standard of living, but results actually in its further decline. Such a situation has been aptly described as "running up a descending escalator."

While there can be no progress without scientists, scientists by themselves can hardly ensure technical progress. What is desirable for facilitating innovation in industry is the creation of a public attitude that will welcome—in fact, seek—technical changes, rather than wait passively for them to come on their own steam. In this sense, the American attitude towards novelty which has been criticised by some sociologists is not unwelcome. It motivates much research and is an incentive for innovation in industry.

YOU ASK US

Cultivated Land

Mr R.M. Agarwala, Bhilai

1. How much land is under cultivation in the country?

2. How much land is under mechanised cultivation and how much more is likely to have mechanised cultivation by the end of the Third Plan?

3. How many factories in India manufacture tractors and trucks? What are their outputs? Are any more factories coming up?

Answers: 1. In 1961-62, the latest year for which there are full figures, there were 148 million hectares (367.15 million acres) of land under cultivation in the country.

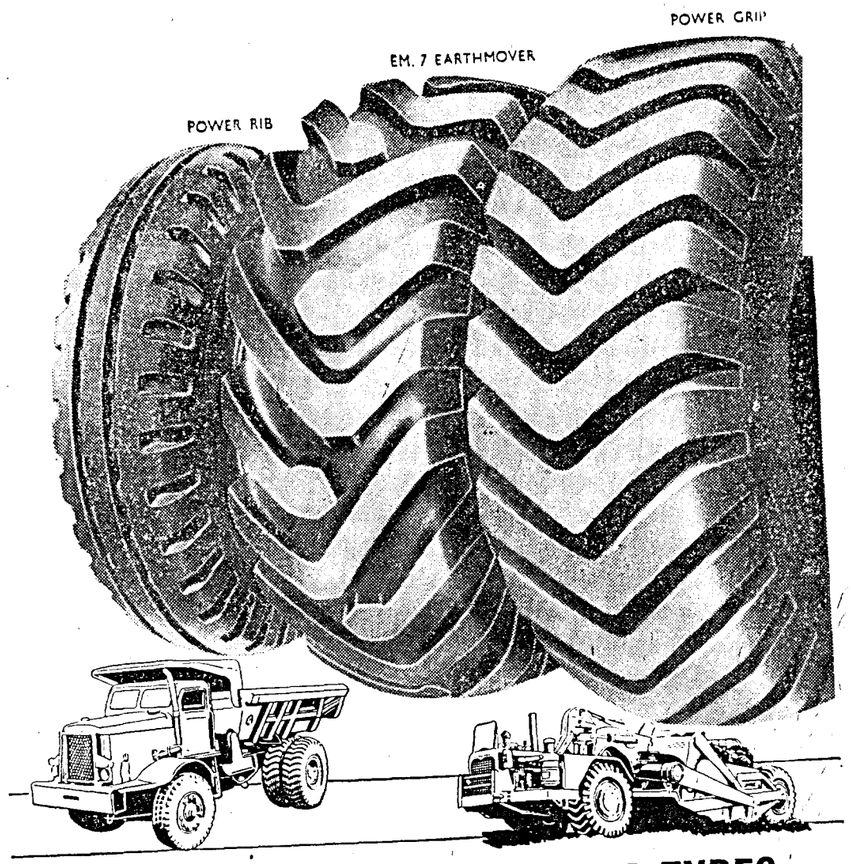
2. Statistics are not maintained for mechanised farming separately, because there are very few fully mechanised farms in the country, such as the Government farm of Suratgarh. The stray use of tractors or other mechanised implements by some farmers here and there in the country cannot be called 'mechanised farming'.

3. There are three factories producing tractors (mainly from imported parts). Of them, the Tractors and Farm Equipment, Madras, can produce 3,500 tractors and the Tractors and Bulldozers, Baroda, 2,000 tractors every year. The third at Faridabad does not have regular production. Recently a fourth factory has been set up by the Mahindra and Mahindra with an annual capacity of 3,500 tractors. A large factory with a capacity to produce 12,000 tractors every year will soon be set up in the public sector.

Trucks are produced by Ashok Leyland, Madras, and Tata-Mercedez Benz, Jamshedpur. They produce 4,000 and 16,000 vehicles respectively (including lorries).

SNIPPETS

The Hindustan Shipyard has so far built 33 ships, and seven more are under construction...The programme of railway electrification in the coal belt in Bengal-Bihar region has been completed to schedule. The last leg of the programme, comprising 62 route kilometres and 128 track kilometres, was done at a cost of Rs 1.14 crore. Two gas turbines, with a capacity of 10 MW each, are being brought to Kotah from Mysore State to augment the power supply in Rajasthan.



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Here are Dunlop Off-The-Road tyres of great strength and durability—Power Rib, EM. 7 Earth-mover and Power Grip. The tread patterns and the especially tough casings of these tyres have been developed after prolonged field trials on many kinds of terrain in many parts of the world. These are tyres that have proved themselves in service at multipurpose projects, like Koyna, Nagarjunasagar, Kosi, Sharavathi, Beas...in the iron ore mines of Bihar, Madhya Pradesh, Goa... in the far-flung coalfields of the National Coal Development Corporation and at many other sites all over India.

DUNLOP

LONGEST TYRE MANUFACTURING EXPERIENCE IN INDIA

DOT.C:

PSYCHOLOGICAL WARFARE

Pakistan Provides Example of How Not to Do It

CHANCHAL SARKAR

ANY thinking journalist will tell you that the two cardinal principles of a propaganda policy are truth and credibility. It is hardly my job to advise Pakistan how to run its information policy but, reviewing Radio Pakistan's broadcasts, I can at least invite you to see what happens when one throws those principles to the winds.

On September 10, at 7.45 in the morning, Radio Pakistan said: "According to a New Delhi message, demonstrations have been held in over half a dozen cities in East Punjab, including Ambala, Ludhiana, Jullundur and Amritsar against Indian warlords, especially Mr Shastri, for creating panic in the country by launching war against Pakistan." Well, if people in Pakistan are prepared to believe this then they must be in a very bad way indeed. Among the cities named is Amritsar. And there was no Indian city where resolution and grit were higher, despite frequent air raids.

The same day Radio Pakistan tried what it perhaps imagined was a brilliant move in psychological warfare. "The exigencies of war", it said quoting an official spokesman, "compelled us to move into the sacred territory of the Sikhs, but they will understand that we have been forced into this situation, but our affection and respect for the Sikhs remain. The Sikhs and the people of Pakistan both have been victims of vile and aggressive designs of Indian leaders. Both of us have suffered on account of Indian aggression." Let's apply the test of credibility. How do you think this will go down with our Sikh soldiers and airmen in the thick of battle, winning decorations for high courage?

I should explain that I have been referring only to newscasts. In its general broadcasts Radio Pakistan has been playing so much on the theme of Islam that, for a country like India with 50 million Muslims, it really is nauseating.

Now let us examine some other items of news scattered to its own people and to the world by Radio Pakistan in the first few days of the fighting.

It said that IAF Canberras had several times bombed Karachi;

that Indian paratroopers had been dropped in a number of places in West Punjab and that some of them have been rounded up;

that, on the morning of September 7, IAF Canberras had carried out attacks on civilian areas near Dacca, Chittagong, Jessore and Lalmonirhat, all in East Pakistan;

that in the Wagah sector Indian forces had been thrown back from Pakistan territory, and,

that Pakistan had destroyed one-fifth of the operational strength of the IAF.

All these are flatly wrong. The IAF did not bomb Karachi or any East Pakistan city. In the Wagah sector Indian forces had been even then pressing steadily forward in Pakistan territory, despite strong opposition. And if the Pakistan general staff really believed at that time that it had knocked out one-fifth of the Indian Air Force then it had another guess coming.

* *

The first armoured division of Pakistan has reeled and buckled under sledge-hammer blows. How it happened will one day be told. This is not the time for military history. But let me say that it was as much a battle of generalship as of spirit. The Pakistan Army had been nurtured, brought up, even lulled, by the belief that the Indian Army wouldn't fight. When they ran smack into a battering ram, they panicked.

One journalist, there are all kinds, wrote in a British weekly just about the time the war started, "One Pakistani soldier is worth three Indian". What arrant, impudent, insolent nonsense. Ask the Pakistani soldier in Chhamb, in the Haji Pir Pass, in the plains of Sialkot, in the marshland of Kasur and the canal banks outside Lahore, he'll tell you a different story.

* *

What I am doing is essentially a postscript to a broadcast.

There was a lot of listening to Radio Pakistan (as well as to the BBC). This is normal and I wonder if some State and district authorities were wise in prohibiting people from listening to Radio Pakistan. Much more effective would have been to counter swiftly, and point by point, the misstatements made.

Pakistan made great play with religion. Fortunately India didn't use this line at all and among the things for which we are all proud and grateful is the significant fact that there were no communal incidents at all in India.

But it should be recognised that Pakistan did get some support from Turkey, Iran, Jordan, Saudi Arabia and Somalia. Radio Pakistan high-

(*Continued on Page 11*)

The Answer Is in the Seed

OF ALL THE AGRICULTURAL INPUTS THE PROVISION OF IMPROVED SEED IS THE EASIEST AND MOST ECONOMICAL TO ORGANISE AND YIELDS THE SUREST RESULTS

SATWANT SINGH

The author of this article, who is a farmer himself and a Director of the National Seeds Corporation, urges that by the end of the Fourth Plan every hectare in the country must be sown only with tested and processed seed. He also outlines steps on how the National Seeds Corporation should organise this work with the help of agencies in the States.

THE importance of using quality seed in agricultural operations is getting to be appreciated. State Departments of Agriculture have been engaged in the production and distribution of quality seed, particularly wheat, for some years, and now there is a National Seeds Corporation entrusted with the task of promoting widespread use of quality seeds.

What is not generally realised is that of all the various agricultural inputs (like irrigation, fertiliser, etc.) supply of quality seed is the easiest to organise, the most economical and the surest in terms of results.

The present emergency and the need to achieve food self-sufficiency in the quickest possible time give the seed programme an added importance.

Our goal should be to see that every bit of land under food crops is sown with only scientifically processed and tested seed; total change-over to such processed seed should be a target of the Fourth Plan.

The seed programme consists of several stages: quality seed must be *produced* under scientific conditions; then it must be *tested* (for quality and germination capacity), *processed* with insecticide, *packed* and *stored*; and finally it must be *distributed* so as to reach the cultivator in the best condition and at the right time.

The programme is too vast and complicated to be handled single-handed by the National Seeds Corporation even with the help of the State Agricultural Departments. Special agencies have to be set up in the States for the programme.

One such agency has been established in Punjab—the Land Development and Seed Corporation. The working arrangements between the National Seeds Corporation (N.S.C.) and the State Corporation should be used as a model for entering into agreements with Agricultural Departments or special agencies in other States.

The N.S.C. should be the principal technical agency for the seed programme. Its role should be to ensure adequate production of improved seeds, evolve and enforce a quality control plan and provide technical services for seed processing.

To do all this, it is essential that the N.S.C. has a network of subsidiary seed producing agencies at State level. These State Corporations should run large farms to meet the expanding requirements from their States.

Even in States having large seed farms, the bulk of seed would, however, be multiplied by farmers under contract with N.S.C. or the State agencies. Facilities like tractor power, fertiliser and insecticides should be made available to these seed contract farmers on a priority basis.

The foundation seed should invariably be supplied by a Central agency like the N.S.C. All the breeder's seed should pass through the N.S.C. for further multiplication. It is a pivotal job. It should be for the Corporation to decide, after carefully weighing all the relevant factors and in consultation with State agencies, the scale and size of operations for seed multiplication.

The country does not have an organised seed industry so far. Seed merchants now in business are mostly engaged in selling vegetable seeds. They do not own their own farms, but get their seed from growers and sell it in small packets. They do make some investment in popularising the seed, and thus handle retail distribution. These merchants should be utilised as agencies for selling the quality seed produced by the National Seeds Corporation in co-operation with State agencies, private growers etc.

The National Seeds Corporation has made a pioneering effort in co-operation with the U.S. Agency for International Development in setting up a few cleaning and processing plants and mixing of suitable insecticides which prolong the health of the seed. After cleaning, the seed is bagged and sealed. It is stored under controlled temperature and humidity conditions. Its germination capacity is also tested. This package of seed treatment practices and storage operations enables the farmer to get seed that is certified as of biological and genetical purity.

This concept of seed treatment should be developed on a large scale. Seed cleaning equipment should occupy a prominent place in the seed production and distribution programme of State Departments of Agriculture.

The existing block development agencies should continue to participate in the distribution of quality seed produced under the supervision of the N.S.C. and sold by co-operative societies. Private seed merchants should be forced either to produce their own quality seed or buy it from N.S.C. sources. Uncertified seed should not be allowed to be sold after a certain point of time and there should be a time limit set for the certified seed. Beyond the limit, the N.S.C. can give a certificate of revalidation after testing germination for a further specified period. If any enterprising seed merchant is prepared to instal processing equipment, he should be encouraged to do so, but the seed material used by such merchants should come from the N.S.C.

State Departments of Agriculture have been making larger financial contributions to the seed procurement and distribution programme. This should be continued but the quality control part of the programme should, as stated above, be entrusted to N.S.C. If seed processing and use of insecticide is executed by State agencies under contract with N.S.C., it would reduce the urge to make easy money by placing sub-standard seed in the market. At present even the seed purchased by the State Agriculture Departments is not properly treated and needs careful cleaning, grading and processing before being given to farmers for sowing. The N.S.C. would be performing a very useful function by shouldering this responsibility.

Processing and treating are bound to raise the cost of seed. Farmers with land holdings below five acres should be supplied certified seed at a concessional rate. Such a concession is necessary in the larger interest of increased production of food-grain.

There is a large volume of inter-State movement of seed. The Punjab farmer gets most of jowar seed from Maharashtra. Some of the green manure seed also comes from outside. The ban on the inter-State movement of grains has added to the farmers' difficulties; they cannot now get the seeds from traditionl sources at reasonable prices and at the right time. The National Seeds Corporation in co-operation with the Food Corporation of India should purchase seed from the growers and ensure maintenance of quality and timely despatch to the consuming State farmers at reasonable prices.

The N.S.C. should also set up a subsidiary or an affiliated agency for the manufacture of seed processing equipment. If necessary, private companies should be given facilities for the purpose. Such equipment would be bought not only by seed merchants but by market committees for cleaning grain. The N.S.C. should be in a position to give accommodation to farmers, co-operatives and the private and State seed industry to enable them to purchase the equipment on instalment basis.

The N.S.C. should bring out suitable literature and also enter into contract with apex co-operative marketing agencies for sale of seed. Private seed-handling companies should be asked to handle only certified seed at scheduled prices.

The N.S.C. should allocate a special fund to meet losses in storage or non-sale of seed produced on its account. Similarly, surplus seed stocks left after the growing season of a particular crop should be moved to other States where the growing season is yet to commence, and sold at reduced prices. This prevents deterioration of seed and ensures its use in other States.

The seed programme cannot be successful unless it is linked with experiments and observations for determining the manurial schedule and cultural practices. The Indian Council of Agricultural Research (I.C.A.R.) has an important role to in play this regard. Agronomic research stations should find out suitable cultural practices and manurial schedules for hybrid maize, hybrid bajra and hybrid jowar etc. In the first instance, with the help of I.C.A.R., we should aim at replacement of local maize varieties by hybrid maizes. The N.S.C. should set up liaison with maize breeders to introduced early maturity, dwarfness, male sterility, greater responsiveness to higher doses of fertilisers, and the hybrids so evolved should have greater adaptability for successful growth in various parts of the country.

For getting a successful crop, it is essential that the N.S.C. should distribute the foundation seed to the growers a month in advance. The extension and publicity agencies should persuade farmers to sow their crops ten days to a fortnight before the onset of the monsoon. Late sowing that coincides with the rain gives poor germination and results in poor yield. It also means wastage of foundation seed. A suitable sowing and hoeing equipment should be evolved so that farmers can cover the maximum area in a limited period of time during the monsoon.

Pakistani Propaganda

(*Continued from Page 9*)

lighted this, of course, and India made no attempt to explain (that as CENTO allies Turkey and Iran had to do *something* but they did very little) or suggest that the help could not amount too much. In the case of Nepal, fortunately, Radio Pakistan's lie was nailed.

Technically, the news reading in English and Bengali from Karachi was of high quality. The Bengali newscasts were well constructed and spoken and the terms for military weapons and equipment and so on were well chosen. What failed, I think, was the complete lack of concession to truth. It is always better to confess reverses and explain them.

Another stupid gambit which misfired was the attempt to alienate the Sikhs. The senior commanders in high positions in the Kashmir and Punjab campaigns were, most of them, Sikhs.

Teachers today have a special duty to make children cherish the national ideals of freedom and secularism, and to build up their power of judgment

HOW TO TELL CHILDREN WHAT WE ARE FIGHTING FOR

MINA SWAMINATHAN

IF is easy to say that first things must come first—but much harder to know from where to begin the count. A teacher's first job is to be a good teacher, and a good teacher's first job is to help children to *understand*—and understanding includes thinking in, through and around a subject, and doing, because doing not only is the proof of understanding but also a means to further understanding.

A good question with which to begin understanding, thinking and doing might be this: *What are we fighting for* ? And we might consider the first and last words of that question—*what for*? Does every student realise that we are fighting *for* something, and not merely *against* somebody or something? And *what for*? A piece of land, just like the kings in the history textbooks, who always had an eye on their neighbour's treasury? It may be impossible to explain the intricacies of the Kashmir situation to a class of ten-year-olds but it could be reduced to its basic level by a statement like this: Pakistan believes that Kashmir belongs to her *because* the majority of Kashmiris are Muslims, while India believes that Kashmir belongs to her *though* the majority of Kashmiris are Muslims, since religion has nothing to do with being part of India, and since through several free elections, Kashmiris have chosen to be part of India.

So what we are fighting for is the ideal of secularism—the belief that a man's religion is his private affair, and has nothing to do with his qualities, rights or duties as a citizen. Many examples from history could be usefully quoted now to show that wars of religion have never solved any problems, but that on the contrary, when religion and politics have been mixed up, the consequences have always been disastrous. The lesson of history led India to adopt the secular ideal, one of the greatest ideals of mankind. It is enshrined in our Constitution, and in the pledge of loyalty that school children take. Now the challenge posed by Pakistan gives us an unequalled opportunity to show that we really understand and practise this ideal. Pakistan is trying to force us to think of Muslims, not as just another religious group like the Hindus, Christians, Jains, or Sikhs, but as "different". By setting itself up as a Muslim state, and by claiming to be the champion of Muslims everywhere, Pakistan has put Indian Muslims in an awkward position to which they have never aspired. If this is made clear, we can never allow Muslims or anyone else to be thought of as "different" from other citizens. Our behaviour must show that we regard and treat all Indian citizens alike, and teachers must be the first to set the example.

The present time also provides excellent opportunities for sharpening the intellect by studying and comparing news and views from different sources, and the use of language for specific purposes. Speeches by the Prime Minister, the President, Vice-President and other important public figures, leaders and articles in the press could be used firstly as comprehension exercises, to test and increase understanding of national aims and particular policies. Brighter students in schools could compare some of these, and study how language is used to convey or conceal meaning, or suggest attitudes. For example, President Radhakrishnan's broadcast, lucid in analysis and grave in tone, could be compared with President Ayub Khan's hysterical warcries, and students asked to show how these impressions are created. News broadcasts from different sources could be analysed for the proportion of "hard" fact they contain, quotations and misquotations, vagueness, repetition, and so forth. And for the examination: What are some of the signs by which one can tell whether a news bulletin is nearing the truth, or even trying to tell the truth? It is up to the enterprising teacher to find more exercises of this kind to help "cut" intellectual teeth.

Alert teachers can lead children to discuss and debate, at the level suited to their maturity, topics like the value of freedom of speech, different forms of government, war and peace, religion and politics and the lessons of history. The age-old topics chosen for school debates can come to have a new meaning if they are shown to have relevance to the immediate questions of the day.

"Us" and "Them" Attitude

And now, with the second term in the sentence, "we", we enter the territory of Arithmetic. Who are "we"? Does it mean every one of us? Too many people still think of the war as being fought by "them", meaning our brave fighting forces, and not by all of "us" too. Are we all involved, and equally involved? For example, if there are shortages of food or fuel, will we see the spectacle of the rich hoarding comfortably while the poor go without? Another example of the dangerous "us-them" attitude is the statement, often heard of late, that it is time "they" were taught a lesson (meaning the enemy, this time). And so they will, undoubtedly; but what about the lesson "we" have to learn—that of the enormous, incalculable cost of fighting a war? The immediate losses are clear for all to see—the destruction of life, property, equipment carefully built up by years of effort. More difficult for the young mind to grasp is the loss of what "might have been", the waste of resources that could have been used for other, better ends. And here arithmetic comes in. Every schoolboy now can rattle off figures of tanks and planes lost or gained. Can we teachers succeed in making even a few children tell with equal ease the cost of a tank or fighter plane—in terms of school fees, meals, books, or whatever measure seems closest to the heart? If we don't help students to understand these losses through such calculations we shall be strengthening a narrow and blind patriotism of which India has no need.

The third important word in the sentence chosen for a lesson in understanding, is "fighting". How are we "fighting", what can we actually do ? If we have really understood, we know what is to be done; and by doing, we can make that understanding real. Teachers and students must join forces and "fight"—to work harder than ever and achieve maximum mental and physical development, fight against waste, greed and hoarding in everyday life, fight against suspicion and discrimination, fight to find time and energy to contribute to the war effort. Everyone knows by now of the many practical services that we can offer to the nation. But the greatest duty of teachers and students is to think—we need more, clearer and better thought. We must know what we are doing, and why we are doing it; we must examine our lives more closely. For as the greatest teacher of them all said two thousand years ago, "The unexamined life is not worth living."

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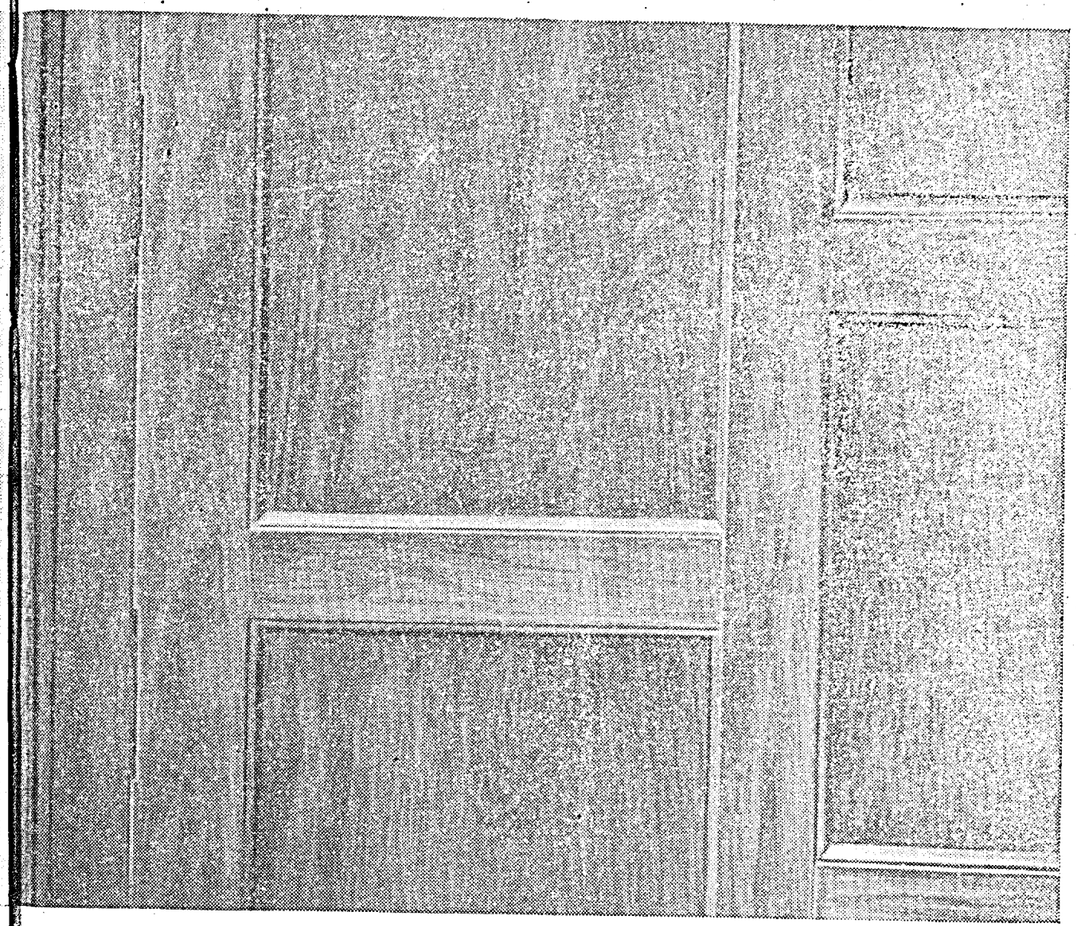
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Don't Let Them Say It

SOME days ago hundreds of people fell ill in Delhi after eating sweets sold in one of the bigger shops.

After the hospitals began treating the victims, the proprietor of the shop, according to *The Times of India*, "told a police official that Pakistani agents might have done the mischief". (The cause was later established as bacterial toxin and a case for neglect was registered against the sweet-maker.)

But the kind of charge he is supposed to have made enrages us. Pakistan is certainly capable of the worst of tricks—but we must learn not to blame everyone of our lapses on Pakistan. If this kind of attitude is allowed to flourish, some agricultural officers might one day justify a poor harvest by asserting that Pakistani agents ate up the seed that was sown.

University Facts

IT is good to see that *University News* has resumed publication and will now be a monthly. It is an interesting journal of record, useful not only to university people but to newspapermen and others also. Educational reporting is one of the underdeveloped areas of our press, and the kind of material found in *University News* provides the bones for such reporting.

Two tables in the September issue, for example, give us a telling glimpse into the number of students in the various faculties at different levels throughout India and in each of the States. In the proportion of science students to total number of students Kerala leads, with 49.1 per cent. Surprisingly, Delhi has the smallest proportion of science students, only 10.6 per cent. Delhi leads in Arts, with 67.6 per cent. Maharashtra leads in Commerce, with 17.7 per cent, Mysore in Engineering and Medicine with 11.6 per cent and 8.6 per cent respectively and Uttar Pradesh in Agriculture. Of the total number of 44,228 agriculture students in the country in 1964-65 at college level 27,029 were in Uttar Pradesh.

Poison in Paper

TIME magazine says that scientists have discovered that ground-up American newsprint is lethal to bed-bugs. It doesn't say whether any were fed on *Time*, but it is hard to imagine a time when people are made from newsprint. Flesh-and-blood human beings would continue to need insecticides.

Newer insecticides have to be discovered, for bed-bugs, like mosquitoes, become resistant to the older varieties. This has happened in India. D.D.T. has ceased to be universally effective. *The Indian Journal of Public Health* recently reported that a large-scale trial conducted by the Tata-Fison Ltd's Technical Development Department at the Army Barracks, Bangalore, had indicated that *Sumithion*, a new insecticide, was very effective in the control of bed-bugs. "Operation Bug" covered five barracks and 124 *charpoys* which "had very large scope for re-infestation due to the frequent movement of military personnel."

Unusual Edge

NOT the crossword puzzle alone but many other kinds of brain-teasers are in print today. In the *Indian Trade Journal* of August 11 a pretty puzzle is to be found on page 460. Among items ordered in June 1965 by the Fertiliser Corporation of India from the Garden Reach Workshops are "M.S. safety razors (2 nos) for delivery ex-works and valued at Rs. 11,400". The intelligence is not conventional. It forces one to ask oneself what kind of safety razor is produced by the Garden Reach Workshops, a public sector enterprise concerned with ship repairs and the production of light craft, mining plant and turbine pumps. It is very unlikely that this engineering concern would be making safety razors for the Army canteen stores—and what would the nitrogenous fertiliser factory at Sindri be doing anyway with razors?

Possibly it is a printer's mistake. The Garden Reach Workshop cannot have entered the safety razor trade and be making profits at the expense of another public sector undertaking like the F.C.I. On the other hand, it is quite possible that "safety razor" is the name not only of the little shaving aid but of the outsized steel shears driven by power, for the MS razors supplied by the Workshop to Sindri cost Rs 5,700 apiece.



IGNORAMAN

Wants to Know

Is it true that Pakistan thinks that the UN has said: "Seize ! Fire !"?

Collector's Items

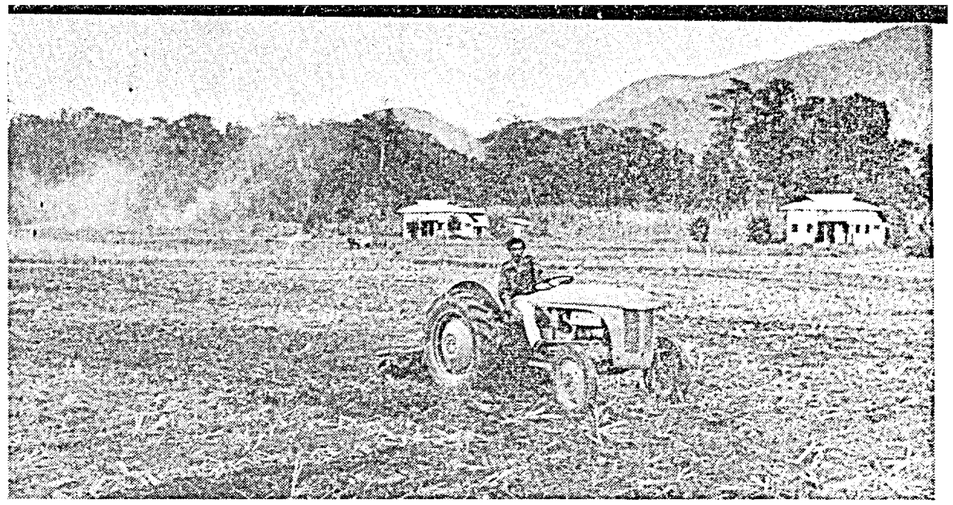
Of Washington it used to be said that it is a surprisingly quiet city—except for the loud noise at night of the grinding of axes.

A colleague has a variation of the theme. He says he cannot sleep because of the noise that some foreign correspondents make with their typewriters at night.

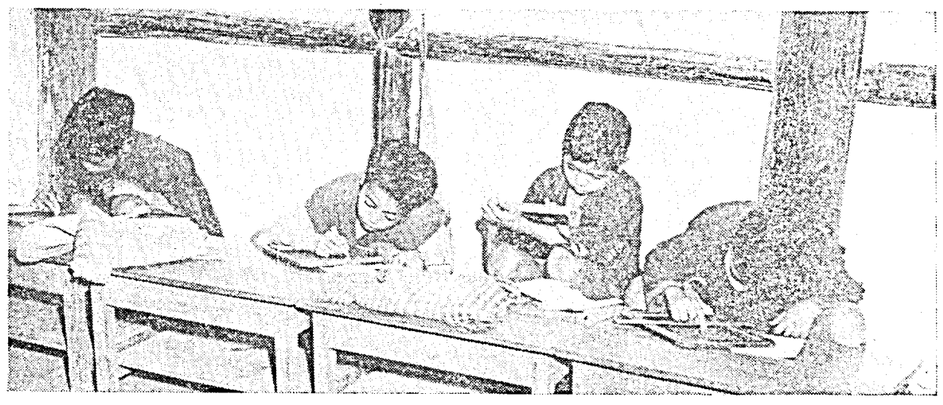
OVERHEARD : Isn't it smart of IAF to have wrested control of air space from Lata Mangeshkar ?

Family Planning Facility

Under the new pattern of family planning programme, in rural areas there will be one auxiliary nurse-midewife for every 10,000 population in the Community Development blocks. Where the population to be served by a primary health centre exceeds 60,000, there will be a sub-centre with an auxiliary nurse-midwife for every additional 10,000 people.



Better Care of Border People



Help Through Special Programmes

A dividing line on the map—that is, or at any rate, used to be, the school-boy's impression of the national border. Till October 1962, most of us had a similar abstract notion of the national border. Latterly, the geo-physical aspects in terms of water-sheds, mountain ranges, etc. and the strategic significance of the national border have come to the fore. It is not yet common knowledge that our national border, barring a few stretches, is a live area inhabited by distinct communities having their own culture, economy and social organisation.

Our border stretching 2,400 miles from North-West to North-East of India is one of the longest borders in the world. Along this border live a large number of tribes and communities having the same basic unity underlying apparent diversity which characterises the cultural spectrum of India. The Ladakhis have a conspicuous Buddhist influence. In Lahaul and Spiti, the north-eastern district of Punjab and along the border up to Darjeeling, there are the Lahaulas, Spitians, Bhutias, Lepchas, Monpas and Sherpas who are mostly Lamaists. In Kinnaur district of Himachal and Tehri Garhwal and Almora districts of Uttar Pradesh there are a number of communities who are, to an extent, Hinduised. Indian mythology makes numerous references to the Kinnaurs and to various places in Tehri Garhwal wherein live Rabhas, Rajis, Bhutias and Khasas. The five Divisions of NEFA have a number of tribal communities who resemble each other and have similar dialects; each only shade different from the other. The Kacharis, Akas,

Top : A tractor being used in an agricultural farm at Pasighat in NEFA.

Primary school children learning how to write.



NEFA girls winnowing paddy

Daflas, Miris, Nagas, Abors, Mishmis and Khamptis, who represent the major tribes of NEFA, are mostly animists except for a few Naga tribes who have embraced Christianity in recent years.

Occupationally, the range of their economy is limited but varied. *Jhuming* cultivation or, if settled, primitive agriculture together with rearing of cattle, sheep and yaks form the main planks of their economy. In Chini and Pangi where the minimum altitude is 2,500 metres and where land is snow-bound for more than half the year, the people grow barley, buckwheat on small terraces carved mostly with hoes. They make and weave wool and trade in crude woollen goods and products of animal husbandry.

Their social organisation is mostly on democratic lines, having their own traditional tribal Panchayats and Village Councils. The post of the headman is elective and is for life. Among some tribes such as the Ladakhis, Bhutias and Lepchas, the head Lama of the monastery occupies the leading position both in religious as well as temporal matters.

Welfare Administration

In fact, the knowledge of the life and labour of these communities has remained beyond the mental horizon of the general community because of certain historical reasons. The foreign rulers in India had carried punitive expeditions against them and later followed a policy of non-interference. It was only on attainment of Independence that the Government started taking interest in the life and welfare of these communities as part of the nation. Apart from the direct interest taken in them by Christian missions of foreign origin, the border communities had no experience of stabilising and unifying influence of a friendly administration.

The most typical example was the North-East Frontier Agency. Here was an administrative innovation which made no pretentious claims of "uplifting" the "primitive" folks, had no pre-conceived notions of a pattern of life to be imposed on them, had full regard for the cultural values and social institutions of the indigenous communities and which was willing and prepared to work *with* the communities to develop "according to their own genius." Such a policy was best enunciated in Verrier Elwin's *The Philosophy for NEFA*.

Progressive Philosophy

The NEFA Administration has some very notable successes to its credit, ascribable to the highly motivated and well-trained band of young men recruited to the specially constituted Frontier Service, the encouragement it received directly from the Prime Minister, the co-operation of voluntary welfare organisations and to the advice of experts like Dr. Elwin. One lesson of the Chinese aggression was that while the *Philosophy for NEFA* was good, it was not good enough. It had become crystal clear that it was essential to ensure that the throbbing energy that pulsated through the heartland of the country should reach the border communities



A Lahaul peasant

with full vigour. Closer and continuous communion between the people of the mainland and the folks on the border became part of national duty.

Closer Integration

From the viewpoint of bringing about integration among these communities and between them and the nation as a whole, it is necessary to keep in mind the different characteristics of these communities as identified by anthropologists. In a cultural milieu in which different colours of the spectrum merge into each other, sometimes even across the borders, some communities have acted as "bridge communities", others as "buffers", a few as "dominant leaders", a number of others as "satellites" and the rest as "equal allies". It is also necessary to take into account the socio-economic interdependence as it exists within and without the borders and the impact that expansion of communications has had in the shape of introducing in these areas cash economy and modern social services like education and health.

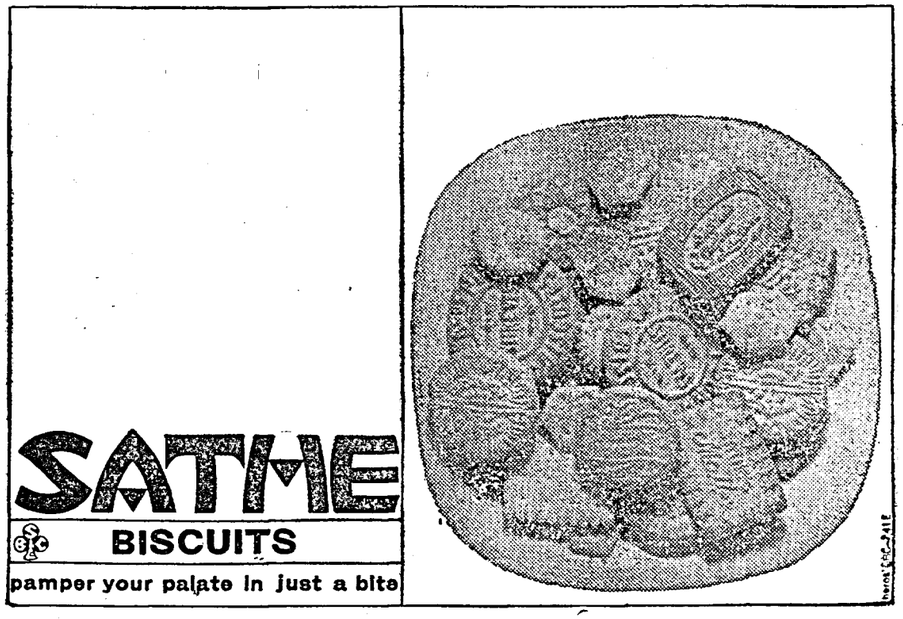
Development Measures

Accordingly, various measures have since been taken towards this end. The Khadi and Village Industries Commission has, after an on-the-spot study, devised a series of schemes for reinforcing and developing the economy of the border areas. Special programmes for hill areas are being worked out on the basis of an area development approach which could bring a wide range of socio-economic schemes into a comprehensive and integrated perspective. Wherever there is a sizable concentration of scheduled tribes along the border, the programme of the special series of tribal development blocks has been extended. In all about 25 tribal development blocks, each with a budget of Rs. 22 lakh for Stage I of five years, have been opened in Lahaul and Spiti in Punjab, Chamba and Kinnaur in Himachal Pradesh, Manipur, Tripura and Nagaland.

Likewise, the Central Social Welfare Board has introduced 17 welfare extension projects for the women and children of these communities. These projects have 58 centres ranging from Kutch to NEFA along the North-West to North-East border. These projects have been very well received by the border communities. This is evident from the large numbers in which their women and children have gathered in the preparatory camps before the regular centres were opened to work on a continuing basis. Wives of the officers posted in these areas, voluntary workers deputed by organisations like the Gandhi Smarak Nidhi and the Kasturba Gandhi National Memorial Trust and a number of young girls and women from the local areas have together provided the leadership and the personnel for carrying out the day-to-day activities.

Similarly, a variety of developmental and welfare schemes have been organised for the nomadic tribes living on the borders of Rajasthan, Punjab, Himachal Pradesh and Jammu and Kashmir. They are mostly pastoral nomads and roving artisans. Provision of sheds for them and their cattle along the traditional routes followed by these nomadic communities, veterinary aid, knowledge of animal husbandry for better cattle breeding, provision of peripatetic or settled schools for their children, organisation of co-operative marketing of their produce are some of the special measures under way.

In the light of the continuing emergency, the approach of defence through development has been reaffirmed. So far as the border communities are concerned, defence through development is the only meaningful approach and it should remain so even after the emergency ceases.



Books

Family Planning in Bombay

Family Planning Through Clinics by C. Chandrasekaran and Katherine Kuder. Demographic Training and Research Centre, Bombay, 1965. 272 Pages. Rs 26.

S.N. Agarwala

THE book contains findings of a research project regarding the working of family planning clinics in Greater Bombay, undertaken by the Demographic Training and Research Centre, Bombay, in collaboration with the Family Planning Association of India. The project was initiated in April 1960 and completed in November 1964.

The book is the second of its nature in India (the first was *Fertility Control Through Contraception : A Study of Family Planning Clinics of Metropolitan Delhi* published by the present reviewer in 1960). It seeks to evaluate the role of family planning clinics in promoting family planning. It also seeks to study the attitude of the people, who visited these clinics, on such aspects as the efficiency of the clinic service, response to contraceptive methods which were prescribed by the clinics and the measure of the clinics' success in lowering the pregnancy rate. It is a comprehensive and detailed report and throws light on a number of interesting problems.

The survey covers a total number of 53 clinics of Greater Bombay. The data were collected in three stages. Out of the 575 women selected from 12 clinics only 363, that is, about 63 per cent, could be studied. Others could not be contacted, either because they could not be located or their addresses were incomplete.

This poses an interesting methodological problem. When demographic and socio-economic details of the non-contact cases are not available, the results obtained need not be representative. This problem has not received the attention which it deserves.

This study makes use of multiple-causal relationships to explain various empirical findings. This possibly is the first attempt of this nature in a demographic study in India and deserves commendation. The multiple-stage sampling procedure has been employed to ensure representativeness of the population and to reduce biases. The use of Mahalanobis's inter-penetrating sampling procedure has been employed to reduce sampling error and also the cost of research. However, the study which uses multiple-causal explanation should ensure that adequate number of cases are available in each cell when the population is finally divided in different groups for purposes of analysis. In several of the break-ups in this study, the number in a cell is so small that any generalisation would be misleading. This is a limitation of the study.

The authors have compared the clinic data on the age of female visitors, occupation of their husbands, family income, and the number of children born alive, with the 1951 and 1961 censuses of Bombay and the sixteenth round of the National Sample Survey to test the representative nature of the clinic population (Chapter IV). They have found that the population is somewhat representative of the Bombay population. But even this cannot be said with confidence because the clinics did not collect data on any uniform pattern.

The authors come to some interesting conclusions. Mass media were found to be a poor source of family planning communication. Personal contact by health visitors or medical doctors was the most important source.

Most of the visitors to the clinics were prescribed diaphragm and jelly, as a rule; the reasons for this strange practice are not given. About 59 per cent of the female visitors who visited the clinics did not come later for a check-up visit. This is a reflection on the clinic service, and deserves consideration by the authorities. The users of contraceptives were able to reduce the risk of pregnancy by fifty per cent. The pregnancy rate was reduced from 68 to 34 with the use of contraceptives. This again is not a very commendable achievement because in the Delhi Study, the reduction was by about 80 per cent.

On the basis of the results of this study it is difficult to share the optimism of Dr. V.K.R.V. Rao, who has written an illuminating foreword to this book, that "the results of the survey make me feel optimistic about the success of family planning clinics as an instrument of population policy". But one can wholeheartedly agree with him that "the willingness to take to family planning is undoubtedly there; what is needed is identification, particularisation, better communication, and massive increase in the supply and facilities of contraceptive material."

The book is a useful and timely contribution to the meagre literature on family planning in India.

BOOKS RECEIVED

Lining of Earthen Irrigation Channels by H.L. Sally. 119 pages. Rs 15. Trade Theory and Commercial Policy in Relation to Underdeveloped Countries edited by A.K. Das Gupta. 108 pages. Rs 12. Both published by Asia Publishing House, Bombay.

Gandhiji on Rural Reconstruction. 43 pages. Publications Division, Delhi.

Year Book of Fishery Statistics. Vol. 17 (1963). Food and Agriculture Organisation of the United Nations. 32s. 6d.

Gramdan Movement—A Handbook. Planning Commission. 149 pages.

The Experience of Citizens in Getting Water Connections by A.P. Barnabas. Indian Institute of Public Administration. 45 pages. Rs. 1.50

The European Economic Community by N.V. Sovani. Institute of Economic Research, Dharwar. 51 pages. Rs 7.50.

All India Rural Household Survey —Saving Income and Investment. Vol. II. 139 pages. Rs 15. Demand for Energy in Western India. 221 pages. Rs 18. Saving in India (1950-51 to 1961-62). 185 pages. Rs 15. Saving in Structural Steel through Standardisation. 96 pages. Rs 6. All published by the National Council of Applied Economic Research, New Delhi.

Dadabhai Naoroji and the Drain Theory (Dadabhai Naoroji Memorial Lectures) by B.N. Ganguli. 152 pages Rs 14. The Theory of Future Trading (Hedging, Speculation and Storage in Organised Commodity Markets) by L.S. Venkataraman. 115 pages. Rs 26. Sanskrit Poetics—A Critical and Comparative Study by Krishna Chaitanya. 466 pages. Rs 40. Religion and Society Among the Coorgs of South India by M.N. Srinivas. 269 pages Rs. 26. Asia Publishing House, Bombay.

BANKING IN INDIA

Indian Banks, Their Portfolios, Profits and Policies—A case study in the effectiveness of Central Bank techniques of monetary control by Donald D. Hester. University of Bombay. 101 pages. Rs 5.

R. G. Nayak

THE book is the seventh publication in the series in *Monetary and International Economics* published by the University of Bombay. It is the product of the research done by Dr Donald Hester of Yale University during his assignment with Bombay University under the Yale-Bombay programme of collaboration.

In the first two chapters Dr Hester deals with the composition of bank portfolios and analysis of bank profits. He has tested a number of interesting hypotheses pertaining to divergence in deposit and advance rates in different regions of India, the relation between the size of bank and interest rates on advances and deposits, the cash ratio and variations in deposit level, the number of bank branches and cash ratio, labour costs in relation to current deposits *vis-a-vis* to other bank resources, labour expenses and the number of bank branches and the degree of imperfection as reflected in variations in profitability in different regions.

While attempting to identify and evaluate empirically some important behavioral and operational relationships the author has restricted the scope of his study to the operations of scheduled joint stock banks. The State Bank of India is not included because of its special characteristic of being a State-owned bank. The principal statistical tools employed in the calculations are multiple regression and analysis of variance. The data analysed in this study refer to bank operations in 1959.

Readers of *Yojana* will be more interested in third chapter entitled 'Recommendations for improving bank operations and monetary policy'. The author points out that one of the most striking aspects of Indian banks is the degree of their centralisation. It is well-known that the cost of coordinating the activities of a firm rises more than proportionately to the size of the firm and this is particularly true about Indian joint stock banks. Dr Hester has, therefore, recommended the decentralisation of responsibility in big banks. He has also recommended that efforts should be made towards increasing the trainning, pay and responsibility of junior officers. The banks should be decentralised as rapidly as the increasing supply of trained personnel permits. This recommendation is worth consideration by the big banks which have branches throughout the country.

It takes an individual about 15 minutes usually to cash a personal cheque at his bank. Branch managers and officers spend considerable time in examining and initialling cheques, peons transport them considerable distances and queues shuffle impatiently as accountants verify books and signatures. Dr Hester wants the teller system to be introduced at least for a selected group of bank customers so as to improve banking service and profits. In order to encourage the adoption of this scheme, he has recommended that a law should be passed to make unauthorised overdrafts a criminal offence, thus reducing the chances of fraud. This system has already been introduced in some of our banks with good results.

Dr Hester has calculated that the relative cost of current deposit account of the joint stock banks is higher as compared to any other accounts. In order to increase bank profits he has suggested that incidental charges on current accounts should be increased. In his opinion service charges should be mechanically tied to the volume of payments and drawals and the value of an account's minimum deposit balance. In his opinion there will be no difficulty in raising service charge as the competition between Indian banks through services is less conspicuous than through variations in interest charges.

In the author's opinion the existence of regional languages and variations in numerals is a severe strain on the Indian banking system. He has suggested that in order to increase bank business the bank should issue savings pass books in regional languages. This idea is worth consideration by the Indian joint stock banks.

Dr Hester has also some suggestions on how to improve Central banking policy. In his view the Reserve Bank is specially concerned about Government securities. Instead of using the bank rate mechanism, the Reserve Bank has introduced the tier system of rates in order to have a less deflationary impact on Government bond prices as compared to a straightforward increase in bank rate. For a similar reason the Reserve Bank has been relying more on limiting bank borrowings by rules rather than through higher bank rates. In addition, open market operations have not been vigorously employed to effect changes in interest rates, prices, employment and growth but for stabilisation of Government securities market. In the opinion of the reviewer of the book, the Reserve Bank cannot be blamed for supporting the gilt-edged market. In a planned economy where a major course of revenue for Plan implementation comes from public borrowings a legitimate objective of the Central Bank should be to maintain stability in the gilt-edged market.

Dr Hester has also critically studied the instrument of monetary controls like liquidity and cash reserve requirements. He points out the disadvantage of this type of instrument which adversely affects the progressive banks as compared to those with declining deposit trends. In his opinion the banks were able to evade successfully a part of restraining effect by selling government securities. Here also the author thinks that the increase in liquidity requirements from 20 per cent to 28 per

(*Continued on Page 23*)

PARLIAMENT and the EMERGENCY

The Legislature Proved Itself Major Weapon in Our Fight

J. P. CHATURVEDI

DR RAM MANOHAR LOHIA, speaking in the Lok Sabha the other day, said that India had an additional weapon with it in fighting against Pakistan, a weapon that Pakistan did not possess. India had a Parliament. Perhaps Dr Lohia was never more correct. Contrary to popular belief, the democracies of the world have been much more effective in war than in peace. The sum total of history points out that communities based upon self-government and on free and frank public discussion have always scored over the lone-wolf rulers, autocrats and dictators.

The best generals of the world are the gift of democracies. Cromwell, Washington, Wellington—and, going farther back, Hannibal, Julius Caesar, Napoleon—were all products of democracies and they looked to their Senates or Parliaments for acclaim and approval. Hannibal was elected commander-in-chief by the army and was invincible only so long as the Carthaginian Senate stood by him. Napoleon had to win approval for his famous campaign across the Alps. The moment the First Consul became Emperor he started losing support. It was the democracies that won in the last round, whether it was the Napoleonic war, the First World War or the Second World War. They did it in spite of Kaisers and Hitlers, Hindenburgs and Rommels, Mussolinis and Hirohitos, who, with all the military background and the men and material at their command, could not win.

And democracies win in great wars simply because the very mechanics of a long and protracted war demands loyalty, co-operation and support of such an immense magnitude that only an administration that represents the general will of the people can secure it.

The Greek city states based upon democracies could be no match in numbers to the might of Xerxes and Darius of Persia and still they scored. And if the first Caliph Abu Bakr was able to challenge the might of the Roman emperors, Greek monarchs and Persian Shahs, it was not because he was a great general, but because he was elected Caliph by the population of Medina and other Islamic cities. Similarly Chengis Khan, Halaku Khan and Bati Khan conquered a large part of Asia and Europe not to add to the glory of a single Mongol chieftain or even to propagate Buddhism against Islam and Christianity, but under orders of the Grand Mongol Assembly, the Kurultai. As soon as the Mongols became Emperors of China under Kublai Khan the Mongol authority started decaying and could not last even a hundred years. But other sections of Mongols who still pursued the old Grand Assembly pattern continued to rule Russia till 1480.

The reason for the failure of one-man rule in war is simple. War is ruthless and risky. It can never be carried on alone. It must have the willing and loyal support not only of the troops but of the entire people also. It is they that have to provide money, materials and men. War promises only death and devastation. Everyone is affected and always to his disadvantage. War can be sustained when the people in general bear their travail with cheer. That is what is called morale. The people do it only when they identify themselves with the war and feel that it is worth fighting. The whim and caprice of a dictator or autocrat cannot keep a nation for long at fighting pitch.

And here lies the strength of democracy—and of Parliaments. A Parliament consists of the chosen representatives of the people. Its members represent their general will and their mood too. A Parliament enables the Government of the day to gauge the mind of the people and plan its policies accordingly. War involves expenditure of unexpectedly huge sums of money. In the Second World War, the United States of America spent $ 225,000,000,000. an amount which was much more than the total budgets of all the earlier governments of the U.S.A. since its inception in 1776. It was a democracy that could vote such huge amounts which gave such an edge to America.

Parliaments have also the ability to call forth the best from generals and soldiers. When a soldier knows that if he makes the supreme sacrifice he gets not only a pat from his officer but the salute of the chosen representatives of the whole country, will he not do it? Last month both Houses of Parliament rose to their feet to honour those brave jawans and others who sacrificed themselves at the altar of freedom. Every day Parliament sat to hear reports from the Defence Minister, and the people fighting on the front knew that they must send every day some good word to cheer not only to Members of Parliament but the entire people of the country.

It must have been a great experience for them to find all the political parties combined to give united support to their Government with only one object: that the armed forces should be enabled to win the war for the country. As Prime Minister Shastri said later in Parliament, such unanimity as was displayed during this crisis disappointed those who had counted on Indian disunity.

The Prime Minister consulted leaders of all political parties on major decisions of war and peace, and even when Parliament is not in session a committee of Members of Parliament will keep vigil. The executive committee of the Congress Parliamentary Party was in daily session with the Defence Minister and although Members of Parliament voluntarily did not ask questions about day-to-day details, information was forthcoming and Members of Parliament even visited the battlefront to understand the conditions and cheer the jawans.

At the time of the Chinese aggression, the Indian Parliament took a solemn resolve to meet aggression and it was the vigilance exercised by Parliament then that enabled us to be prepared for the defences of the country this time. Both by criticism and by support Parliament has strengthened the country, and is thus responsible for the good showing this time.

The fact that this country has a Parliamentary form of government where the government of the day is bound to give the facts has a great importance in the matter of public morale. When war is on, there are always so many rumours of reverses and successes, deaths and casualties. Routine channels of communication are blocked. But in a country where it is the duty of Government to render account to the people's representatives a great faith is built up in whatever is said in Parliament. At the time of the Chinese war, whether it was a debacle at Sela or withdrawal at Bomdila, it was faithfully reported to the country through Parliament. Similarly this time when we had some reverse in the Kasur sector the Defence Minister told the country of how battles have their ups and downs and this announcement enabled the people to take the right view. Later on it turned out to be a strategic withdrawal which won us laurels.

In a dictatorship, so much depends upon the personality of the dictator that once he is out the whole country collapses. That is not so in democracy. Franklin Roosevelt was one of the outstanding statesmen that put the democracies on the road to victory in the Second Great War. It was he who ordered the production of the atomic bomb and it was he who used to the maximum the production capacity of United States. Even Stalin acknowledged the contribution of American war material in Russian success. Yet when Roosevelt died suddenly, America carried on the war with the same determination. The world knows about the contributions of that other war leader, Churchill; not the least of them is that he made the British Parliament itself a great weapon for waging war and building morale. The House of Commons was in session even when German bombs were being unloaded on Westminster.

In policy-making the Parliamentary system has a great advantage over one-man rule. The country is not permanently tied down to a person whose policies have been a failure. A dictator cannot change his policies eyen when he is convinced of its failure and the country cannot get rid of the dictator if he is proving a failure. But democracies can change policies as well as persons if and when necessary. The British did it in both the Great Wars and produced leaders like Llyod George and Churchill. The leadership they gave the country depended, in turn, on the sustenance they drew from the parliamentary form of government.

Democracy provides many opportunities to its leaders to carry on a dialogue which strengthens the fibre of both the leaders and the people. The brief war with Pakistan has given an illustration of this in our own country. The Defence Minister was very right in saying that the greatest contribution to Indian success in war was the resolute leadership provided by Prime Minister Shastri. A man like Mr Shastri could never have been a dictator. The emergence of this 100 per cent democrat has again proved that in a crisis, such as the one India faced after the death of Mr Nehru, democracy and democracy alone is capable of providing real and bold leadership to the country.

SHOTS THAT KILL POLIO

The World Health Organisation says that polio has almost vanished in Sweden. Only one person had a polio attack there in 1964, compared to 1,009 ten years ago. Poliomyelitis has suffered a similar defeat elsewhere in the world too. Figures for America: 38,476 in 1954 and 121 last year.

Reason for the dramatic decline : Anti-polio vaccination on mass scale.

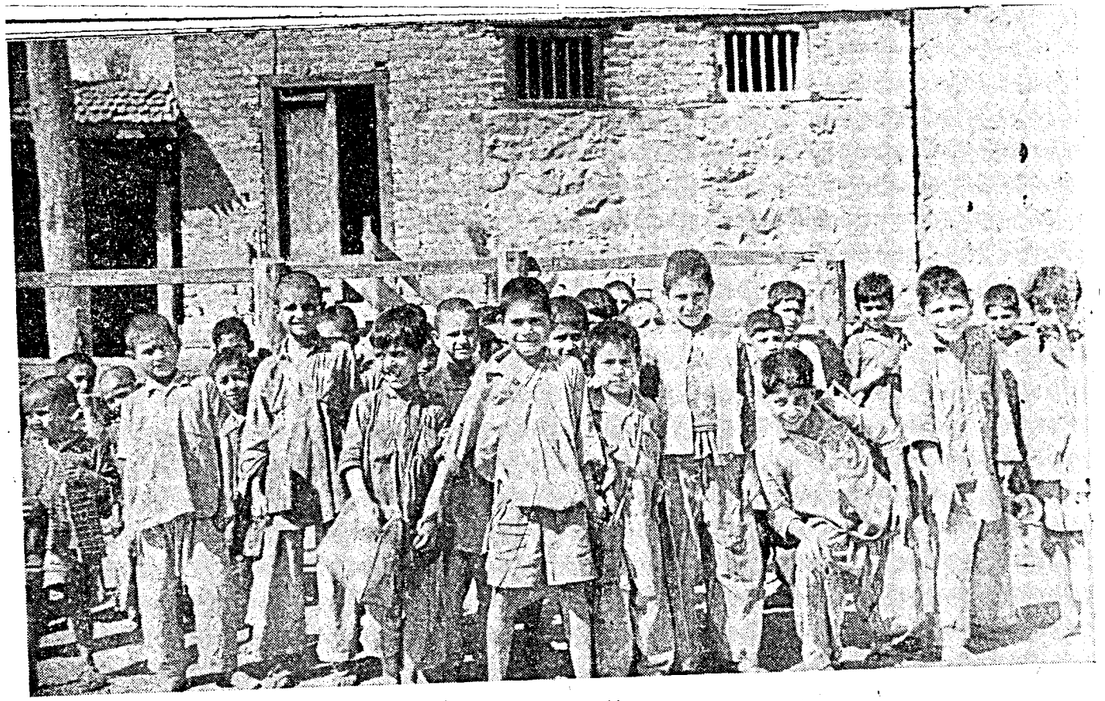
Yojana Bhavan Diary

The Planning Commission met on October 6 and 7 to discuss the Plan outlay for 1966-67.

The Planning Commission has set up a high level technical Panel to advise the Commission on guidelines for economy in construction costs and to periodically review the progress made in this field. Prof M.S. Thacker, Member (Natural Resources), will be its chairman. Among the members will be Maj. Gen. Harkirat Singh, Adviser (Construction), and Mr A.N. Malhotra, Director (Construction), who will also be its Secretary.

The Commission has, as suggested by the above Panel, constituted a set of five different Groups which will study economy in cost and financing of the construction industry in all its aspects and productivity in timber industry, lime industry, brick and tile industry and quarrying industry. Maj. Gen. Harkirat Singh, Adviser (Construction), will be the chairman of all these Study Groups. Mr K.P. Sagreiya, Senior Specialist (Forest Resources), will be the Member-Secretary of the Timber Industry Study Group. Mr A.N. Malhotra, Director (Construction), will be the Member-Secretary of the Groups to study economy in construction cost and in the quarrying industry.

Mr Pitambar Pant, Chief, Perspective Planning Division, has accompanied the Union Food and Agriculture Minister to Rome to take part in the Advisory Panel for Indicative World Plan of the F.A.O. for agricultural development held in Rome from October 11 to 18.



Raiders Go—Children Smile Again

"Hamara eskool bach gaya", yelled a group of young children as I entered Batmaloo to see the remains of a devastating fire that the Pakistani infiltrators had caused in this little hamlet, west of Srinagar.

Unmindful of the miseries accentuated by the fire, the children posed for me in front of their school.

"Don't you have classes?" I asked them. Pat came the reply in chorus: "No saheb"; one of them added by way of explanation that their master, the only one for this primary school, had not turned up.

The master, I learnt later, had lost his house in the fire.

Report and

Pictures by

K.S. RAMASWAMI



Like the master, many others were picking up the lost threads. I could see the entire hamlet coming back to life though slowly. It will be many months before the 500-odd families affected by the fire can have new homes in the same area.

Batmaloo bears without bitterness the scars of the deed of the Pakistani infiltrators. There are roofless houses, charred windows and broken walls everywhere. The primary school and a mosque at another end of the hamlet are practically the only survivors in the fire.

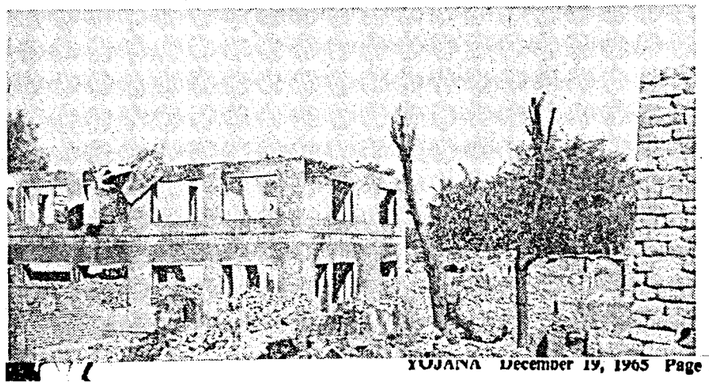
The fire, according to officials in Srinagar, was started by the Pakistan raiders at three different points in Batmaloo on the night of August 14.

Only the previous night, the residents of Batmaloo had fled following an exchange of fire between Indian security forces and the infiltrators hiding near the village. The police claimed to have caught four raiders with incendiary material. On the day of the fire, fire-engines that rushed to Batmaloo were greeted by the raiders with rifle shots.

But the village is returning to normal life. Fruit-sellers have reopened their stalls looking for buyers.

Officials have distributed Rs 250 per family and also passed round rice rations and blankets. With winter fast approaching, the work of rehabilitation becomes urgent. The Government also proposes to rebuild the hamlet. A blueprint is being drawn up.

Above : Unmindful of the Pakistani raids the children of the primary school face the camera with smile. The school, in the background, was saved. Left : This old helpless woman who lost her home, is reluctant to leave the place. Right, above : Normal life goes on in Batmaloo—cultivators watering their fields. Below : A building devastated by fire. The branches of the trees were burnt.





BOOKS *from Page 21*

cent of deposits in 1962 was not aimed at either safeguarding banking system or at restraining credit expansion but at supporting prices of Government securities. This system of credit control tends to reduce profits of banks by increasing their holdings of low yielding Government securities and thus retarding the rate of growth of banking system.

As regards discretionary credit controls relating to collateral and minimum margin requirements against bank advances the author feels that such controls are more effective in India where nearly 95 per cent of the advances (excluding bills discounted) are secured. These controls are effective, however, only to some extent as bank advances can be used for many purposes regardless of their nominal collateral. If the policy is continued for a long time speculators and other holders of the specified commodities will find other collateral to operate again or will operate from non-bank sources.

While making these comments the author fully recognises that effective implementation of monetary policy in Indian conditions is very difficult. He therefore approves the adoption, from time to time, of selective credit controls and emergency reserve requirements but feels that in the long run a bank rate policy will prove a more effective technique of monetary control than other methods of credit control.

The book, with its empirical investigation of Indian monetary issues, is an important contribution to monetary economics.

New Nuclear Tool

The Atomic Energy Establishment at Trombay has designed a multiarm neutron spectrometer, the first of its kind to be in operation in the world.

Neutron spectrometers are used for measuring the energy and angular distribution of neutrons and for determining the position of atoms in matter and studying their motion. This will also help in protecting scientists and technicians handling nuclear instruments from harmful radioactivity.

Better Diets for People

Survey of Applied Nutrition Programme Shows Lack of Organisation

FINDINGS OF EVALUATION

THE Programme Evaluation Organisation of the Planning Commission has published reports of two surveys—on the Applied Nutrition Programme and on primary education in rural areas. The surveys were undertaken in order to understand what order of prominence ought to be given to these programmes in the Fourth Plan.

The survey of the Applied Nutrition Programme aimed mainly at examining the working of the programme in the field, rather than going deeper into the question of moulding the dietary habits, patterns and attitudes of the people.

The Applied Nutrition Programme in its present form was taken up only two years ago, although it was first introduced, on a pilot basis under the name 'Expanded Nutrition Programme', in Orissa in 1959. At the time of the survey, the Programme covered 183 blocks in States of Orissa, Andhra Pradesh, Uttar Pradesh, Kerala, Madhya Pradesh, Madras, Mysore, Punjab, West Bengal and Himachal Pradesh, and 73 more blocks were expected to be started this year, including 51 blocks in Assam (3), Bihar (8), Gujarat (7), Jammu and Kashmir (3), Maharashtra (12), Rajasthan (12), Delhi (2), Tripura (2) and Goa (2). Additional 1,000 blocks are proposed in the Fourth Plan. The United Nations International Children's Emergency Fund, the Food and Agricultural Organisation and the World Health Organisation are participating in the programme by providing equipment and technical assistance. Co-ordination committees are set up at the national, State, district and block levels. The Union Ministry of Community Development and Co-operation is responsible for the co-ordination at the Centre, and in the States the programme is co-ordinated and administered through the community development organisation.

The survey has revealed that the initial flexibility in the structure of the programme resulted in a haphazard pattern creating difficulties in the efficient working of the programme. The programme has four facets: (1) production of nutritive foods, (2) education in nutritional values of food, (3) supplementary feeding of vulnerable sections of the population such as children, mothers, the weak and the poor, and (4) training of functionaries. Variations have been observed in the emphasis among these four facets. Which of them is more important and what is their inter-relationship? Should the production of supplementary food be an economic proposition or should it serve as demonstration for educating the people? Is the programme basically a welfare programme to help the poorer and vulnerable sections or is it a programme of extension and education? There are no clear cut directives on these questions and the pattern of the programme varies from state to state. It has also not been made clear to what extent the better off people in the villages are to be drawn within the fold of the programme.

No Uniform Method

The report says that the methods and procedures of selecting the block areas and villages are different among the States. The programme seems to be working on pilot basis up to now. The Panchayati Raj institutions have not been very helpful so far; they should be more actively associated with the programme right from the stage of selecting villages. The programme has generally suffered wherever areas were selected without fully taking into account the availability of local resources. Besides, surveys should be undertaken to identify the nutritional deficiencies and problems in different areas before beginning the field work.

Co-ordination of the programme is satisfactory at the State level through the State Co-ordination Committee, but at the district level it is not done properly. In most cases the extension officers of the Community Development Blocks and primary health units, who already have a high work load, are asked to take up the programme work for which they cannot spare enough time. The duties and responsibilities of the staff should therefore be clearly defined.

Mahila Mandals have done good work in the supplementary feeding programme in Orissa and Madras, but in some other States, such as U.P. and Andhra Pradesh, they have failed and the feeding centres have had to be closed at certain places. One of the causes of their failure is their inability to keep proper accounts. Mahila Mandals and youth clubs should be persuaded to share greater responsibility in the programme.

In poultry keeping, the insistence on the deep litter system and the standardised feed have proved a handicap to small keepers. Mortality among the birds is also high for want of veterinary aid. A common hatching programme should be evolved in every village to facilitate small units. Each block can also prepare standardised feed for its own use.

The practice in U.P. of encouraging pisciculture in private as well as Panchayat tanks is an example worth emulation. Fishermen and Panchayat presidents should be given training (as in Madras), and also a portion of the catch (as in U.P.) as an incentive.

Lands for horticultural gardens are not easily available. Lack of irrigation and power facilities also come in the way. For a school garden, an area of about 50 square feet per child should be deemed enough.

As for the supplementary feeding programme, it is observed that mothers are reluctant to accept the food if they cannot share it with their children. A family approach, as adopted in U.P., could be more effective. The Panchayats and other production units are often found unwilling to part with a portion of their produce for supplementary feeding. The selection of beneficiaries also needs to be made more scrupulously.

Progress reporting is not done systematically and adequate data are not collected. The method needs improvement. The syllabus of training courses is not properly prepared in States. Frequent transfers of trained staff cause a considerable wastage. The selection of trainees also is not thorough, and often right type of trainees are not picked up.

Primary Education: Goal Needs Rethinking

THE survey of primary education was intended to assess the progress of primary education in rural areas, and to suggest measures to solve the problems and difficulties in further expansion. It was initiated in 1961-62, and was confined to selected areas covering 2,130 villages in 16 districts—one district each in the 15 States and Himachal Pradesh.

One of the Directive Principles of the Constitution has stipulated that free, universal and compulsory education be introduced for children up to 14 years of age and the Third Plan attached great importance to the programme, and earmarked Rs 209 crore for it—37 per cent of the total outlay on education and 140 per cent of that in the Second Plan. The intention was to bring all children in age group 6-11 into schools.

When the Second Plan drew to a close in 1961, the year in which the survey was conducted, the number of primary schools in the country was 3.42 lakh, almost double that in 1946-47. In 1960-61 there were 350 lakh children in school, about 61 per cent of the total population in the age group 6-11. Girls were fewer (37.5 per cent) than boys in the total enrolment in any year and the rate of increase was also smaller in the case of girls than boys (40 and 80 per cent respectively during the first two Plans).

The survey has revealed that nearly all the villages with a population above 500 each had a primary school but the growth in enrolment was lower (61 per cent) in rural areas than in urban areas and still lower in the backward regions. The growth in enrolment is absorbed more by opening new schools than by expanding the existing ones.

The proportion of Harijan children at school has been increasing steadily—from 60.3 per cent in 1951 to 74.2 per cent in 1961.

Parents are reluctant to send their children to a school more than two miles away from their village. Only 43 per cent of the children of landless labourers attended school, as against 75 per cent of the children of big cultivators.

More than a third of the rural children have never gone to any school. A major occupation of the non-school-going boys is cattle-grazing; and the girls help their mothers in household work. However, it may be noted that about one-half of the non-school going boys do not really do any work; it cannot, therefore, be said that they do not go to school because their parents are in need of their work. Financial difficulties and distant location of school are the major causes of not sending children to school.

There is considerable educational waste. The drop-out rate is about 23 per cent, and discontinuance is most pronounced at the fifth class. About a fifth of the children in schools stagnate in the same class.

The scheme of basic education has received varying degrees of empahsis in different States. The number of basic schools is about a fifth of the total of primary schools. There seems to be little difference between the traditional and the basic schools in U.P. Teachers feel that instruction through craft teaching is an easier method of education. About 42 per cent of the parents also favour the children learning crafts. However, the progress of basic schools seems to have lost momentum.

The number of teachers has increased with the growth in schools. Among the teachers in 1960-61, those trained were 64.3 per cent. It was found that teachers played a surprisingly insignificant role in the development and other activities in villages. However, most of the teachers were satisfied with their job. There appeared to be no institutional arrangement for promoting fruitful relationship between the school and the village community. In many places the school buildings needed extension and improvement. About half the schools were poorly equipped. People were in most cases enthusiastic in building new schools or improving the old ones. Their contributions came readily.

The survey also found that some State Governments had undertaken to prepare textbooks for schools. In some other States, the nationalisation of text books was partial.

There is no uniformity as between States in the period of primary education—it is five years in some States and four in others. The report favours a five-year period.

The main problem of primary education today, according to the survey, is of consolidating the achievements than of breaking newground. The low proportion of landless labour and tenant classes among the school children deserves special attention.

The goal and content of primary education also need some basic re-thinking. Should the primary school serve only as a stepping stone to secondary education or should it prepare students for a career, as many of them leave education after this stage? What should they be equipped with and trained for? This question, according to the report, deserves urgent consideration at the highest level.

Emergency Food Plan

Two Million Tonnes in Six Months

As The PLAN Moves

AN emergency food plan aiming at raising additional two million tonnes of food-grains during the next six months has been prepared by the Union Government. Under the plan, an additional area of 30 lakh acres will be brought under cultivation. The production of potatoes, tapioca and vegetables will also be encouraged under the plan.

Areas have already been selected for cultivating short-term crops such as *ragi* and maize. Short-term loans will be given to cultivators for buying seeds and fertilisers.

Under the plan, States will be given funds for short-term and long-term loans and as grants. About one lakh acres of additional land will be put under potato cultivation to produce additional 1.5 million tonnes of potatoes. Irrigation facilities will be utilised intensively.

Statewise, the following will be the acreage of additional land put under cultivation: U.P.—10 lakh; Andhra Pradesh—8 lakh; Bihar—6 lakh; Orissa—4 lakh; West Bengal—1.5 lakh; Mysore—2 lakh.

CROP INSURANCE

The Union Government has also decided to introduce a crop insurance scheme in the country. Under the scheme, insured crops will be protected against drought, floods, diseases and pests.

A programme has been drawn up to make Delhi Territory self-sufficient in food-grains and vegetables.

A 'Grow What You Eat' campaign will soon be launched in Delhi by the Prime Minister.

Punjab has launched a crash programme costing Rs 6 crore for increasing the production of food-grains.

Rs 33.44 Crore for Industries

The Industrial Finance Corporation sanctioned Rs 33.44 crore as loans to 98 industrial units during the year ending June last, including Rs 19.89 crore for new units. The disbursement of loans in the year amounted to Rs 31.92 crore.

The Corporation has so far given Rs 226.96 crore in loans to 390 industrial units of which Rs 127.74 crore had already been disbursed.

Loans given to co-operatives during the past 17 years amounted to Rs 40.45 crore, 18 per cent of the total loans. These were given to 53 sugar factories, 4 spinning mills and one unit for extracting vegetable oil. These loans also enabled thousands of small agriculturists to grow cash crops and adopt improved methods of farming.

ALUMINA PLANT AT KORBA

The capacity of the alumina plant to be set up at Korba in Madhya Pradesh has been raised to two lakh tonnes a year from 1.2 lakh tonnes as proposed earlier. A smelter plant with an annual capacity of one lakh tonnes will be simultaneously built at Korba. The two plants form an integrated project.

Hungary is collaborating in setting up the alumina plant, and the Soviet Union the smelter plant.

*The Rourkela Steel Works made a new record in daily production when it produced 4,562 tons of ingot steel, 167 per cent of its rated capacity, on October 6.

BRIGHT SPOT

SWEET RECORD

The production of sugar this season had reached 32.04 lakh tonnes up to October 7. The season ends on October 31, and the production is expected to exceed the target of 32 lakh tonnes for 1964-65 by 50,000 tonnes. This will be an all-time record in sugar production.

The production of groundnut in 1964-65 is expected to be 61.77 lakh tonnes, an increase of 18.4 per cent.

INDIA'S WAGON FACTORY IN YUGOSLAVIA

INDIA proposes to set up a wagon building factory in Yugoslavia and, in turn, Yugoslavia will participate in jointly setting up in India industries making food products, chrome-tanned leather, shoes and garments.

The collaboration agreement was reached during the Indian Commerce Minister's visit to Yugoslavia. A special Indo-Yugoslav technical commission will soon be set up to study the possibilities of establishing half a dozen joint industrial enterprises in Africa and Asia.

The trade between the two countries will also increase by 33 per cent next year.

Neyveli Power Station To Be Expanded

The Neyveli thermal power station will be expanded to a capacity of 660 MW from 400 MW. The Soviet Union will supply the reinforced steel, steel structurals and welding electrodes required for the expansion.

A contract to this effect has been signed between the Neyveli Lignite Corporation and the Technopromexport, Moscow.

*Two electric pig iron furnaces will be installed at the Mysore Iron and Steel Works. They will be supplied by West Germany out of a loan of 13 million Deutsche marks (Rs 1.5 crore).

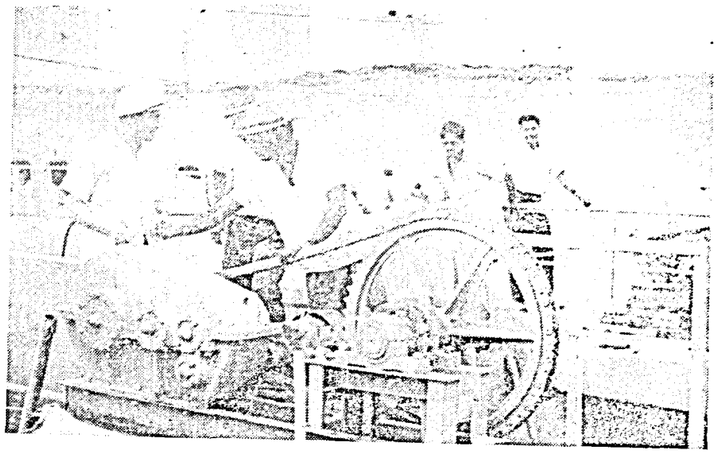
Koyali Refinery Starts Working

FIRST UNIT IS COMMISSIONED

THE third oil refinery in the public sector has begun production at Koyali near Baroda. Its first unit, having an annual capacity to produce one million tonnes of petroleum products, was commissioned on October 11.

The refinery is being built for a total capacity of three million tonnes. The second unit of one-million-tonne capacity is expected to begin production early in January.

The refinery was conceived in February 1961 when the Soviet Union offered assistance to set it up. An agreement for preparing a project report was signed in October 1961.



Oil-traps assembled during refinery construction

The U.S.S.R. supplied plant and equipment under an agreement signed in June 1963. While the construction was going on, another agreement was made in December 1964, to expand the capacity from two million tonnes to three million tonnes.

The foundation stone was laid on May 10, 1963 by Mr Nehru. Construction began in October that year. Work will be completed next year. The total cost is estimated at Rs 31.42 crore including Rs 3.64 crore for the expansion phase.

The refinery will draw crude oil from the oilfields of Ankleshwar and Kalol, both of which are 96 kilometres away from Koyali. Supply has started from the Ankleshwar field through a pipeline.

The products of the refinery will include motor spirit, solvent gasoline of different grades, aviation fuel, kerosene, high speed diesel, liquid gas and furnace oil. The value of annual production would be Rs 47.47 crore, with a gross profit of Rs 21.82 crore. The refinery will save Rs 34.63 crore in foreign exchange annually for the country.

There will be 122 storage tanks of which 60 will be for finished products and 16 for crude oil.

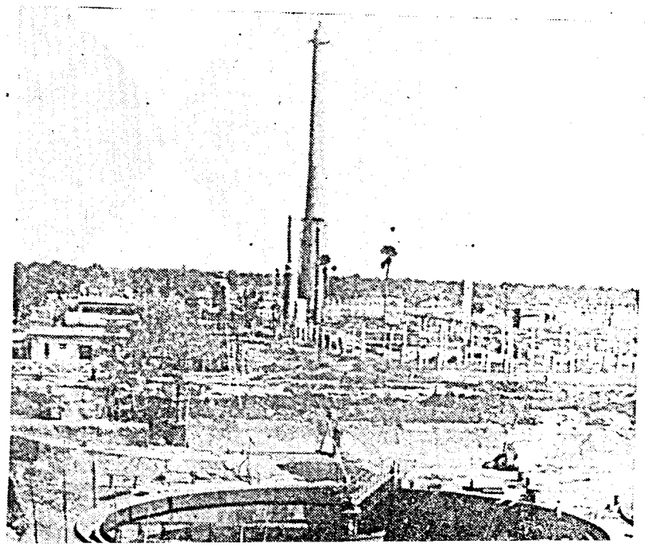
Some 60 per cent of the equipment for the refinery has been fabricated in the country. Only 15,000 tonnes out of the total 37,000 tonnes of equipment and materials will be imported.

Indian engineers did 40 per cent of design work for the first two units and almost the entire design work for the third unit.

Apart from initial training in the Soviet Union, Indian engineers have obtained enough experience of refinery technology while setting up the Barauni and the Gujarat refineries under the guidance of Soviet experts. A Central Design Organisation has been set up at Baroda.

A complex of petro-chemical industries is planned around the refinery. A consortium of three U.S. firms has made a proposal to set up four units costing Rs 66 crore, including a naphtha cracker (costing Rs 30 crore). A fertiliser factory based on naphtha (55,000 tonnes to be supplied by the refinery every year) will soon come up.

Oil separator (foreground) and Catalytic Unit under construction





PRIDE OF PLACE 116

Toys of Idar

MULTICOLOURED wooden dolls, parrots, and peacocks provide delightful moments to children in Gujarati homes, but they are also the means of livelihood to 35 families in the Idar town of Sabarkantha district.

The toy-maker of Idar uses a simple lathe to carve uniformed figures, trinket boxes, flower vases and *agarbatti*-holders. Miniature kitchen utensils are also made for the housewife-to-be from the soft wood and wax colours available locally.

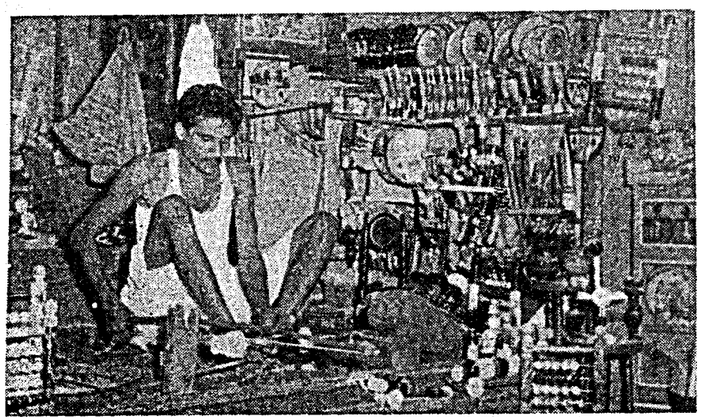
The process is apparently simple and quick. Firstly, a crude shape is hewn with an adze from a single block of wood. Then, turning a lathe with one hand, the toy-maker shapes the wooden piece into fine form. Wax colours are applied after polishing with sandpaper.

The wax colours used on the toys are made by adding colour powders to melted sealing wax. These colours, when polished with a *kevda* leaf, acquire an extra shine and do not fade.

A narrow street in Idar is lined on either side with these toy shops. The working and display room is in the front and behind that is the worker's living quarter. He sells mostly to the wholesaler. The craftsman earns about Rs 5 to Rs 7 a day.

There has been no organised attempt to make innovations in the toy-making. Sophisticated wares like table-lamps and mantelpieces, which can find a ready market in cities, have not caught the Idar craftsmen's imagination so far.

Courtesy: Gujarat Government for pictures and "Jagriti", journal of the Khadi and Village Industries Commission, for text.



M. P.'s Best Village

PAWANI

PAWANI, a small village in Raipur district was adjudged the best village of Madhya Pradesh in 1964-65.

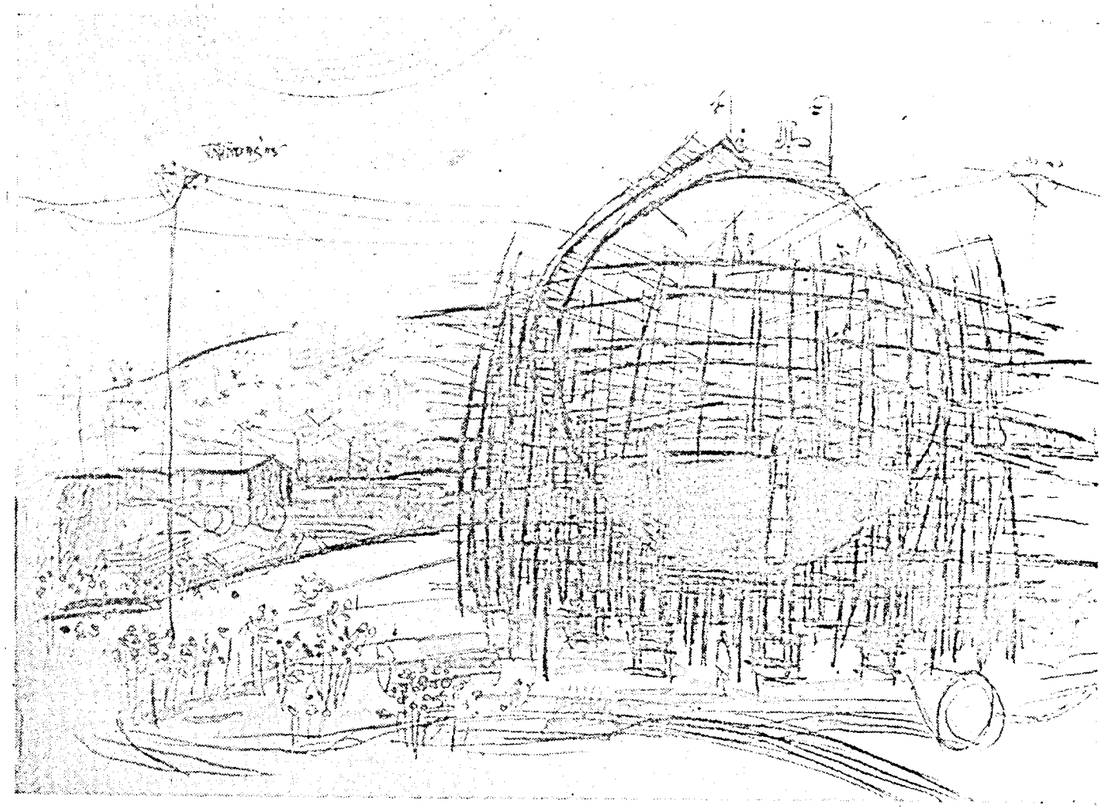
The village is situated four kilometres off the Raipur-Baloda Bazar road, some 24 kilometres from Raipur. It used to be cut off from the neighbouring areas during the rainy season. The people built a bridge and a road within a year contributing Rs 21,500 in labour and money. This work galvanised their constructive spirit and they undertook to build a school, an irrigation tank, a Panchayat Ghar and wells one after another. They bunded a turbulent nullah at a cost of Rs. 24,500 in which people's contribution was Rs 22,000.

By this time their village came under the Package Programme for paddy. They took full advantage of the programme; 731 acres of land was put under double cropping. Meanwhile 55 new compost pits were dug and 504 old ones repaired to yield together 1,118 tonnes of manure. The villagers have looked their health problems too. The whole population of 1,100 has been protected against cholera and small pox. For supply of drinking water a tube-well has been installed at a cost of Rs 4,000 and a model well built at a cost of another Rs 2,500.

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YOJANA

NINTH YEAR
22
November 7, 1965



MILLION TONNES OF FOOD FROM TROMBAY
FERTILISER — MANPOWER PLANNING AND
SELF-RELIANCE — POWER PRIORITIES

ABOUT YOJANA

Yojana seeks to carry the message of : Plan to all sections of the people and promote a more earnest discussion problems of social and economic velopment.

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THE COVER: A sketch of the Sulphuric Acid Plant of the Trombay Fertiliser Factory when under construction by Jatin Das. (Courtesy: Span) Below the sketch is a photograph of the silos for fertiliser when under construction.

As The Plan Moves

LOANS AND GOLD FOR DEFENCE

THE Union Government has introduced three new schemes to mobilise the country's resources for defence. The first consists of 15-year National Defence Gold Bonds, which will get a tax-free interest at the rate of Rs 2 per 10 grammes of gold per annum. They can be bought only in gold and will also be repaid in gold of standard purity in 1980. They are transferable.

The bonds are exempt from Capital Gains Tax, Wealth Tax and the Gold Control Act and the customs regulations. No inquiries will be made about the gold invested in the bonds nor will the identity of the investor disclosed.

The other two schemes are Defence loans. One carries an interest at 4.75 per cent and is redeemable after seven years. The other carries interest at the rate of 4.25 per cent and is redeemable after three years.

The issue under all there schemes opened on Oct. 27 and will be open till the end of January.

Indians abroad sending remittances to India or the recipients of such remittances in India can get licences to import into India items approved by the Government, particularly essential raw materials and machines, to the extent of 60 per cent of the remittances. The same concession will be given to Indians who live in this country but hold foreign exchange abroad, if they wish to bring their foreign holdings back to India, wholly or partly.

BRIGHT SPOT

HMT DOES IT AGAIN

The Hindustan Machine Tools Limited distributed a dividend of 10 per cent successively for the fifth year 1964-65. The net profit for the year amounted to Rs 3.09 crore (as against Rs 2.45 crore in 1963-64).

HMT turned out 2,170 machines in the year (1,983 in the previous year) including 12 special machines of very sophisticated type.

The Pinjore factory of HMT produced, for the first time in India, ally electric heavy duty milling machines, numbering 60.

FERTILISER PROFITS

The Fertiliser Corporation of India earned a net profit of Rs 2.62 crore in 1964-65.

KIRON Our New Jet

The Hindustan Aircraft Factory of the Hindustan Aeronautics Limited at Bangalore has designed a new jet aircraft. Its fighting potential has been described by Air Marshal Arjan Singh as "tremendous". The aircraft is named 'Kiron' and its production will soon begin at the factory.

Vijayant, the first Indian medium tank, will roll out of the Avadi heavy vehicles factory by the end of this year. It will keep to the production schedule although Britain has suspended the supply of strategic materials for the factory. (A British firm is collaborating in the tank project.)

New Drug Factory

The pilot plant of the synthetic drugs factory at Hyderabad has gone into production. The factory is one of the three units the Indian Drugs and Pharmaceuticals Limited is building with Soviet collaboration.

Bhadravati

The alloy and steel plant at Bhadravati in Mysore will have two more electric furnaces, with an annual capacity of 1.25 lakh tonnes, for producing pig iron. A contract has been signed with Messrs Demag, a West German firm.

NOT SACRIFICE BUT SELF-HELP

SPEAKING to the nation on the eve of Solidarity Day last month, the Prime Minister defined self-reliance as consisting essentially of an attitude of mind, as the capacity to make the utmost of what we have. That there is in the country today a yearning for self-reliance is undoubted. What is required is that this attitude has to receive in all walks of life a concrete shape, so that it transmutes society permanently.

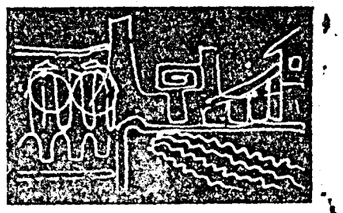
It is, in other words, the translation of the general performances into particular operations that calls for courage and determination. These have furthermore to be born out of a clear understanding of each particular instrument that can be used for endowing economic and social activities with the power needed for creating what we do not have, as well as for making what we have serve new purposes. In developing such an understanding, it is equally important to avoid too much talk of a sacrifice ; for the concept of sacrifice is also relevant as an attitude of mind, an attitude essentially of the individual mind. For society as a whole, there is or can be no sacrifice involved in moving towards self-reliance in matters of defence and development. This is because a self-reliant society comes into being as a society gets stronger in an economic or social sense, and when the resource endowments are in the aggregate enlarged through human effort and ingenuity. If the attitude of mind that we have to cultivate is that of pride and satisfaction, in the creation of such a self-reliant society the idea of sacrifice can only be interpreted as the giving up of vested interests.

The Prime Minister devoted his Solidarity Day message to the question of generating the resources we need for our development and defence, and emphasised that if we wanted to hasten the attainment of self-reliance, we had, each one of us, to produce more and consume less. And, more immediately, he urged upon the people to contribute to their utmost to the National Defence Loans and the National Defence Gold Bonds recently floated. He also told the country about the national defence remittance scheme, which aims at enlarging the foreign exchange receipts of the country from Indian nationals living abroad.

Gold and foreign exchange have at this juncture very special relevance to the country's defence and development programmes. A good deal of our day-to-day requirements in both these areas is not yet being produced within the country ; and unless we find a way of producing these requirements internally, our capacity for self-reliance will not be enlarged. However, even for building up our own facilities for producing the things we need, we have to buy machinery and equipment and raw materials from other countries, and these cannot be bought with rupees. We have to earn foreign exchange one way or the other, and we are earning more foreign exchange from year to year by exporting some of the things that we produce. We have to export even those things which in different circumstances we might have liked to consume ourselves. When we deny ourselves these commodities, we are not depriving ourselves but we are converting those articles into machinery and equipment and raw materials which constitute the foundations of future self-reliance. We have, therefore, as a people, to realise that in consuming less of some things and earning more foreign exchange, we are not, as a community, sacrificing anything but only helping ourselves. It is only when this is viewed from an individual or a group's angle that the transaction seems to involve a so-called sacrifice.

Much the same way, making gold available to the Government at this juncture becomes an act of self-help rather than sacrifice. Indeed in using the gold that we have for increasing our capacity to buy from the rest of the world, we are converting a sterile asset into a productive asset. And in the form in which Government has offered the National Defence Gold Bonds, even the individual who tenders gold in exchange for the Bonds is making no sacrifice. The asset which he had remains with him in all its essential functional attributes though not in the physical form of the yellow metal. And even those who have acquired gold through operations not always legitimate or moral, have been given a chance to compound their past without any penalty. There will be many who would consider this condoning of anti-social activities in the past as an act of undue leniency. But that apart, the essential point to remember is that there is now a great opportunity to turn to fruitful use the very large amount of gold that has over the years been collected in the country by millions of individuals and families. In the immediate situation, the policy for gold mobilisation is an alternative to larger exports. Taking a longer-term view, it should be the precursor of a social change of tremendous significance, if only we have the courage to see that gold is not always the best form of asset for a society, particularly a poor society, in which it should invest its meagre resources. We should be worthy of respect by the world at large if we show now the courage to take this decisive turn and win our freedom from gold.

QUEST FOR SELF-RELIANCE



Firm Policies Needed in Electric Power Field

By
H. R. Bhatia
Member, National Planning Council; Principal, Thapar Institute of Engineering and Technology, Patiala; and former Chairman, Punjab Electricity Board.

ELECTRIC power is a basic necessity for achieving industrial and economic development. Since our defence efforts will also depend largely on industrial backing, the steady development of electric power and efficient maintenance of this service become all the more important from the defence point of view. Our manufacturing capacity for large electric power plants and prime movers, both in the hydel and in the thermal fields, is still very limited and we depend on imported equipment to a large extent. No doubt, the Heavy Electrical Factory at Bhopal and the other factories being set up by Bharat Heavy Electricals have covered some field, but even these factories depend largely on imported components and designs, and until we cover the entire field, our power development programme cannot stand on a firm footing.

Our requirement Number One is, therefore, to achieve self-sufficiency over the entire field of design and manufacture of electric power plant as quickly as possible. It is not necessary for this purpose to cover all varieties of electrical equipment.

To begin with, we should select and standardise a few types of equipment to meet the essential needs and concentrate efforts to reach technical self-sufficiency in the design and manufacture of these items. Priority should be given to items of equipment for which there are no indigenous substitutes. Thus, equipment for electric traction should have a second priority compared to power plant equipment, as the former has a substitute in the form of steam traction. Not that the manufacture of equipment for electric traction should be ignored, but the relative priorities must be determined in a rational manner and firmly observed as a guide-line.

Strengthen Supervision

Rapid development in the indigenous production of insulating tapes and varnishes, insulating paper, substitution of aluminium conductors in place of copper in the manufacture of electrical machinery to the extent possible, manufacture of high tension cables up to 33 K.V. are other items which need concentrated attention for the next few years to achieve a greater rate of progress towards self-sufficiency than heretofore. The existing administrative machinery to supervise the production in these lines should be strengthened where necessary.

Our financial and material resources being limited, the next important consideration that should receive our constant attention is to plan new power schemes in such a way as to achieve maximum benefits with minimum outlays. Thus, if the same benefits can be achieved by adding a unit or units in an existing installation in the region as a whole, proposals for the development of a new power site should not be entertained.

The idea of power development on a regional basis irrespective of state boundaries has already been widely accepted in the country and there is need for a rigid adherence to this policy. Inter-connection of hydro and thermal stations in a large grid offers many advantages of increased firm power and economies in operational charges, and this arrangement should be developed to the maximum extent. Large amounts of secondary power available in almost all hydro-power schemes can be utilised in this manner. In multi-purpose river-valley schemes, the pattern of water releases at present in vogue may be reviewed to give greater power benefits without loss to irrigation, which should be possible in some cases by adopting carry over operations from a wet to a dry year.

New thermal stations should be planned only on sites which offer advantages for development into super-power stations in the future to meet regional needs. Except at sites near coal washeries, where super-power station capacities may develop up to 2000 MW and more some compromise will be necessary between operational economy and security of supply in determining the optimum capacity of super-power thermal stations. It is felt that on an average thermal station capacities of about 500 MW may give optimum results, including economies of transmission. In special circumstances of highly concentrated load centres, the capacity at a single site may increase to 750 MW

One of the main aims of the Indian Electricity Supply Act of 1948 was to rationalise power generation in a fewer number of large power stations and eliminate uneconomic power generation in small thermal power stations installed to meet local needs. In spite of this guiding principle small thermal generating sets, mostly diesel, had to be imported into the country in the last few years in view of the acute shortage of power in some States. It is necessary that the import of such sets for public supply undertakings should ordinarily not be permitted in future. Some States are understood to be encouraging the installation of small diesel generating sets by industries for running their individual industries, by promising subsidy, in capital costs as well as in running costs, so as to equalise the running costs with supply rates from the power system. Such policies obviously run counter to the objectives of the Indian Electricity Supply Act and should be discouraged. Instead, such resources can be pooled to install a bigger and more economical central power plant.

Maintain Uninterrupted Power

Efficient upkeep and maintenance of existing power systems is of the utmost importance in the present conditions. All power stations and major grid sub-stations, where costly equipment is installed, should be placed in charge of sufficiently trained and experienced personnel of proper status who should be adequately remunerated. Maintenance staff should be provided even on a somewhat liberal basis and no false economies should be attempted in this matter. Every large power system should have a high-level maintenance engineer who should prepare routine maintenance schedules and ensure by regular inspections that these schedules are strictly observed. System protection and its efficient maintenance is another subject requiring specialist supervision and there is need for strengthening the power organisations in this direction also. Essential spares must be stocked to prolong the life of the equipment as much as possible. Besides, local skill has to be built up to carry out repairs with locally available material in emergencies.

Quality of service is another important matter requiring substantial improvement over the existing standards in almost all power systems in the country. Interruptions in supply which were tolerated by the public a decade or two ago are now a source of serious irritation because of the increasing dependence of the public on electricity. The economic effects of such interruptions are also much more marked now than a decade or two ago. Maintenance of proper standards of voltage is also largely lacking and requires improvement.

The design of power systems has, therefore, to be reoriented to achieve these improvements. Most of the existing power systems were designed and constructed when the supply conditions were very much less rigid and financial returns expected were low. The systems were therefore planned with a view to cheapness. High reliability overhead lines will naturally cost more. Proper sectionalisation of these lines by automatic switchgear, which is lacking at present, will also add to the cost. Duplicate feeds are necessary for more important localities. For proper voltage regulation, power transformers on all grid sub-stations on a large power system will need transformers fitted with on-load tap changing gear. Protective equipment on distribution systems will also have to be more elaborate and efficient.

These improvements will require fixing up new norms of cost to replace old norms and the sooner new norms are adopted the better. In the ultimate stage it will be necessary to replace all high tension distribution lines (up to 33 K.V.) in all urban localities underground. It will be desirable, however, to spread out such conversion over a number of years to avoid strain on our foreign exchange resources as these cables have to be largely imported at present. The position is expected to improve substantially in the next five to ten years.

Rural Electricity Helps Food Increase

A subject much talked about at present, which is receiving a great deal of support from all quarters in the country, is rural electrification. India is predominantly a country of rural people and it is, therefore, but appropriate that rural areas receive the benefits of modern development in a fair degree as quickly as possible. Availability of electric power in rural areas will also step up food production.

To obtain optimum results, however, rural electrification programmes need careful planning and co-ordination. While the rural public will readily adapt to utilisation of electric power for ordinary uses like irrigation pumps and rice and flour mills, the economics of these distribution systems will be better served by multiplicity of power uses, and planned efforts are necessary to achieve this objective. At present the emphasis is generally laid on the number of villages electrified and not on the extent of utilisation in each village. It is desirable that in all our future plans more emphasis should be laid on the latter aspect.

In the Fourth Plan specific provision has been made by the Planning Commission for developing agro-industries. Adequate technical guidance will have to be provided to the rural public to develop such industries and a suitable organisation built up in each State for the purpose. Unless this is done, the progress may not be adequate.

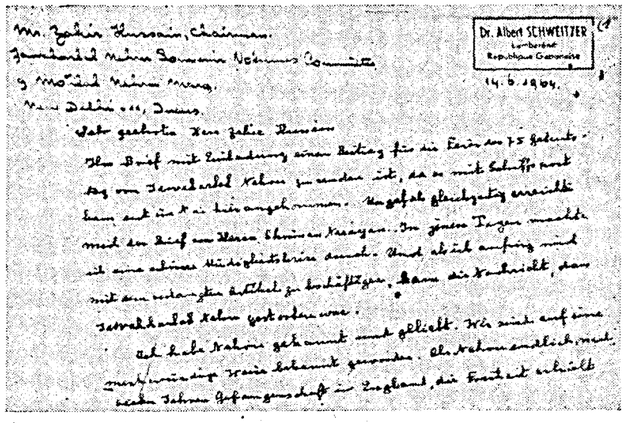
Before I conclude, I should like to add a short note on the organisational aspect of the power set-up in the country. There is need for strengthening these organisations so as to be able to take up larger programmes of development in the future. A State Electricity Board has been formed in each State under the provisions of the Electricity Supply Act of 1948, to work as a semi-autonomous body under the supervision of the State Government. Most of the State Electricity Boards are now huge organisations controlling large blocks of capital expenditure and revenues. It is very essen-

tial that the members appointed on these boards have sufficient experience and background of technical and commercial undertakings so as to run these undertakings successfully. They should not be appointed indifferently or on political considerations as is being often done at present.

In some cases there is still a lack of complete understanding and coordination between the Board and the State Government. This is detrimental to the successful working of these organisations, and progress suffers. State Electricity Boards depend wholly on the State Governments for financing capital expenditure as per provisions of the Electricity Supply Act. There is need to review the provisions of the Electricity Supply Act in this regard so that at least a part of the development could be financed from the revenues of the Board, but until this is done, a better understanding is necessary between the State Governments and the Boards.

Some of the State Governments have raised the rate of interest on the capital blocks advanced to the Boards to an unnecessarily high level without consideration to its revenues. This becomes all the more difficult for the Board to pay when it is not allowed by the State Government to adjust its tariffs suitably to meet these enhanced obligations. There is obvious need for adopting rational policies to develop these new organisations on a sound footing.

The Electricity Supply Act of 1948 also envisages the setting up of a Central Electricity Authority in the country, and although such an authority has been in existence for a number of years, it is an *ex-officio* body and not an effective authority as envisaged in the Act. There is need for a strong Central Electricity Authority working as a semi-autonomous body on commercial principles for supervising and directing all electrical developments in the country. The functions of this authority should be enlarged so as to undertake central generation in super-power stations built to meet regional needs apart from individual State enterprises. It is only then that it will be possible to meet the rapidly rising demands for power in the country.



"Once Jawaharlal Nehru Was My Guest"

Here is a portion of a letter written by Dr Albert Schweitzer in his own hand to Dr Zakir Husain, the Vice-President.

The letter, which was written by Dr Schweitzer in 1964 in reply to Dr Zakir Husain's invitation to him for an article to a volume that was to be presented to Jawaharlal Nehru on his 75th birthday said:

"...When I could think again about writing the article, the news came that Jawaharlal Nehru had died.

"I knew Nehru and loved him. We made each other's acquaintance in a strange way. When Nehru, after having been imprisoned in England for a long time, was free again, I got a letter from Gandhi, in which he wrote me that he did not know to whom he could send Nehru after being released from prison. I lived at that time in Switzerland and I wrote to Nehru in England and invited him to come to Lausanne in Switzerland as soon as he would be free. I gave him my address and soon afterwards he arrived and stayed with us for about ten days. My wife spoke a perfect English.

"He was very silent in the beginning. But when I started talking about Gandhi and he realised that I knew something about the Indian thinkers and that I revered their doctrine, then he felt more at home...We would have liked very much to keep him a little longer, but he longed to be back in India.

"I followed his strenuous life and we wrote to each other on several occasions.

"I regret that I could never come and visit India. The great amount of work for my hospital did not allow me to make great journeys. I was for the last time in Europe in 1959.

"It is a wonderful souvenir for me that once, when we were still young, Jawaharlal Nehru was my guest in Europe and went from there back to India."

It is really when men are confronted with
a crisis that they accept more responsibilities,
do experimentation and are ready for devolution of authority.
All these forces help to build
up self-reliance in technical personnel.

MANPOWER IMPLICATIONS OF SELF-RELIANCE

B. N. DATAR

VARIOUS aspects of the defence effort of the country and the need for self-reliance in each of them are being currently discussed. A corollary to this discussion will be the manpower preparedness for self-reliance. Since this preparedness has to run through the whole of the country's defence effort, and to a large extent the developmental effort too, it would be appropriate to examine its implications in different sectors, particularly in view of the fact that the recent conflict with Pakistan has shown that it is the human element which decides the turn of events. A costly lesson learnt by Pakistan is that superiority in equipment is of less consequence than a thorough training in the use of somewhat less sophisticated defence armour.

Fortunately for India the importance of the manpower aspect of planning was recognised early enough. Over the last ten years, attempts at understanding different facets of manpower preparedeness for development are being intensified simultaneously with increasing the supply of technical personnel in the economy. However careful the analysis, experience everywhere has shown that supply of personnel in technical categories is always short in relation to demand. The best course open, therefore, was (a) to see how the situation could be kept constantly under review, and (b) to decide on timely steps to be taken to meet possible shortages. This twin task was being performed by the Manpower Directorate set up by Government and the various groups set up by that Directorate to support its work. Efforts were made all the time to maintain close liaison between the agencies dealing with supply and demand.

Technical Manpower Committee Revived

In the emergency faced by the country in 1962, an arrangement was made by Government through the high-power Technical Manpower Committee set up by the Cabinet to keep under review the plans and programmes for training of technical and other specialised personnel; to initiate action to strengthen such programmes wherever necessary, and for recommending introduction of accelerated training courses for personnel in different categories demanded by the emergency. The revival of the Technical Manpower Committee almost simultaneously with the emergence of the present conflict, therefore, augurs well for the future. The work of the Technical Manpower Committee set up earlier will now require a new orientation in view of the emphasis on self-reliance. Current thinking on self-reliance in different sectors as reflected in the various contributions to the special number of *Yojana* requires to be tied up with manpower needs in these sectors. In what follows no attempt will be made to estimate the numbers required. A broad idea of the type of personnel likely to be in demand will be given.

Technical Advice for Farmers

In discussing the prospects of self-reliance in agriculture, various steps have been indicated by the Prime Minister in his recent broadcast. He referred to what every individual in the country should do to conserve food as also to grow more of it, emphasising at the same time that the technical help needed for this purpose will be available through the agencies set up or proposed to be set up by Government.

The significance of this announcement is that Government will expand its current arrangements for technical advice, which in turn means that apart from making a more efficient use of technical personnel in this area many more soil scientists, agronomists, horticulturists, animal husbandry experts, etc., will have to be inducted into the campaign of intensifying programmes of agricultural production.

The other aspect of self-sufficiency in agriculture is the conservation and efficient utilisation of food supplies. While the former will require better arrangements for storage of production, freeing it from insects, rodents, plant diseases, etc., the latter will mean an intensification of educational effort to get the maximum nutrition out of available production. In either case the excellent work done in research institutions and nutrition laboratories requires to be spread adequately to urban and rural areas. This will be the task of extension services which again require diversified technical personnel in adequate

numbers.

Various steps have been indicated to make the country self-reliant in agriculture—use of irrigation waters, soil conservation, multiplication of better seeds, use of fertilisers, improving the efficiency of agricultural implements, improvement in administration of credit, distribution, and transport, and the like. All these tasks require trained personnel. Even the emphasis on discipline and clear policy for procurement and distribution, which is required for the assertion that 'We *can* live with the food we grow', also has in it important elements of manpower preparedness.

Personnel for Mining and Metal Substitution

The second primary sector of production, *viz.* mining, covers an equally wide range of personnel requirements. India has ample resources of coal, the leading mineral with its multifarious uses. In efficient hands these uses can be enlarged; a nucleus for research in coal utilisation has already been in existence in India for some time. Self-reliance in this sector will mean intensification of the work done in fuel technological laboratories and, what is more, the spread of the results of these researches among the actual users.

What has been said about coal will also apply to other minerals available in the country. In an emergency substitution of essential minerals normally imported by those available in the country and others which may require further exploration and exploitation becomes important. In terms of personnel, this means that on the one hand scientists, metallurgists, technologists, will be required for perfecting substitutes available in the country against different scarce imported minerals as also geologists for further exploration.

To the same area belongs the exploration of mineral oils. Considerable expansion has taken place in oil exploration within the country but of even greater significance is the fact that expertise in this line has been developed in a relatively short period and is being utilised in other countries through our personnel. However, exploration of oil by itself will hardly be sufficient unless it is matched by indigenous capacity for refining mineral oil. Self-reliance in this area necessarily implies promotion of local manufacture of refinery equipment which has different personnel implications particularly in categories like chemists, chemical technologists, technologists and engineers of all descriptions.

Manpower Problems of Industry

In the industrial sector, mainly as a result of the emphasis in the Second and Third Plans on development of basic and heavy industries and the recent thinking on "machines to produce machines", the manpower problems have acquired a new meaning. Over the last eight years this work has been done with the assistance of foreign collaborators in steel, machine-building and fertiliser factories. This experience has been of considerable value to Indian talent in producing final products and in setting up new plants.

The substantial benefits which we have derived by setting up public enterprises and by acquisition of vast know-how which is essential for self-reliance are well recognised even by the critics of public enterprises. Initially industries, whatever their label, must give up their reliance on imported spare parts and substitute locally produced materials for a wide range of raw materials currently imported. This was done in India at a less sophisticated level in the Second World War. Industries did not come to a standstill mainly because of the capacity of indigenous designers to provide substitutes and more importantly by the encouragement which they got through users of these substitutes. All this again will require a large measure of engineering, scientific and technological talent.

Defence production has made significant progress in this country in recent years. Modern armament technology, it is said, is developing so fast that many of the items get obsolescent even while they are on the drawing board. This only brings out more pointedly the importance of developing design and consultancy agencies over a large area of defence and industrial production. In an emergency of the type the country is going through today, the needs of defence and development will indeed be complementary; and the same is true of the needs in terms of technical personnel. What becomes essential therefore is that there has to be an enlargement of the base from which the country has to draw upon its technical personnel.

In the transport sector also a fair measure of self-reliance has been built up over a period of years. Technical acumen in this field is not lacking because of the conscious effort for developing personnel. This is particularly true of Indian Railways where an attempt has been made in almost every department towards self-reliance. Nor is the complementary aspect of self-reliance, namely development of export markets, ignored. It is really when men are confronted with a crisis that they accept more responsibilities, they seek room for experimentation and, what is more, in the Indian context, they show desire for devolution of authority. It is all these forces which help in the building up of technical personnel for self-reliance.

In the context of defence, medical facilities, not only to those who are on the front but also for those whose hearth and homes they protect, requires attention. Considerable progress has been made in recent years to enlarge our reservior of medical personnel though in some of the auxiliary categories. Shortages have been more acute. Thinking on the Fourth Plan has been on generous side but it is yet uncertain as to what shape the proposed arrangements will take. Morale of the public is as important in an emergency as that of the defence forces. In fact, the support behind the lines was of considerable significance in what the armed forces have been able to achieve in the recent conflict. This aspect will have to be kept in mind in formulating future schemes in social services of all descriptions. Self-reliance in social services, however, does not have any special manpower implications.

The Opportunity in Experiment

The manpower problem of self-reliance not only touches the specialised categories of engineers, chemists, scientists, technologists, doctors and skills allied to these disciplines but also extends to different areas of administration. Essentially

(*Continued on Page 28*)

CHANDRASEKARAPURAM STORES SERVE 60 VILLAGES, HAD A TURNOVER OF RS 130 LAKH IN 1964-5

Not a Rupee Sought From Government

Co-operative Whose Motto Is Self-Reliance

TWENTY years ago the village of Chandrasekarapuram with a population of about 1,500 was not known perhaps beyond the Madras town of Kumbakonam fifteen kilometres away. But the consumer co-operative stores started with a modest band of 101 members has borne the small village on the wings of fame; now Chandrasekarapuram is a name recognised and respected in the world of co-operation.

The secret of the Chandrasekarapuram Co-operative Stores Ltd. is self-reliance. *It is the only one of its kind which has not taken any financial assistance from Government.* Starting with Rs. 3,000 contributed by the members, the co-operative stores has become one of the 27 wholesale consumer co-operatives in Madras State, with a share capital of more than Rs 1,37,000. It has 15 primaries and 14 branches covering 60 villages around Chandrasekarapuram and in Kumbakonam town. The membership of the co-operative has risen from 101 to about 4,800 in two decades. The turnover of the stores in 1964-65 was more than Rs 130 lakh.

The Stores has achieved this spectacular progress on the basis of its wide range of services to the people. It sells not only food articles and textiles, the two essentials, but also fertilisers, stationery, cement, iron and steel, bicycles and accessories and hardware. It is a registered stock-holder for non-agricultural quota for iron and steel.

The consumer co-operative has earned the reputation of being a shop with "a straight yardstick and even scales". It has a strict cash and carry policy, In tune with the emergency, the profit margin has been drastically cut for groceries and textiles. All possible efforts have been made to hold the price line of essential commodities. The stores and all its branches act as chain stores and have a uniform price for all commodities in all branches irrespective of additional transport expenditure incurred on carrying goods to distant branches. In Kumbakonam town the store has a system of home delivery to its members. All the branches are located in areas where the majority of members reside and not in the main bazars.

The institution has been continuously vigilant in effecting economy in expenditure at every stage and very careful in its purchase policy. The management of the stores has won popular acclaim by securing controlled and uncontrolled articles in quantities sufficiently for meeting the increasing demand of members and non-members and thus keeping the supply line without break. People who used to buy on credit from private traders have switched over to cash purchase from the stores when they found that the articles were much cheaper at the stores.

The co-operative has been equitable to producers and consumers in its dealings. When the price of paddy was controlled in 1964, the stores acted quickly in undertaking procurement of paddy solely for the purpose of safeguarding the interests of its members. The co-operative bought, with its own resources, 8,000 tonnes of paddy between February and June 1965 to the value of Rs 32 lakh. Producers were given more than the support price fixed by the Government, and the co-operative proved that consumers' co-operatives in rural areas could safeguard the interests of both producers and consumers.

The store was also distributing fertilisers to farmers in Kumbakonam and Papanasam taluks for about seven years until 1962-63, when the State Government entrusted village credit societies with the task.

Within 15 days after the end of every year, the co-operative releases its balance sheet. This method has evoked confidence among the people who voluntarily come forward to deposit their surplus funds with it.

The board of management has been singularly free from politics and even politician-members of the board keep politics away from the co-operative. The employees, numbering 200, have also been admirably discharging their duties and have contributed greatly to building up the institution. Three months' bonus is paid annually to them. There is also a contributory provident fund for them.

The co-operative made a net profit of more than one and a half lakh rupees in 1964-65. This profit is accounted for after setting apart about four lakh rupees in reserve fund and building fund and after paying a dividend of 6 per cent regularly to members and 1½ per cent on purchases.

"Self-reliance, self-help and mutual help" have been the basic principles of Chandrasekarapuram Co-operative Stores Ltd. This has been possible because group politics has been eschewed, and continuity of leadership maintained.

Mr S.F. Ashleman of the Co-operative League of the U.S.A., who was deputed by the Government of India to study the working of this institution in 1963, observed: "This is the best-managed co-operative I have visited in India...It should be used as a demonstration co-operative."

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Power to the Aid of Farming

MASTER PLAN FOR RURAL ELECTRIFICATION NEEDED

M. Y. GHORPADE
Member, National Planning Council

THERE is a limit to the extent to which surface irrigation potential can be utilised. When the readily available sources have been exhausted, the bulk of our lands will still have to depend on rainfall. It is well known that the vast majority of our farmers in unirrigated tracts do subsistence farming with hardly any incentive. For them, full utilisation of sub-soil water resources by a massive programme of constructing irrigation wells, community wells and state tube-wells, assumes crucial importance.

Every irrigation well fitted with an electric pump is an oasis of hope and prosperity. It has a revolutionary impact on agriculture and employment, and makes farming remunerative by increasing yields and lowering costs in a very significant way. The cumulative socio-economic return or benefit to the nation is much more than the cost of creating this water and power facility. Once power reaches a village, it is used for various purposes including agricultural pump sets, processing and agro-industrial units and street lighting.

Water and power can be regarded as basic inputs which make the optimum use of all other inputs possible. Who says the Indian farmer is unwilling to use new methods ? Give him water and the power to lift water; give him improved seeds; give him fertilisers; and he will certainly deliver the goods. By the end of the Second Five Year Plan more than 30 per cent of the towns and villages in Madras and Kerala had already been electrified, while the percentage for the other States varied from 1 per cent to 10 per cent. Madras would be taking power to all the villages in the State by the end of the Third Plan. There are about 2.5 lakh agricultural pump sets operating in Madras as compared to less than 2.0 lakh in the rest of the country. Twenty-five per cent of the power consumed in Madras is used by pump sets. The Third Plan provision for transmission and distribution was Rs 60 crore out of a total power programme of Rs 100 crore.

It has been reported that Mysore is planning to spend Rs 56 crore on extension of electricity in the Fourth Plan, of which Rs 26 crore are to be spent on rural electrification and pump sets, extending power to 5,000 villages and 40,000 pump sets. This is a significant improvement on past performance, but a much bigger effort will have to be made if all the villages of Mysore are to be electrified and well irrigation fully extended at least by the end of the Fifth Plan.

As regards power for pump sets, a master plan should be prepared marking the existing and potential concentrations or clusters of wells in each block, depending on sub-soil water resources in different areas. If a map of existing power lines is super-imposed on this map of irrigation wells, we shall know at once the new powers lines that need to be taken up on a priority basis. Without an adequate network of 11 KVA lines, feasibility estimates of individual demands become rather misleading, as it will depend on the distance, a smaller demand closer to a power line being considered feasible while a much bigger chunk of demand farther away not being feasible according to our present working. This is a weakness in our power planning and operational strategy which should be set right as early as possible.

Big Industries in Backward Areas

Extension of electricity should be planned scientifically and not allowed to sprawl haphazardly. Big industries should be consciously planned in certain backward rural areas for this purpose. Madras does not have any magic wand. It has gone some ten years ahead of other States in this respect by making adequate financial provisions in the last three Plan periods towards taking power to rural areas. Attention has also been given to reducing construction costs by use of indigenous materials, locally fabricated components, and simplified, standardised, economic designs consistent with safety and reliability of service. All-aluminium conductors are about 20 to 30 per cent cheaper than copper ones. Experience shows that if one took into account the power demand for irrigation pumps that develops within a decade of power going into a rural area, the capital cost of power supply per pump set would work out at almost half of the initial figure (apart from all other types of demand which also automatically develop, improving the overall economics of rural eletrification). Without dispersal of power, dispersal of industries cannot take place. Therefore, an integrated view should be taken of the costs and returns of extension of power to rural areas.

On the basis of patterns of consumption in different sectors or spheres of activity it is possible to have an electricity tariff rate structure which takes into account national priorities and rate patterns, and is relatively attractive to agricultural consumers without resulting in losses in the over-all operation of the Electricity Board.

The example of Madras may again be quoted. The total and average revenue realised by the Madras Electricity Board in 1960-61 without any element of subsidy were as follows :

	Class of Load				
	Domestic	Street lighting	Traction	Agriculture	Industrial
1. Average revenue realised per unit in paise	24.438	20.352	9.125	7.496	6.342
2. Total revenue realised in lakhs of rupees	245.32	42.10	25.74	274.22	485.67

A piecemeal approach which attempts to declare a particular agricultural line as remunerative or otherwise does not appear sound or operationally fair.

Madras Pump Set Costs Less

Here are some broad figures regarding the working of a 5 h.p. irrigation pump. In Sandur taluk of Mysore State, where I have my farm, the annual average consumption per 5 h.p. pump is 4400 units (consumption per hour being 3 to 3½ units), the tariff on which comes to Rs 352 (at 7 paise plus 1 paisa tax per unit). Rs 352 divided by 5 (h.p.) works out to approximately Rs 70 per h.p. This works out to a return of 10 per cent to the Electricity Board on a construction cost of Rs 600 to 700 per horse power of pump load demand. In Madras, for a 10 per cent return, they have worked out a figure of Rs 50 per h.p. per year and it is observed that to cover this amount a ryot would have to work his pump set six hours a day for 161 days. The average capital cost per pump set is less than Rs 1,500 in Madras, as compared to a figure of Rs 3,000 per pump set that is being mentioned for the country as a whole, on certain assumptions which need to be carefully examined. A well with a recoupment capacity of about 50,000 gallons a day irrigates about three to five acres depending on the type of crop and the season. We can take it that roughly one acre of irrigation requires 1000 units of power, Rs 80 at 8 paise per unit inclusive of tax.

Utilisation of Surface & Underground Water

Rural electrification is best planned according to a master plan on the basis of actual and potential irrigation wells and other demand in each block. The optimum number of irrigation pump sets in each block will depend on sub-soil conditions. In some parts of Madras, the saturation point has been reached and the water table has been going down, while in parts of Punjab and U.P. there is water-logging and rise in water table. Therefore, in formulating block electrification schemes, it is recommended that when the saturation is being reached, a ceiling of pump load may be evolved in consultation with the panchayats and taluka boards. This can only be on the basis of actual experience. This is however the ultimate limit and we have a long way to go. River pumping schemes should also be developed wherever feasible. The crux is that we must fully utilise both the surface and underground water resources.

By 1969, the birth centenary of Mahatma Gandhi, it is intended to electrify one lakh villages in the whole country.

During the Fourth Plan period five lakh additional pump sets are expected to be serviced. The Fourth Plan financial outlay on power is expected to be Rs 1,829 crore including Rs 1,126 crore on generation, Rs. 438 crore on transmission and distribution and Rs 226 crore on rural electrification. To quote the words of President John F. Kennedy, "Revolutionary increase in the electrification of American farms occurred in almost a decade. What we have done can be done in a great many countries with organisation, arrangemen- and with stimulation from both their national Governments and their local communities".

QUOTATION BOX

Mr Satya Narayan Sinha said... the Soviet Union has proved today that it is our 100 per cent friend. There are others who are perhaps 35 or 65 per cent friends.

—A P.T.I. message from Moscow

If the cease-fire continues for two months more I shall resume my attack on Government policies regarding food prices and other policies.

—Dr Lohia

Do not try to liquidate only foreign military bases but give also your attention to mental bases.

—Dr Soekarno

I am a disillusioned socialist.

—Mr Gulzarilal Nanda

Seato, and Cento...were based on misconceptions...Cento needlessly mixed the United States in the Indo-Pakistan quarrel.

—Mr C. L. Sulzberger in "The New York Times"

Bride for Gaur Brahmin, 28, lecturer, Delhi University, almost Ph.D. Box....

—Matrimonial advertisement in "The Hindustan Times"

I am not a marshal. I wear a dhoti and the Defence Minister, Mr Chavan, also wears a dhoti. Pakistan thought that we cannot fight because we wear a dhoti. But we decided to cross into Lahore.

—The Prime Minister

With the impounding of three Pakistani ships by India with a total of 30,000 GRT, Pakistan has lost one-third of its merchant tonnage. By impounding three Indian ships by Pakistan, India has lost one per cent of her merchant tonnage.

—Report in "The Hindustan Times"

the diplomatic minefield to which the cease-fire has brought the nation.

—"Mainstream"

There is nothing new in the official appeal for self-sufficiency... Our biggest hurdle in the process of quietly rolling back to Gandhian truths is the professional planning organisation.

—Mr C. Rajagopalachari

A cease-fire is not like the interval in a football match.

—Mr. Krishna Menon

I find it slightly ridiculous that Mr Lal Bahadur should have at all observed the ritual of cutting a birthday cake. I do not believe that this is a social custom he or his family is used to and I must say there was something cheap and stagy in dragging the Patton tank into this farce.

—V.B. in "Eastern Economist"

Jawaharlal Nehru and the Freedom Struggle

B. R. Nanda Reviews "Nehru—The First Sixty Years" (2 volumes, edited by Dorothy Norman, Asia Publishing House, Rs. 60).

It is nearly two decades since India attained political independence. It was an epoch-making event, the dramatic beginning of the end of colonialism. To those who had hoped, worked and struggled for it, it was a joyous consummation. However, today the Freedom Movement seems more remote than mere chronology may suggest. Public interest has perceptibly declined since the early years when most newspapers brought out bumper issues on the Independence and Republic Days. The generation which bore the brunt of the struggle is dead or aging fast. Different or difficult problems urgently press themselves on our attention. New and unknowing generations are growing up to whom the great names and heroic deeds of the Nationalist Movement are vague, far-off episodes. To children at school, the Indian Revolution, like the Industrial Revolution and the Second World War, may seem to be only a further addition to an overburdened history curriculum.

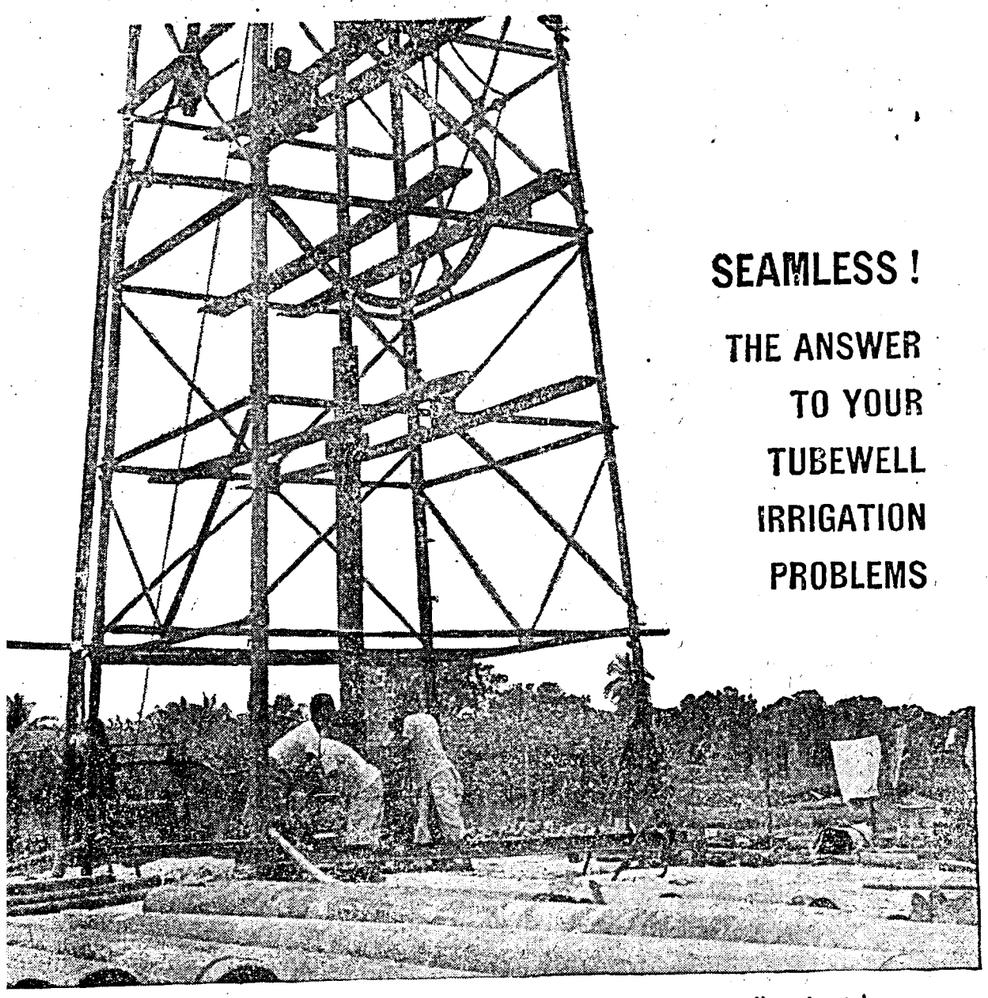
The two beautifully produced volumes of Dorothy Norman, entitled *Nehru—The First Sixty Years*, are an opportune reminder of and a vivid flash-back on a great period of our history. She has built up her anthology with extracts from writings by Nehru and on Nehru. The fact that the result is a fairly coherent account of the freedom struggle in the first half of the twentieth century shows how intimately the story of the Nehrus was intertwined with that of the freedom struggle.

There are perhaps quite a few among us who may not be able to detect the relevance of the pre-independence struggle to our own present predicament. Each generation is apt to assume that the problems it faces are the toughest and the most intractable in history. As one reads through this documented history of the nationalist movement spread over three decades, one cannot but be impressed by the unending procession of difficulties, challenges and crises with which the nationalist leaders had to cope in the long drawn out contest with the British Government. They would not have been able to win through were it not for certain qualities they possessed or cultivated: indomitable courage in adversity, an almost unreasoning belief in their cause and faith in their leader, and above all a firm national purpose to which personal and factional considerations could be subordinated in moments of crisis.

These qualities come out with unmistakable force in the speeches and writings of Jawaharlal Nehru. He was one of those rare individuals who are destined to make history as well as to write it. The autobiographical approach to history has of course obvious pitfalls; it tends to suffer from inadequate, partial and egoistic treatment. Fortunately, Jawaharlal was able to avoid these pitfalls. He wrote as a participant and in the heat of the battle but he was able to achieve a high degree of objectivity. He was one of that unusual species, an intellectual in politics. Even as he was immersed in the day-to-day struggle, he was constantly aware of the contrary influences tugging at him. "My real conflict," he wrote, "is within me: a conflict of ideas, desires of subconscious depths struggling with outer circumstances...I became a battleground where various forces struggled for mastery." He sought an equilibrium between parallel and conflicting pulls: his ardent patriotism, his deep attachment to Gandhi, his inner urge for intellectual clarity and his passionate desire toe etrbt the condition of "the naked hungry mass". Unlike many of his famous contemporaries, he did not foster a legend of his own infallibility. He could laugh at himself and indeed, in 1937, wrote an article against himself and had it published anonymously. In his writings and statements, he seemed to be frequently asking himself: "Where do we go from here?" It is this loud thinking, the fascinating glimpse into his mental processes which marks him off from other politicians and makes his narrative so interesting and valuable.

Dorothy Norman has drawn heavily on Nehru's autobiographical writings, but she has also included extracts from his published letters, speeches, press statements, and scores of magazines and books some of which are not easily accessible. The result is a fairly full and well-proportioned account of 30 years of the nationalist movement. Even while young Nehru was in his teens and at school in Harrow, he was an interested spectator of the distant political scene in India. His political consciousness quickened with the years and by the spring of 1919 he had decided to go the Gandhi way. It is of the first flush of the Gandhian struggle that he wrote that it so much absorbed him that he "gave up all associations and contacts, old friends, books, even newspapers except in so far as they dealt with the work in hand. I almost forgot my family, my wife, my daughter.". The nationalist movement transformed him from a shy Cambridge-trained botanist and a reluctant barrister into a leader of

(*Continued on Page 21*)



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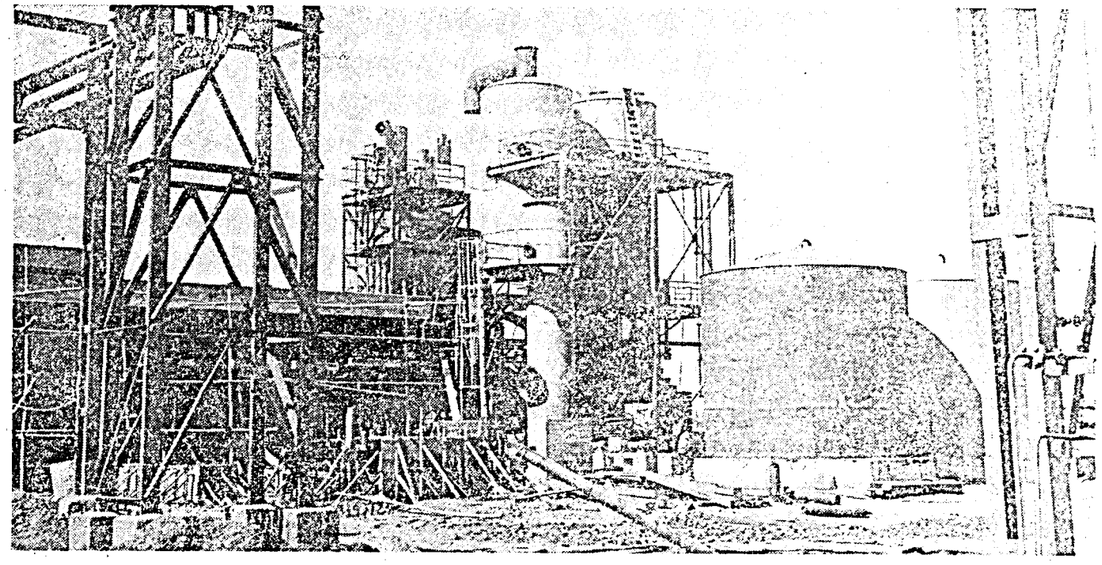
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NEW GIANT at FARMERS' SERVICE



A view of the sulphuric acid plant

TROMBAY FERTILISER FACTORY BEGINS PRODUCTION : WILL ADD 1 MILLION TONNES OF GRAIN & SAVE RS. 15 CRORE IN EXCHANGE

TROMBAY is a familiar name in the country because of the Atomic Energy Establishment and the oil refineries that stand there.

Now there is a new Trombay giant at the service of the country—the **Fertiliser Factory.** It went on stream on the afternoon of October 15 when liquid ammonia started flowing through its pipelines.

It is the largest installation in Bombay, already so rich in industries. It owes its birth to the report of the Fertiliser Production Committee in June 1955. Nangal Fertilisers and Chemicals Private Limited (which was later merged with the Fertiliser Corporation of India Limited) suggested the pattern of production for Trombay in July 1958. A technical committee appointed the same year under the chairmanship of Dr A. Nagaraja Rao examined and reported in January 1959 on all aspects of starting the factory. The recommendations were accepted by the Government in April 1959.

The U.S. Agency for International Development sanctioned a loan in September 1960 to cover the foreign exchange cost of the project. The first contract was awarded in June 1961 for the main plant and machinery. Civi works commenced in April 1962.

The Trombay factory is designed to produce 90,000 tonnes of nitrogen and 45,000 tonnes of P_2O_5—a total of 1,35,000 tonnes of plant nutrients in the form of nitrogen and phosphate. The end products are 99,000 tonnes of urea with a nitrogen content of 46 per cent and 3,30,000 tonnes of nitro-phosphate, consisting of 12.9 per cent nitrogen and 12.9 per cent P_2O_5.

It has been estimated that for every tonne of plant nutrient properly utilised, there would be an increased crop yield of ten tonnes. It is, therefore, safe to assume that Trombay will contribute at least a million tonnes more in terms of extra food production.

The Trombay factory is one of the units of the Fertiliser Corporation

Its Technicians Start a Trend in Self-Help

Text & photographs on pages 13 & 16 by courtesy of Fertiliser Corporation of India

of India, the second largest public sector enterprise in the country, the other two being the Sindri and Nangal factories. Three more units of the Corporation are under various stages of construction at Namrup, Durgapur and Gorakhpur. They will be commissioned during the Fourth Plan period.

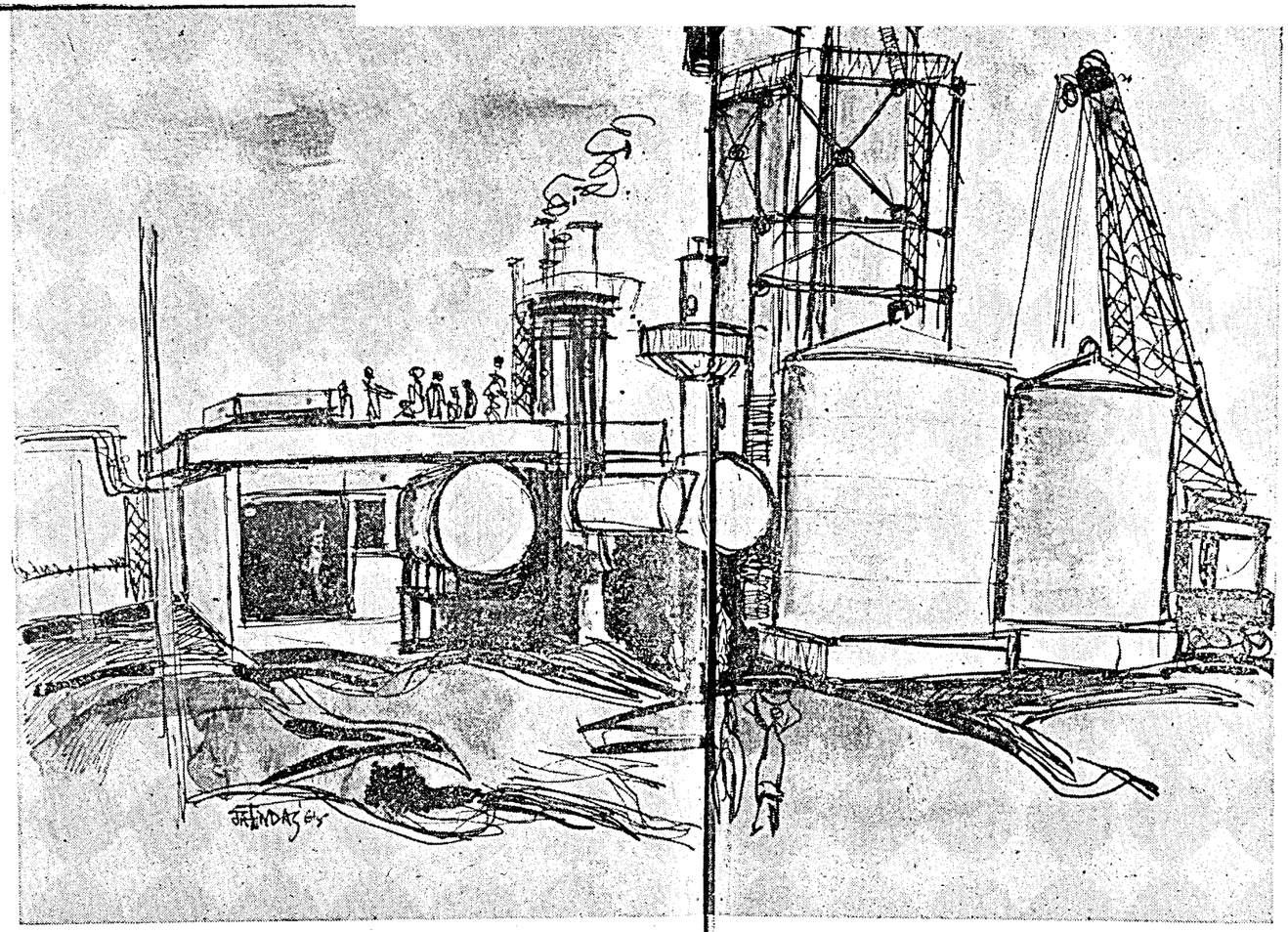
Project Cost

The total cost of the Trombay Project is $ 86.04 million (about Rs 41 crore) out of which $ 37.80 million form the foreign exchange content. This also includes the cost of the methanol plant of approximately $ 9.5 million. The project has been mainly financed by two dollar loans of a total of $ 37.80 million, given by the Agency for International Development of the United States Government, and a rupee loan of $ 48.24 million made available from PL 480 counterpart funds by the same Agency.

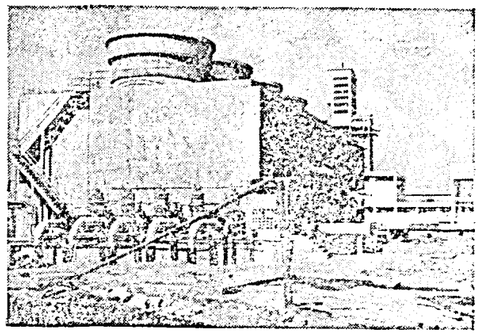
The total sale value of the products of Trombay would be Rs 20.78 crore, out of which Rs 2.5 crore would represent the sale value of methanol and argon gas.

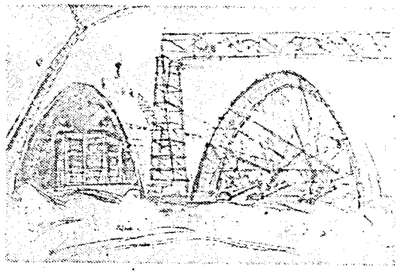
The project is estimated to save the country Rs 15 crore in foreign exchange by way of reduction in import of fertilisers and methanol.

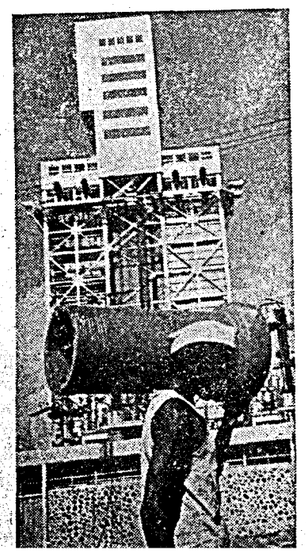
Besides the methanol plant, the project consists of five parts—ammonia plant, urea plant, nitric acid plant, sulphuric acid plant and nitrophosphate plant.



These photographs by Avinash Pasricha and sketches by Jatin Das done in January this year are by courtesy of SPAN







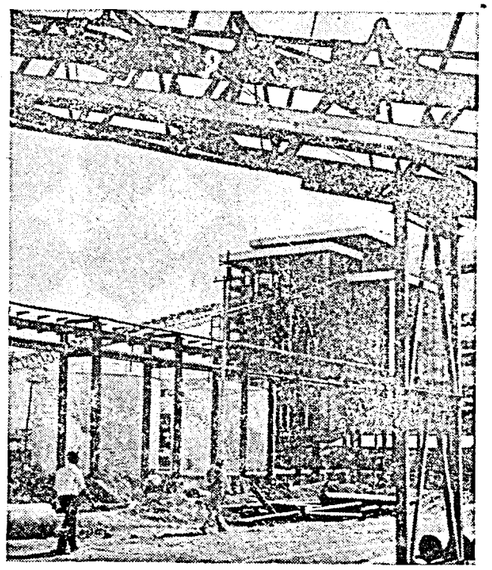
The urea plant will have a production capacity of 300 tonnes of prilled urea per day. The nitrophosphate plant will be able to produce 1100 tonnes of nitrophosphate per day. It is the first time that the complex fertiliser will be produced in India. The plant has also the distinction of being the largest single unit of its kind in the world.

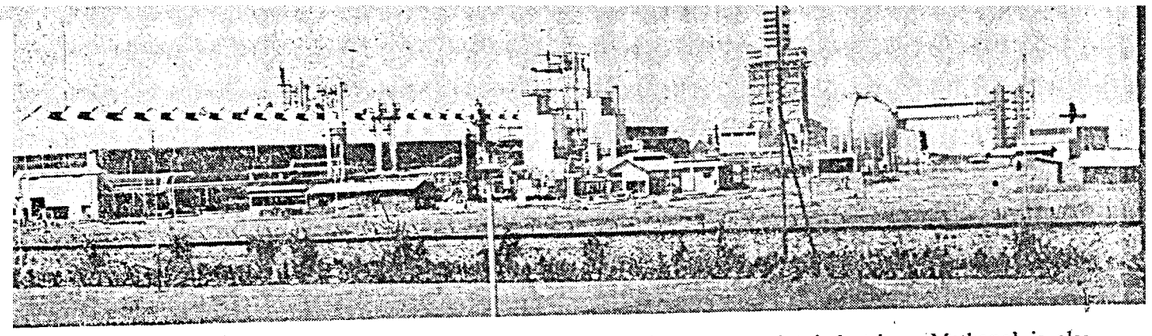
The unit that went into production on October 15 is the ammonia plant which can produce 350 tonnes of liquid anhydrous ammonia per day. Fifty per cent of the ammonia produced is utilised for the manufacture of urea and the balance is utilised for the manufacture of nitrophosphate. The capacities of the nitric acid plant and the sulphuric acid plant are 320 tonnes per day and 200 tonnes per day respectively.

Raw Materials

Raw materials for the factory consist of 50,000 tonnes of refinery gas and 36,000 tonnes of fuel oil per year, supplied by the adjacent Burmah-Shell refinery and 45,000 tonnes of petroleum naphtha supplied by the ESSO refineries. Both come through direct pipelines. The other raw materials required for the production of nitrophosphate are 126,000 tonnes of rock phosphate and 25,000 tonnes of sulphur per year. Till such time as indigenous sources are located, these have to be imported. The factory requires 35 megawatts of power from the Tata Power Supply Company and 6 to 8 million gallons of water per day. The factory has a steam generation plant, a water treatment plant and a material handling plant.

Above: Storage tanks of the sulphuric acid plant. Far left: The 260-foot high urea tower. Right, from top to bottom: Urea plant; the silos which hold the fertilisers; and a portion of the conveyor which carries them to the silos.





A general view of the factory. Below : nitrophosphate plant. In the foreground is the rock phosphate conveyor

The steam generation plant consists of three Babcox Wilcox boilers.

The overall planning of the Trombay factory—collection of design data, preparation of tender specifications, scrutiny and award of contracts, co-ordination with various contracting agencies, preparation of overall factory plot plans, procurement of indigenous materials and miscellaneous items imported from abroad—**was done by our own engineers.**

Messrs. Chemical Construction Corporation, New York, and Messrs Chemical and Industrial Corporation, Cincinatti, U.S.A., did the designing, engineering and procurement of the main plants. The design and engineering of the ancillary plants were done indigenously.

Methanol and Argon

In addition to production of fertilisers, the Trombay factory will also produce technical grade methanol for the first time in India. The Rs 4-crore methanol plant has an annual capacity of 30,000 tonnes.

Methanol and its derivative, formaldehyde, are the basic products for the plastic, resin, adhesive and paint industries. Methanol is also used for the defence and drug industries.

With the production of methanol in India, all the foreign exchange that is now being spent in importing methanol will be saved and a sound base will be established for the setting up of many ancillary industries. The plant is scheduled to go on stream on December 1 this year.

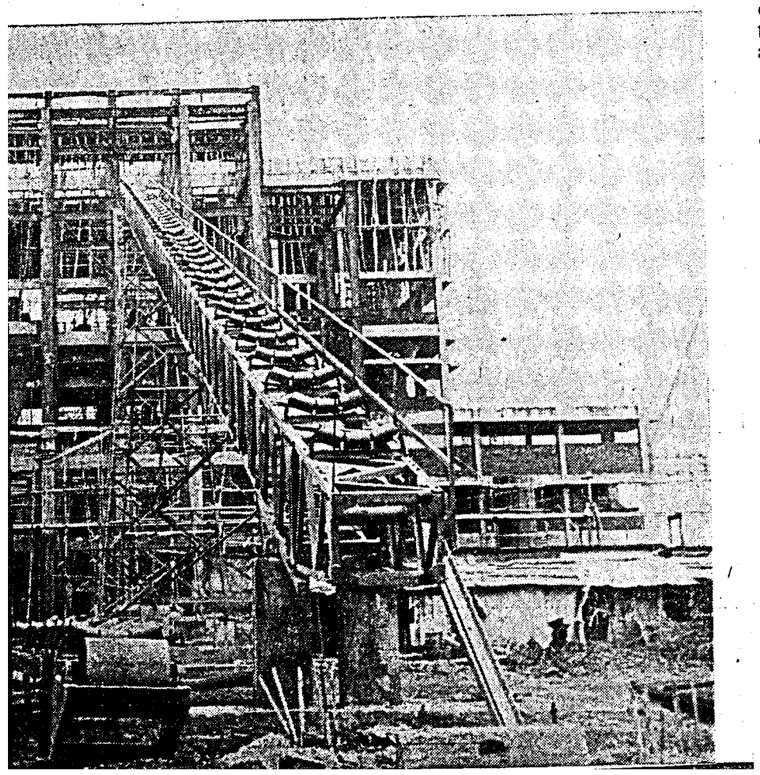
From the air separation unit of the ammonia plant, the Trombay factory will recover and produce 111,000 cu. metres of argon per year. Argon is utilised for welding purposes, mainly for stainless steel welding. There is an acute scarcity of argon in the country. The only other factory producing argon in the country is Indian Oxygen Limited at Burnpur.

Plans for Expansion

Proposals are under the active consideration of the Government of India to install a 600-tonne ammonia plant in Trombay as a part of the expansion scheme. It is estimated that with an additional cost of less than Rs 25 crore, the present production capacity at Trombay can be multiplied by 150 per cent.

The factory will employ a total of 1930, out of whom 1803 will be on the fertiliser plant and 127 on the methanol plant. Ninety per cent of the employees will be accommodated in houses already built by the factory.

The Trombay factory has broken the tradition in the country by not employing 'helpers' to assist the technicians and operators to carry tools. Every technician and operator will be his own helper and will carry his tools. This experiment in self-help will set a new pattern in Indian industry.



LALLA IVERSON



THE FACT OF LIFE

Albert Schweitzer's Unseen Effects

AN eminent psychiatrist once said, "A fact is that the presence or absence of which makes difference".(1) Often an entire universe may be revealed by the alert realisation of a small truth. Luther wrote 95 arguments on the one subject of indulgences; and from this minute crack in an impregnable medieval theology gushed a torrent of thought which shook the Western world. A psychiatrist spends months to disclose one unimportant disguise to his patient; and when that gateway's defence is lowered, the entire personality breaks through into the free world beyond.

In India, former admirers of Nehru have begun to dissect the surface failures of the leader who gave his life completely to the birth and expansion of this nation. As with the psychiatric patient, when a truth begins to be disguised, all future understanding is threatened. Yet in this day when communication is far ahead of fact, and often mistaken for it, the foundations of the nati n are being filled by the unseen effects of these living acts of denial.

The truth being lost is this : deep in the continuing life of man is the sacrifice of those who have given themselves for it. This conviction should not fade from a nation which owes its whole existence to truth.

Recently, in Africa, there died a man who also gave his life for a truth. That truth did not happen to be the freedom of a nation or the growth of its millions of people. His was the belief that the entire force of life is embodied in each living creature; and Albert Schweitzer's 90 years were the continuing demonstration of his reverence for this life.

Like Nehru, Schweitzer was a man of tremendous vitality, mental energy, and potential. Like Nehru, Schweitzer refashioned his own potential into service for others. In so doing, both men happened to achieve immense fame and thus subjected themselves to glo al abuse by those who demand surface assurance of what they cannot comprehend. But today, because of Schweitzer we are able to have faith in the fact that one life can become a whole flowing force, not a sum of occurrences or accomplishments. And because of Nehru's gift, the villages of India are now lit up.

Whether for a nation or for a jungle hospital, the path of complete giving imposes the same requirements at each of its crossroads—the choice of giving the *entire* self again and again into the next unknown. Fortunately, as we now stand apart from Schweitzer's life, we can clearly see this simple but universal process; and seeing, we clasp to ourselves the recognition that we have been privileged by history to know another person who, whatever the surface appearances, also shared a portion of that road into the jungle. Our fears should not bring such men back from their paths into comfortable drawing rooms of other values; for if we are now to find our own uncertain way into the future, we *need* to acknowledge that the path exists and we must possess the courage to believe that other mortals like ourselves have been able to travel it.

The universal story of Nehru's life can be read between the lines of Schweitzer's devotion. The plot is very simple: events, wars or illness never really permitted all that these men dreamed of doing; yet they kept doing it.

As with Nehru, Schweitzer's task seemed a hopeless waste to modern Western minds, who customarily thought of action in terms of known categories; and as Schweitzer grew in stature, the clamour of reaction against his "thatched-hut medicine" loomed to corresponding proportions. Many doctors saw little usefulness in his work in terms of modern trends. As times changed, his philosophic treatises became outdated and these were also subjected to the critics' dissection. Finally, even his dedication to Africa was denounced.

It so happened that one writer laid himself bare to truth by making a specific statement of "fact", one that could easily be measured.

> "In 1955, writing factually about all this was almost taboo in the Press. Describing Lambarene .. meant reporting that the man widely reputed to have succoured the sick in darkest Africa almost continuously since 1913 had in fact spent *more than half that time in Europe*."(2)

Such a statement could be checked against the calendar of Schweitzer's life, showing the actual months and years divided between Africa and Europe. As it turns out, in the 41 years between 1913 and 1954, the measured fact is the exact opposite of the writer's accusation. Schweitzer spent *14 years in Europe* and *27 years in Africa*. But, more exciting, this simple chronology of fact, the reasons for his travel, provide as potent a witness to the man's devotion as the worst of his jungle toil. Schweitzer's comings and goings seem small when compared to his other great works, but they silently reveal his real magnificence: the monumental truth he represents.

In 1913 Schweitzer left behind his expanding reputation and sailed for

Africa to build a hospital where he might serve the sick. He intended to do this as a personal act, and with his own funds. His belief demanded it.

In 1917 he was forcibly taken from his new work into a prisoner-of-war camp. As a prisoner, he suffered with severe amoebic dysentery from which he nearly died; and he had two operations during this unremitting illness. When released, he returned to the half-starving people of his native Alsace and without any other means of livelihood became the doctor and pastor of Strasburg. Later, faithful to the personal debts incurred for his former work in Africa, he resumed his organ recitals.

A Doctor in the Jungle

In 1920, when he was finally recovering from illness, he determined to rebuild the hospital; so he intensified his recitals and lectures.

In 1924 Schweitzer again left behind a growing, newly recovered reputation to return to the jungle. There, after three and a half years of constant labour, the hospital was finally rebuilt and its work re-established.

1928-1937 marked a period of happy expansion. This was the only era of "possibility" in 50 years of giving. As in other parts of a war-cloven world, this decade spurred a bid toward the future. Schweitzer spent approximately half of it going back and forth to Europe gathering funds, supplies, and staff by means of lectures and recitals.

Then, during 1937-39, he worked continuously in Africa shaping his new staff and supplies to the growing work while the threat of a second World War brought his spirit into contact with new dimensions of personal commitment.

In 1939 Schweitzer made his last trip to Europe, but only for a month. The second World War was now too imminent. Long before, he must have formed the decision in the quietness of his spirit, for now he promptly sailed back on the same ship into complete uncertainty. Then, for almost ten years, from the age of 64 to 74, he remained in the tropics having *voluntarily* yielded to all of the physical and mental trauma of wartime isolation.

In 1949 this aging spent man returned only briefly to a rapidly changing world where new nations were forming and where even well-supported mission hospitals were being displaced. In this world, public health teams and medical specialists were surveying underdeveloped countries and choosing likely areas for well-financed, well-staffed projects, usually set up near capital cities with foreign specialists on secure salaries and well-ordered vacations. Private money was now being herded by public relations firms into organised charities.

It was then that criticism increased, a mark of the world Schweitzer re-entered, more than a mark of the man. But why is there need to measure the height of a man or even to judge another ? And surely, if one must judge at all, he must always do it with care and justice.

First, *what* does one judge ? Schweitzer went to Africa to become a doctor in the jungle. Did he succeed in his overt objectives? The mid-thirties seems to be the only period in which Schweitzer's *medical* work can stand objective appraisal; for only then would his newly acquired experience be able to combine with a favourable environment to give shape to his inner idea—certainly not later, when the long war years and the encroaching jungle demolished it.

Next, who is *eligible* to judge ? In regard to Schweitzer, those who have been doctors, medical administrators, and medical educators in technically underdeveloped areas would pause longer than Schweitzer's critics before judging. They have sought to do work of much higher standard but have chosen conditions less rigorous. Most specialists, as they reach the border of personal limitations, must retreat—rightly blaming impossibilities in the environment. One does not easily choose to rebuild work the second time even in post-war urban Asia; and if one has made the decision to go or stay when wars or revolutions threaten, he is appalled at the gigantic and utterly silent inner decisions of this man, the inhuman conditions to which he knowingly subjected himself. Not until one has attempted the same act under the same conditions is he free to judge. It is only for those who will similarly act to lay claim to Schweitzer's principles: those who have felt his love to assess his theology; and those who have been his patients to judge his medicine.

A third principle is the judgement of history and here the *unseen effects* begin to appear.

A Belief Tested

Fifty years later, one can still ask, "Why would anyone, even today, choose Lambarene; and what did Schweitzer *actually do* ?"

(1) What Schweitzer accomplished in Lambarene was *not very much compared to what he could have "done" in Europe*. He was a doctor in the mornings, a labourer in the afternoons, and a worrier at night. When famine came he himself dug and planted trees with the other labourers; they would work for no one else. Once in a crisis when he was rolling logs into a shed, he called to a Negro visitor to help. The man refused, "I am an intellectual and don't drag wood about." Schweitzer replied, "You're lucky. I too wanted to become an intellectual, but I didn't succeed." Similarly, foreign help came and went; separations from his own family intensified his loneliness; and the people whom he served had not even the technical knowledge to assist him or the educational background to be trained.

(2) What Schweitzer accomplished in Lambarene was the *trial of faith and the testing of a belief*.

In the post-war world, a split was already being felt between humanity without standards and increasing standards without humanity. Yet Schweitzer as far back as his young manhood had boldly determined his own choice:

"One thing only was certain, that it must be directly human service, however inconspicuous the sphere of it."(3)

Perhaps this is just as practical as it is ideal ; for even colonial and government medicine becomes a mere trickle of aid by the time it reaches into the deep interior of an under-developed area. There, it is subject to rules which are impossible to apply and is usually delegated to the lowliest recruit in the government echelons. But Schweitzer *chose* to leave security and a relatively exalted position, and *to be the lowly one*. Moreover, he

remained dedicated throughout fifty years of almost futility when, in a later age, men would have attempted to escape futility by popularising the idea at the first recognition of a "new model" of technical aid or a "new" ideal of science and service.

Today, many outgrowths from the nineteenth century may seem archaic, including Schweitzer's work. But as time goes by, even in the modern world of surplus jeeps, blossoming roads, village improvement, and literacy projects, no one else in the West has appeared *who will displace himself from every safe framework of service and commit himself continuously to one impossible task*.

Every Detail of Work Holy

(3) What Schweitzer accomplished in Lambarene was the revelation that *totality of commitment must include every small word and act of a person's life*, not mere emotional desire. The impossible remained impossible. Still, every detail of his work was holy, even to the tedium of long lists of supplies in Europe, bags of correspondence, and the awful necessity of raising funds through speeches and recitals. It is no coincidence that such a man should be an interpreter of Bach, for in defining the dedicated service, he wrote :

> "Only a person who can find value in every sort of activity and devote himself to each one with full consciousness of duty, has the inward right to take as his object some extraordinary activity instead of that which falls naturally to his lot."(4)

But unfortunately he was no twentieth century administrator, and his inability to delegate tasks must have caused frustration for his co-workers, however much this lack might have been balanced by a nineteenth century ability to sit still. The exacerbation of this meticulousness might be expected during war, isolation, huge responsibilities, and approaching age. But this was the context of his life, and these were the principles by which he acted. Still, he kept going.

(4) But there is something more, much more. One columnist wrote, "The Schweitzer case illustrates that there is one sort of hero whom the press prefers, if possible, to leave on his own pedestal; the one it has *created in its own* imagination".(5) But to the credit of the editors and of the press, they perceived the real force of Schweitzer's life as something deeper than more humanitarian service and more significant than all of his published works. Not all, but most men subconsciously feel the power of embodied devotion or a realised truth when it is there. And the real response of the world is the surfacing of men's hearts when confronted by it.

When he was still quite young, Schweitzer's life "came to a conclusion" in the sense described by Kierkegaard. His mind, extremely advanced by natural vitality, disciplined education, and theologic training, made a discovery which was as original in those stratified academic circles of Europe as his discoveries in science would probably have been had the same mind been yielded to the laboratory.

Schweitzer discovered—and discovered magnificently—that life, *all life*, in the absolute sense, is contained within each single creature and moves through that creature. This life is without form and beyond intellectual analysis. Verbal treatises cannot reveal it; only an act may affirm it. Therefore, *if* one is compelled by the suffering of a living creature, *his act must be the ultimate giving of his own life to that* suffering. Thus, it is the whole living self he gives—not just a craft, a skill, money, or books about it. Schweitzer saw far beyond the proliferating agencies and governments of the next half century to the existential act which *must* complete the existential thought.

> "What I wanted was an absolutely personal and independent activity. Although I was resolved to put my services at the disposal of some organisation if it should really be necessary, I nevertheless never gave up hope of finding a sphere of activity to which I could devote myself as an individual and wholly free."(6)

Hero of Renunciation

Thus, Schweitzer's essential act was not what was superficially performed, or what was superficially given up. Every man who has faced it knows that the *final and concluding act is to yield himself unconditionally to that which is completely unknown*. When Schweitzer left behind the Possible in order to face his brother at that jungle altar, he knew that all other results would have to be secondary to this. He said,

> "There are no heroes of action; only heroes of renunciation and suffering. Of such there are plenty, but few are known; and even these not to the crowd but to the few."(7)

At times, his intellect and reason, his greater possibilities elsewhere, his illnesses, the world of men, and his environment must have presented insurmountable arguments to disengage him from this tenacious faith; but the *fact* is that he *truly believed* in the ultimate power of life:

> "Of all the will for the ideal which exists in mankind, only a small part can be manifested in action. All the rest is destined to realise itself in UNSEEN EFFECTS which represent a value exceeding a thousandfold and more that of the activity which attracts the notice of the world. Its relation to the latter is like that of the deep sea to the waves which stir its surface."(8)

Did the Impossible

In all these years, only Schweitzer seems to have known what he actually was doing: the *impossible*. But what was impossible has created new possibilities, and his released life has been transmuted into effects which are immeasurable, unseen, and unwritten. And so it is with Gandhi, Nehru, and all of us.

Formless but not fantasy, this force beneath the surface of all that is done and undone is a fact. Its incomprehensibility makes it no less a fact. And the test of its reality is the experience of one's answering response to it. It does make a difference. Not what *can* be done is the call; but what *cannot* be done.

A man was bold enough to search out his own deepest inner will and

(*Continued on Page 21*)

(1) Adolph Meyer, "Lectures in Psychiatry", Johns Hopkins School of Medicine, 1940.

(2), (5) Russell Howe, The Press's Myth of Dr. Schweitzer, The Washington Post, May 19, 1964.

(3), (4), (6), (7), (8) Schweitzer, Albert, "Out of My Life and Thought", Henry Holt & Company, New York, 1933.

Books

World Trade and Underdeveloped Countries

Trade Theory and Commercial Policy in Relation to Underdeveloped Countries, Edited by A.K. Das Gupta. Asia Pt blishing House. Pages viii+108. Rs 12.

T. N. Srinivasan

THIS volume contains seven papers presented at a seminar on International Trade held in March 1963. Professor A.K. Das Gupta, the editor, provides a few pages of introductory remarks. Rapporteurs' reports on the discussion of the papers presented by the participants are also included.

It should have been clear to the organisers of the seminar that neither the papers nor the general discussion at the seminar produced any new ideas or analyses that were not already available in published form. (In fact, the author of the single purely theoretical paper of this volume, Jagdish Bhagwati, enters an explicit disclaimer that his paper was not intended for publication as the same material had already been published). Anyway the volume has been printed (the eminent editor may have had little say in this decision) and I suppose it has to be reviewed if only to warn the potential readers of this volume not to be misled by the general title and expect a comprehensive, theoretical and empirical discussion of Foreign Trade in relation to Development.

The papers have been arranged under three heads: (a) Development of infernational trade theory in relation to underdeveloped countries, (b) Commercial policy and economic growth, and (c) India's foreign exchange problems under the Plans. Using the standard geometrical tools (with their limitation that they can handle at the most three dimensions) he demonstrates that the classical argument for free trade may have to be modified in the presence of some structural rigidities such as a 'distortionary' rural-urban wage differential in underdeveloped contries. He indicates how it is possible "to integrate trade into an optimising, overall-planning, dynamic framework" though he readily admits that it is a difficult task to make his approach operational.

Under topic (b), there are three papers. Lakdawala presents, in a concise way, the rather well-known arguments for import regulation such as the infant industry, balance of payments and savings arguments. No quantitative assessment is presented of the relative importance of the three arguments for, and/or the operation of import regulation in, an underdeveloped country such as India. Hence his recommendations such as "Import-restricting policies...must be planned to foster a proper type and strategy of industrialisation, and must be so devised as not at any stage to lead to excessive costs", unfortunately sound rather vague and have little operational significance. T.N. Dhar observes that the fact that the productive life of equipment is more than one year must be taken into account in computing foreign exchange saving resulting from importing equipment to relpace imports of finished goods that can be produced with the equipment. He provides a method of doing it which is nothing but a simple version of a claculation based on the partial criterion that sum of the discounted stream of foreign exchange saved during the life of the equipment must be at least as much as its present foreign exchange cost. He is right in saying that "It would not be sufficient to argue that the problem (the question of devaluation) is a difficult one requiring the knowledge of import and export elasticities, foreign and domestic prices, rates of growth etc.... If a simple computation based on available data, and using empirical methods is not readily forthcoming, it can have little influence on the Govefnment..." Manmohan Singh's discussion of the role of bilateralism and case for and against devaluation of the rupee is based only on his judgement rather than on any empirical analysis.

Under topic (c) there are three papers. Pendharkar describes in words the numerical data available in Reserve Bank bulletins and Plan documents. No analysis is attempted. Sethi extensively discusses planning of foreign exchange requirements for development and the question of devaluation. No empirical assessment as to the quantitative significance of the theoretical arguments is provided. The main point of Kurian's paper is that "unless the yield on outstanding investment declines to a significant extent the total transfer abroad of investment income will outstrip the long run inflow of capital". He comes to this conclusion on the basis that in the long run reinvested profits of foreign companies will become the major source of addition to foreign capital rather than fresh capital inflow. But he does not assess, through proper discounting or otherwise, the fact that reinvestment of profits by foreign companies saves foreign exchange in the early years. In other words, it is to be viewed as a question of a smaller draft on our tight foreign exchange situation in the present against a larger draft in possibly less stringent situation in the future.

The rapporteurs' reports on the discussion do not add much to the material of the papers.

It is a pity that a seminar of this sort did not address itself to an examination of the success or otherwise of our exchange control policies in relation to their avowed objectives. After all, the theoretical arguments for and against import regulation can be found in the trade literature. The crying need is an empirical evaluation of these arguments in relation to one or more underdeveloped countries. For instance, in our country there are some who maintain that exchange control (at least with respect to import of raw materials) determines only the initial allocation of foreign exchange while the final allocation is done by markets of varying hues. There are some who believe that there is widespread underinvoicing of exports and others who believe the opposite. There is also the question whether a multiplicity of controls such as licensing of capacity, allocation of capital goods and raw materials etc. does serve any useful purpose. A thorough empirical study of the whole gamut of exchange and other controls could have thrown light on these.

BOOKS RECEIVED

Technique of Thesis Writing by O. H. Farooquee. Aligarh Muslim University, Aligarh. 59 pages + xvii appendices.

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Nehru and the Freedom Struggle

(*Continued from Page 11*)

men. In the summer of 1920 he found himself tramping the hot and dusty countryside of Oudh learning at first hand, with "shame and sorrow" as he put it, about the poverty of rack-rented peasantry.

His politics thus received a socio-economic edge which was further sharpened by a visit to Europe in 1926-27, when he learnt to view the Indian struggle in the international setting and political independence as a step towards economic development and social equality. A succession of terms in jail, suitably spaced, helped him to catch up with his reading and writing. He turned to history to seek sustenance from India's great and creative past. He probed the causes of her stagnation and disunity. He drew his lesson for the future: India could recover her due place in the modern world if she cast off the shackles of caste and creed, religion and language, superstition and fatalism. Almost alone among his contemporaries in Indian politics he stressed the role of science and technology as instruments of progress.

There is no doubt that if the nationalist movement transformed Nehru, he transformed the nationalist movement too. He brought to it a greater intellectual consciousness of itself, a clearer socio-economic orientation, a keener awareness of the industrial and scientific age and of the currents of world politics. But, above all, he brought to the nationalist movement an aura of romance, a boundless faith in the future of India and an irrepressible optimism. "There was a time not long ago," he wrote in 1931, "when an Indian had to hang his head in shame; today it is a proud privilege to be an Indian." To this national self-confidence during some of the most trying periods of the nationalist struggle, his own contribution was significant.

Perhaps it was this quality in Jawaharlal which made Rabindranath Tagore describe him as "Rituraj" representing the season of youth and triumphant joy of an invincible spirit of fight and uncompromising loyalty to the cause of freedom." This quality of fearlessness and faith, of courage and optimism which shines through Nehru's running commentary on the national movement in the volumes edited by Dorothy Norman is needed more than ever today.

Mr. Nanda is Director of the Nehru Memorial Museum and Library and author of Mahatma Gandhi *and* The Nehrus.

Britain will give India a loan of 10 million pounds (Rs 13.3 crore) for general purposes. It will enable India to finance imports since August last.

Yojana Bhavan Diary

The Planning Commission met on October 20 to discuss methods of increasing food production.

H. E. Sayed Hussain El Sharif El Hindi, Sudan's Minister of Finance and Economics, met Mr. Asoka Mehta, Deputy Chairman, on October 20.

The Technical Manpower Committee of the Government of India has been reconstituted with Prof. V.K.R.V. Rao as chairman. Mr. Asok Mitra, Additional Secretary of the Planning Commission, will be a member. The Committee will urgently review plans and programmes for the training of technical and other specialised personnel in the context of the emergency.

The Sugar Inquiry Commission of the Government of India under the chairmanship of Dr. S. R. Sen, Adviser (Planning and Administration), Planning Commission, submitted its report to the Government on October 21.

The Planning Commission has decided to set up a Working Group with Dr. A. C. Joshi, Adviser (Education), as chairman to advise on matters connected with the setting up of youth hostels. Mr. H. K. D. Tandon, Director (Public Co-operation), and Mr. P. D. Kulkarni, Joint Director, Social Welfare Division, will be among its members.

SCHWEITZER

(*Continued from Page 19*)

to cling to his choice. Is there any greater possibility for life given to man? Is there any larger call to each individual in this people's century when even spiritual leadership is now thrown back to the followers? Not just Gandhi or Nehru or Schweitzer, but millions of us are now beginning to experience the impossibility of what was once thought possible. And when the *impossible* finally confronts us, may superbly modern lives like theirs embolden our advance into the unknown possibilities awaiting us.

Dr Lalla Iverson is Director of the Association for Rural Aid in Medicine.

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THE DANCE OF THE EARTH

WE chanced to run into a great artiste, who was in Delhi a few days ago. He gave us an unusual glimpse into his philosophy of life. Guru Gopinath, who by the wizardry of his imagination has transformed the grand sweep of Kathakali into enjoyable ballet for the non-Kerala people, told us: "Culture and agriculture are now my two occupations. Culture is my right hand and agriculture the left. My time is divided between them. Culture is the mainspring of man's mental happiness and agriculture is the fountain of his food, his living.'

"It is impossible to get on without agriculture. So I use my hands both for digging and dancing."

When visitors go to see him at Visva Kala Kendra, his institution at Trivandrum, they may find him tilling the land for planting tapioca or feeding his small herd of cows and buffaloes. "It gives me pleasure when I harvest a bunch of vegetables from my garden. I am as happy as when I get an encore from my spectators."

Banana Fibre

THE banana is the most widely eaten fruit in India and the banana plant is associated with grace, auspiciousness and plenty. Its leaf is u ed to eat food from. The stalk of the banana plant is tied to door-posts at marriages and festivals, and poets have compared its smoothness to that of woman's arms. The plant also yields fibre. In some parts of South India, saris used to be woven from banana fibre but the craft has practically died down.

The export of bananas is a big industry in Latin America; and we too have begun earning foreign exchange by exporting the fruit. Machines have been devised to manufacture banana powder so that the highly perishable fruit is given a lease of life. Now the making of banana fibre also promises to become a large industry.

A machine has been devised in West Germany for the extraction of fibre from banana stem at a low cost. The recovery of the fibre has so far been done through primitive methods which are able to recover only a small percentage of the fibre. The new machine makes fibre-making possible on a commercial basis.

The advantage of banana fibre is that it is lighter and sturdier than jute fibre and as good as manila hemp. It is also alkali-proof and can be dyed easily.

The new German machine removes the fibre from the pulp in a simple operation and both the yield and quality of fibre are superior. The white pulp makes good manure. Wastage is negligible.

Wheeled Trophy

On reading the news that double decker buses captured from Pakistan are being put on the roads by the city transport undertaking of Bombay, a colleague came up with a bright suggestion.

His proposal was that tickets issued on these buses should be a victory ticket of one-rupee denomination, whatever the distance of travel, with the proceeds going to the defence fund. Our colleague is sure that even so the buses will be full. And knowing Bombay, we too are sure that the victory ticket idea will click.

Green Manure

"HOW to grow more" lists invariably stress the importance of green manure. Green manure is no new discovery. Farmers have known it all along. For various reasons, however, they tend to overlook it. In the Indian Agricultural Research Institute, work on green manures has been done for sixty years, ever since it was set up in Pusa, Bihar, as the Imperial Agricultural Research Institute.

An article in the October issue of *Fertiliser News* sums up the findings of these investigations. It has been found that sunnhemp buried for eight weeks after sowing gave consistently higher out-turn of wheat.



IGNORAMAN

Wants to Know

Have we not at
last found a true
LINK LANGUAGE
one that Pakistan understands?

Higher yield of wheat is also assured from leguminous crops for green manuring buried at the place of growth than from green manure brought from outside and allowed to decompose on the field. Secondly, the roots and portions above and under the ground also help in increasing the yield of wheat when *guar* is used as green manure. Application of superphosphate (80 lb P_2O_5 per acre) increased the yield, though addition of nitrogen in the form of ammonium sulphate alone or with superphosphate at the same rate was of little value.

Though green manure-wheat rotation is better than fallow-wheat rotation, the more remunerative is a *kharif* crop wheat rotation provided both the crops in the rotation are adequately fertilised.

Collector's Item

The caption of a picture of the Karnafuli project in *Commonwealth Today* describes it as the "first and biggest hydel power project in East Pakistan".

If it is the first, it does have to be the biggest, doesn't it ?

***

Overheard: "Will they now grow cauliflowers in the Mughal Gardens of Rashtrapati Bhavan and throw them open to the public ?"

DUNLOP MANUFACTURE INDIA'S FIRST EXTRA LARGE OFF-THE-ROAD TYRES



In the race against time to complete various projects on schedule, giant earthmoving vehicles are being used in increasing numbers throughout the country. The extra large size tyres required for these vehicles were hitherto imported, costing the country valuable foreign currency.

Dunlop have now undertaken for the first time in India the manufacture of Extra Large Off-The-Road tyres in sizes 24.00-25 and 26.5-29 for these massive earthmoving vehicles. Weighing nearly half a ton each and standing over six feet high, these tyres are made to the highest international standards.

YET ANOTHER **DUNLOP** FIRST

Big Dam Across Godavari at Paithan

Sacred Water for Marathwada Soil

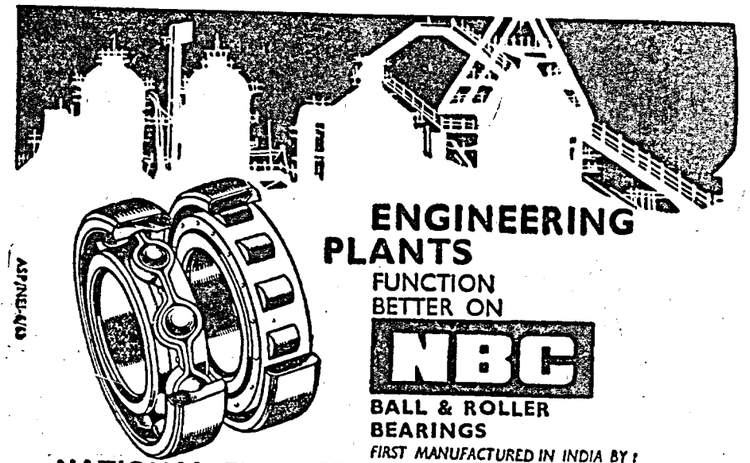
JAWAHARLAL NEHRU coined a memorable phrase when he said river projects were our modern temples. And if such a project is associated with a traditional holy place, its sanctity is doubled, as it would serve the orthodox as well as the modern.

Paithan, an ancient, holy town in Maharashtra, is soon going to have a new temple.

Paithan, 48 kilometres from Aurangabad, is situated on the Godavari which is considered the Ganga of the South. This ancient city was the seat of a great empire two thousand years ago. Here was born Shalivahana, who started the Saka era to celebrate his victory over the Sakas and Huns whom he had driven away beyond the Narmada. The Satavahana dynasty ruled this place for four centuries until the second century after Christ.

It was also a centre of learning and culture, and of industry and trade. It exported garnet and a variety of cloth to Greece and other Mediterranean countries. It is referred to in an edict of Asoka. The Periplus has named it as one of the two biggest trade centres in South India. Jain and Buddha literatures also mention it. Gunadhya, author of *Brihat-Katha-Sarit-Sagara* (ocean of tales), lived here. In the middle ages the place was hallowed by the presence of Dnyaneshwar (thirteenth century) and Eknath (sixteenth century), the two most revered saints of Maharashtra. In the later period, Gaagaa Bhatt, the great Pundit of Kashi who performed the coronation of Shivaji, belonged to Paithan.

Today, Paithan is shorn of its political and commercial prosperity; but it has retained its importance as a sacred place which is visited by thousands of pilgrims every year. Till recently, it was also famous for brocades embroidered in gold and silver which were known as 'Paithani'. The craft is being revived. In the near future, Paithan is destined to become the pivot of prosperity for a large tract which was neglected for centuries. A big dam is to come up there, which will be part of the Upper Godavari irrigation project. Once the army of Shalivahana's soldiers stood in thousands on the banks of the Godavari in battle against the invading Huns; now an army of workers will stand there



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o wage a battle against overty.

The Upper Godavari project is he first major irrigation project f Maharashtra which until now ould claim only minor irrigation chemes. The project, in fact, is ot a new idea. It was conceived, n a smaller scale, by the former Hyderabad State before its merger, although no action was taken. After the reorganisation of States, Maharashtra revived and enlarged the idea to meet the irrigation needs of a bigger area.

As envisaged, the project will utilise only a portion of the Godavari's waters and leave a major part of them for regions downstream. The Godavari flows for about 700 kilometres from its source at Nasik through Maharashtra before it enters Andhra Pradesh.

The project will be built in two stages. The foundation stone was laid on October 16. In the first stage, an earthen dam, ten kilometres in length and about 40 metres high, will be built at Paithan to impound 92,000 million cubic feet of water in a reservoir. A canal, 184 kilometres long, will be built on the left bank for irrigation.

The second stage consists of another earthen dam, 5.6 kilometres long and 37 metres high, on the Sindphana river, a tributary of the Godavari, at Majalgaon (in Bhir district) to form a reservoir of 15,700 million cubic feet of water. Two canals, along with their distributary systems, will be built on the left and the right banks, each 142 kilometres in length.

The first stage is to be completed in the Fourth Plan in view of the urgency for increasing agricultural production in the present emergency. It will cost Rs 39 crore and provide irrigation to 3.5 lakh acres, to yield additional 2.6 lakh tonnes of agricultural production.

The total cost of the project (both stages) is estimated at Rs 65 crore. The total irrigation potential is of the order of 6.85 lakh acres and the additional production of food will be 5.34 lakh tonnes. The main crops will be rice, sugarcane, long staple cotton and Rabi crops.

The beneficiary of the project will be Marathwada, which has remained still underdeveloped compared to other parts of Maharashtra. Some 3.66 lakh acres of the land to be irrigated will be in the Parbhani district, followed by Bhir (1.46 lakh acres), Aurangabad (1.26 lakh acres), Nanded (39,000 acres) and Ahmednagar (7,000 acres).

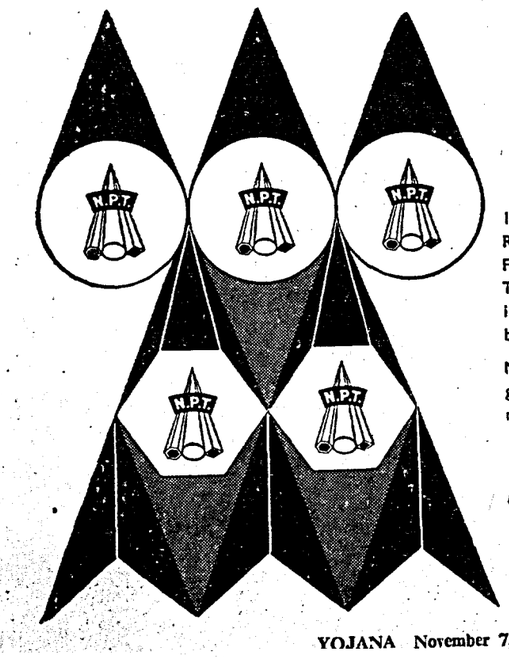
The project is expected to submerge 93,000 acres of land in 71 villages by the Paithan dam and another 19,400 acres of land in 19 villages by the Majalgaon dam.

88.4 Million Tonnes of Food-grains

The production of food-grains in 1964-65 was 88.4 million tonnes, about 9 million tonnes more than in the previous year, according to the all-India final estimates. The increase is accounted for mainly by the rise in the production of wheat and rice.

The yields of rice, wheat, jowar, bajra and barley were the highest this year. The maize crop was the second highest on record.

The area under cultivation of foodgrains increased by 1.5 million hectares over the previous year.



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PLANNING NOTE

24 Social Research Projects Approved

THE twelfth annual meeting of the Research Programmes Committee was held in New Delhi on September 4. It was presided over by the Committee's Chairman, Prof. V. K. R. V. Rao.

Addressing the meeting, Mr Asoka Mehta, Deputy Chairman, Planning Commission, indicated the directions of application of future research. He said, the Planning Commission was considering a programme of action research by selecting one or two districts where they could work out development programmes for the Fifth Plan during the Fourth Plan itself. The idea was to understand problems that were likely to come up either with respect to administration or the social and cultural tensions that might arise while implementing the programmes. Deputy Chairman further observed that social aspects of planning had not received a detailed consideration by the policy makers, as required. Development of cultural aspects was also important. In future our research should directly flow into the problems that we are concerned with and the end product of research should be available early.

Earlier, the Chairman, Prof. V. K. R. V. Rao, briefly described the progress of work of the Committee in the last twelve years and outlined the future plans. He informed that the Planning Commission had set up a special committee for social science research and this committee was expected to report in about six months, i.e., before the finalisation of the Fourth Plan.

Prof. Rao announced that as soon as the Draft Outline of the Fourth Plan was ready, he would convene a special meeting of the Committee to consider the research aspects of the Fourth Plan. The meeting would examine issues connected with the implementation of the Fourth Plan and the basic problems of formulation of the Fifth Plan. For drawing up the research programme to be initiated by the Committee during the Fourth Plan period, two sub-committees were set up—a sub-committee for Research Programmes for the Fourth (and Fifth) Plan headed by Prof. D. R. Gadgil and the other sub-committee on Research and Plan Implementation headed by Dr P. S. Lokanathan. The latter would assess how the Plan had been helped by research findings and would locate areas where the Plan would have received greater success if more research had been done.

One of the greatest handicaps in furthering a research programme has been the absence of adequate number of research personnel. In this connection, Prof. Rao recalled the Committee's efforts in the First and Second Plans to get courses organised in social research methodology in several Universities and urged on the University Grants Commission to extend this programme to a larger number of Universities—10 or 15 more.

The Chairman referred to the pioneering work done by the Committee in initiating farm management studies. The results of the studies of evaluation of benefits of irrigation projects have commanded the attention of irrigation engineers who have now accepted the criterion of productivity instead of the narrower financial yardstick in assessing the feasibility of irrigation projects. These studies had a great policy impact. The Committee will also prepare policy oriented notes based on the findings of studies. The Committee intends to build up raw data literature, on modern lines, in four or five regional centres. The purpose is to provide ready access to primary data by research scholars and thus help a greater utilisation of the data already collected under the Committee's research projects.

IN TWELVE YEARS

While presenting his annual review of activities, Member-Secretary, Dr. Harbans Lal, reported that in the last twelve years the strength of the Committee had grown from 16 members to 38 distinguished scholars and research workers; 203 research schemes had been sponsored under 48 broad categories of subjects; 79 reports had been published and a crore of rupees given as grants-in-aid to research schemes. (During the Third Plan period, 91 schemes were sponsored and 37 reports published.) The five Regional Committees (with headquarters at New Delhi, Lucknow, Calcutta, Poona and Trivandrum) had been actively aiding the main Committee in expediting completion of sanctioned projects and locating new talents for research. He urged that a number of academic institutions particularly the post-graduate colleges should be brought into the programme of the Committee, so that a larger area of research could be covered.

Several members took part in the discussion on the annual review. Dr S. R. Sen and Prof. V. R. Pillai urged the need for giving wider publicity to the programmes and activities of the Committee in all the regions. Dr Sen emphasised the need for building future research work by encouraging research fellowship. Dr J. P. Bhattacharjee called for greater discussion of the problems of research methods at academic level to help to raise the standards of research competence.

SCHEMES FOR RESEARCH

In its last sitting the Committee noted the 9 new schemes which the Chairman had approved earlier during the year and accorded approval to another 15 research schemes screened by six technical sub-committees. The 24 schemes are listed below :

1. An enquiry into the implementation of land reform legislation in Madhya Pradesh by Mr S. P. Pant, Agricultural Economist, M. P. Agricultural Research Institute, Jabalpur.

2. An appraisal of the implementation of land reforms in Madras State by Prof. K. S. Sonachalam, Head of the Economics Department, Annamalai University, Annamalainagar.

3. Implementation of land reforms in Andhra Pradesh by Dr. G. Parthasarathy, Professor of Cooperation, Andhra University, Waltair.

4. Follow-up survey of the effects of land reforms in Saurashtra by Prof. R. R. Mishra, Head of the Department of Economics, D.K.V. College, Jamnagar.

5. Evaluation and identification of the determinants of change in Indian agrarian structure by Prof. A. K. Biswas, Professor of Economics, University of Burdwan.

6. Re-survey of Matar *taluka* by Mr Vimal Shah, Director, Tribal Research and Training Centre, Gujarat Vidyapeeth, Ahmedabad.

7. Intensive study of the factors bearing on agricultural plans at the district level by Dr P. S. Lokanathan, Director-General, National Council of Applied Economic Research, New Delhi.

8. Study of Union grants and loans to the States since 1951 by Dr P.C. Mathur, Reader, Indian Institute of Public Administration, New Delhi.

9. Estimates of cost benefit relations in beggar homes by Mr S. V. Desai, Research Council for Social Development, India International Centre, New Delhi.

10. Social, cultural and economic study of the people of Ladakh by Prof. P.C. Biswas, Department of Anthropology, University of Delhi.

11. Problems and processes involved in the emotional and national integration of the Goan community by Dr R. N. Saxena, Director, School of Social Studies, Agra University.

12. Efficiency audit of public enterprises by Mr Laxmi Narain, Reader, Department of Business Management, Osmania University, Hyderabad.

13. A study of mobilisation of local resources with reference to Baroda district by Dr H. P. Chokshi, Reader in Economics, Faculty of Commerce, Baroda University, Baroda.

14. Union-State-local relations in agriculture in Gujarat with special reference to Baroda district by Prof. K. S. Desai, Reader in Political Science, M. S. University of Baroda.

15. Economic development and cultural change with reference to tribal areas in Andhra Pradesh by Prof. S. V. Ayyar, Director, Indian Institute of Economics, Hyderabad.

16. Impact of social legislation on social change—attitudinal, behavioural and material—by Dr P. N. Singh, Professor of Social Psychology, Gandhian Institute of Studies, Varanasi.

17. Social implications of industrialisation by Dr. M. S. Gore, Director, Tata Institute of Social Sciences, Bombay.

18. Bombay labour market—A pilot study by Dr S. D. Punekar, Head of the Department of Research, Tata Institute of Social Sciences, Bombay.

19. Scheme for a survey of labour market of the Guntur-Vijayawada industrial areas by Dr D. L. Narayana, Professor of Economics, Sri Venkateswara University, Tirupati.

20. Monetary and non-monetary work incentives in public enterprises of West Bengal by Prof. S. K. Basu, Hony. Research Director, Indian Institute of Social Welfare and Business Management, Calcutta.

21. Regional transport studies in Kerala and Mysore States and in a sub-region of Madras State by the National Council of Applied Economic Research, New Delhi.

22. Indian Economic Growth : 1951-61 by Prof. V. M. Dandekar, Secretary, Indian Association for Research in National Income and Wealth, Poona.

23. Capacity utilisation in engineering units (basic metal industries) in Uttar Pradesh by Mr S. M. Tiwary, Reader in Commerce, and Mr Mukund Lal, Lecturer in Commerce, Banaras Hindu University.

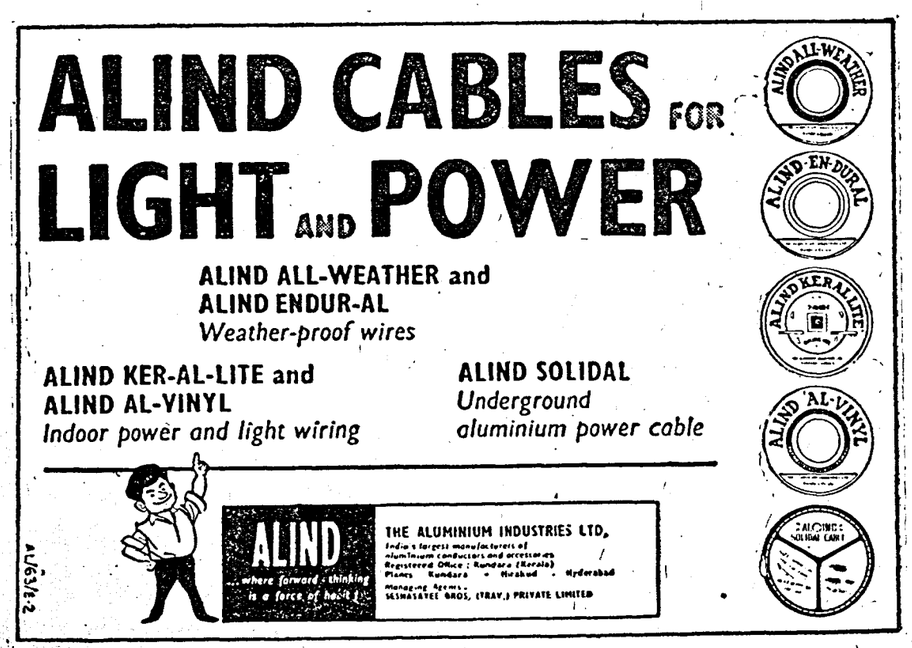
24. A project for research in agricultural geography of Mysore State by Dr. G. S. Singh, Head of the Department of Geography, Karnatak University, Dharwar.

Manpower Implications of Self-Reliance

(*Continued from Page 6*)

it is organisation that counts. Development of organising abilities is possible in persons with other educational disciplines also; in fact the present cadres of administrative and defence personnel belong mainly to what may be called non-technical categories in terms of their basic qualifications. There is thus no educational discipline which can suffer neglect in relation to the requirements for self-reliance. But in terms of priority it is likely that the technical group will have a favoured position in expansion of facilities for building up the defence and developmental effort.

In many areas where self-reliance has to be achieved, experience becomes important. It is emergency which provides such experience because experimentation is permitted on a large scale. With shortages all round in technical and other categories new talent which would have otherwise remained unutilised gets introduced into the economic system. When such men and women see that they have a chance to make their contribution and their early faltering steps are accepted as a part of the bargain for self-reliance, they will themselves acquire a confidence which will make their steps firmer. If improvisation of substitutes is to be tried out over every area, it is expected that this will be also practised in the field of technical manpower. How to do this is indeed the task of the Technical Manpower Committee.



States' Annual Plan For 1966-67

Stress on Agriculture and Defence Needs

THE Planning Commission has begun discussion with States on the Annual Plan for 1966-67. The discussion is to continue from November 4 to December 29.

What is an annual feature takes on special significance this year in view of the present emergency. The country has to muster all its strength in the next few years to meet the challenge to its integrity. The discussion will therefore aim at :

(1) searching all avenues of our resources, (2) assessing the extra effort the States can put in, and (3) ensuring maximum efficiency in the implementation of programmes so that the targets are not only achieved but also exceeded.

The State Annual Plans will have an emergency-bias. Usually, for the past fifteen years, the Annual Plans have been integral parts of the Five Year Plans of development. But this year, they will be almost self-contained and entirely defence-oriented, and will not have a bearing on the content or size of the Fourth Plans of the respective States.

The total outlay on the Annual Plans of all the States and Union Territories put together has been tentatively fixed at Rs. 2,080 crore. Of this, Rs. 60 crore (Rs. 10 crore less than that in the current year) are earmarked for the Union Territories.

The main features of the Annual Plans will be :

1. Main priorities will conform to the exigencies of the present situation ; the principal objective will be defence orientation.

2. First priority will be given to agriculture, particularly to schemes which are quick-yielding.

3. No new schemes will be undertaken in the case of irrigation and power, unless they are sure to yield results, in terms of additional food production, in a year or two.

4. No new industry will be set up except for meeting defence needs or for essential civilian consumption.

5. Stress will be laid on family planning.

The Planning Commission has sent to the States and the Union Territories a set of guidelines on the main development sectors for formulating the programmes in the Annual Plans. Also, a separate note on the pattern of agricultural programme has been sent for the States to follow. These directives indicate the order of priorities in the Plans and the magnitude of the agricultural programmes. The outlays on agriculture for the different States, as suggested by the Planning Commission, are given below:

Andhra Pradesh—Rs. 19.85 crore; Assam—Rs. 5.85 crore ; Bihar—Rs. 19.75 crore; Gujarat—Rs. 14.85 crore; Jammu & Kashmir—Rs. 3.03 crore; Kerala—Rs. 10.70 crore ; Madhya Pradesh—Rs. 24.05 crore; Madras—Rs. 15.60 crore; Maharashtra—Rs. 35.15 crore ; Mysore—Rs. 19.65 crore; Orissa—Rs. 12.85 crore ; Punjab—Rs. 14.20 crore; Rajasthan—Rs. 10.77 crore ; Uttar Pradesh—Rs. 47.60 crore ; West Bengal—Rs. 14.10 crore.

In the field of irrigation, priority will be given to continuing schemes which are in an advanced stage of completion and are likely to yield benefits in a year or two. Measures will be taken for the fuller utilisation of the existing potential. Lift irrigation schemes will be emphasised.

As for power generation, only the continuing projects for which plant and equipment have been received or will soon be received will be taken up. Transmission links will be established between States and within the State. Power will be extended to rural areas only on the consideration of agricultural needs, for instance, to areas that have large number of pumping sets.

The States have been asked to furnish details of their foreign exchange requirements for spill-over projects. The projects involving big foreign exchange might be postponed.

Among industries, greater attention will be given to small industries. Roads and communications will be built mainly for defence purposes, particularly in border areas. Social services will be kept to the bare minimum. However, border areas will get preference for hospitals, water supply and other welfare facilities.

The States have also been informed about the estimates of their potential resources and the Central assistance. The States have to frame their Plans within these two limits.

TUR YIELD HIGHER

The production of *Tur* in 1964-65 is expected to be 18.94 lakh tonnes (from 24.73 lakh hectares), an increase of 5.23 tonnes, or 38.2 per cent. over the previous year (although the area under cultivation increased only 1.3 per cent).

NEXT FORTNIGHT

N. D. GULHATI : *Self-Sufficiency in Food—Some Requirements*

K. B. MATHUR : *New Priorities—Some Suggestions*

RANJIT GUPTA : *Arms and Farms*

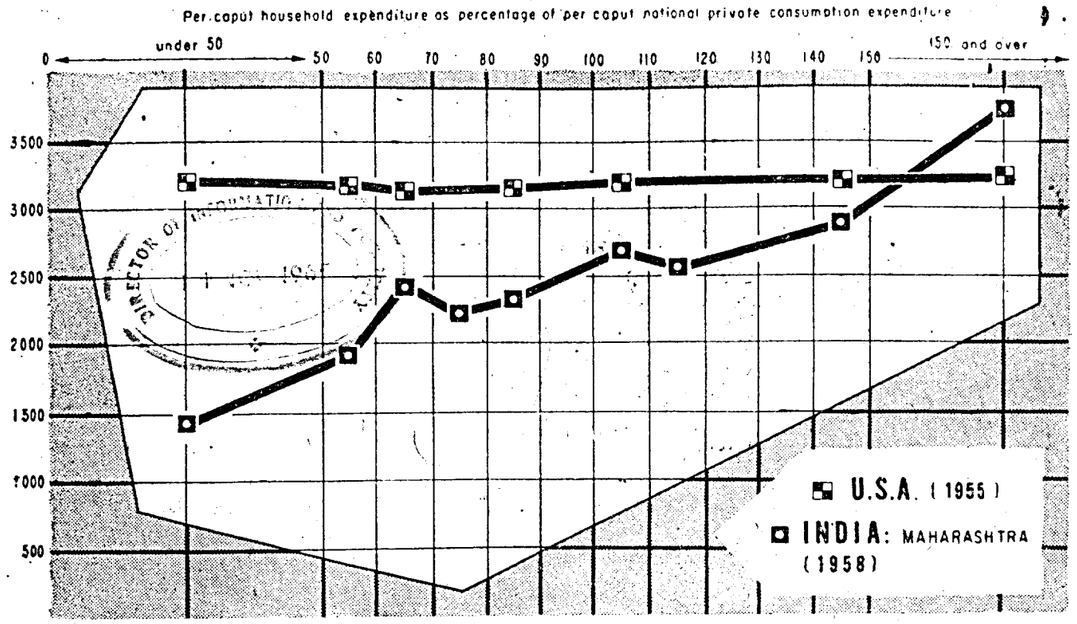
INDIAN DRUGS : *Pictorial Report on Hyderabad Project*

THAKUR PHOOL SINGH : *Soil Conservation Can Double Production*

MISSILES: YOJANA Science Note

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Chief Editor: H.Y. Sharada Prasad

CHART 8. - CALORIE INTAKE AT DIFFERENT INCOME LEVELS IN THE U.S.A. AND INDIA



While the majority of us do not get enough

SOME INDIANS EAT MORE THAN WELL-FED AMERICANS!

ALL of us know that Americans are a well-fed nation. We know too, that the lot of the large number of Indians is to be undernourished. Here is a telling chart which compares the food intake in the two countries.

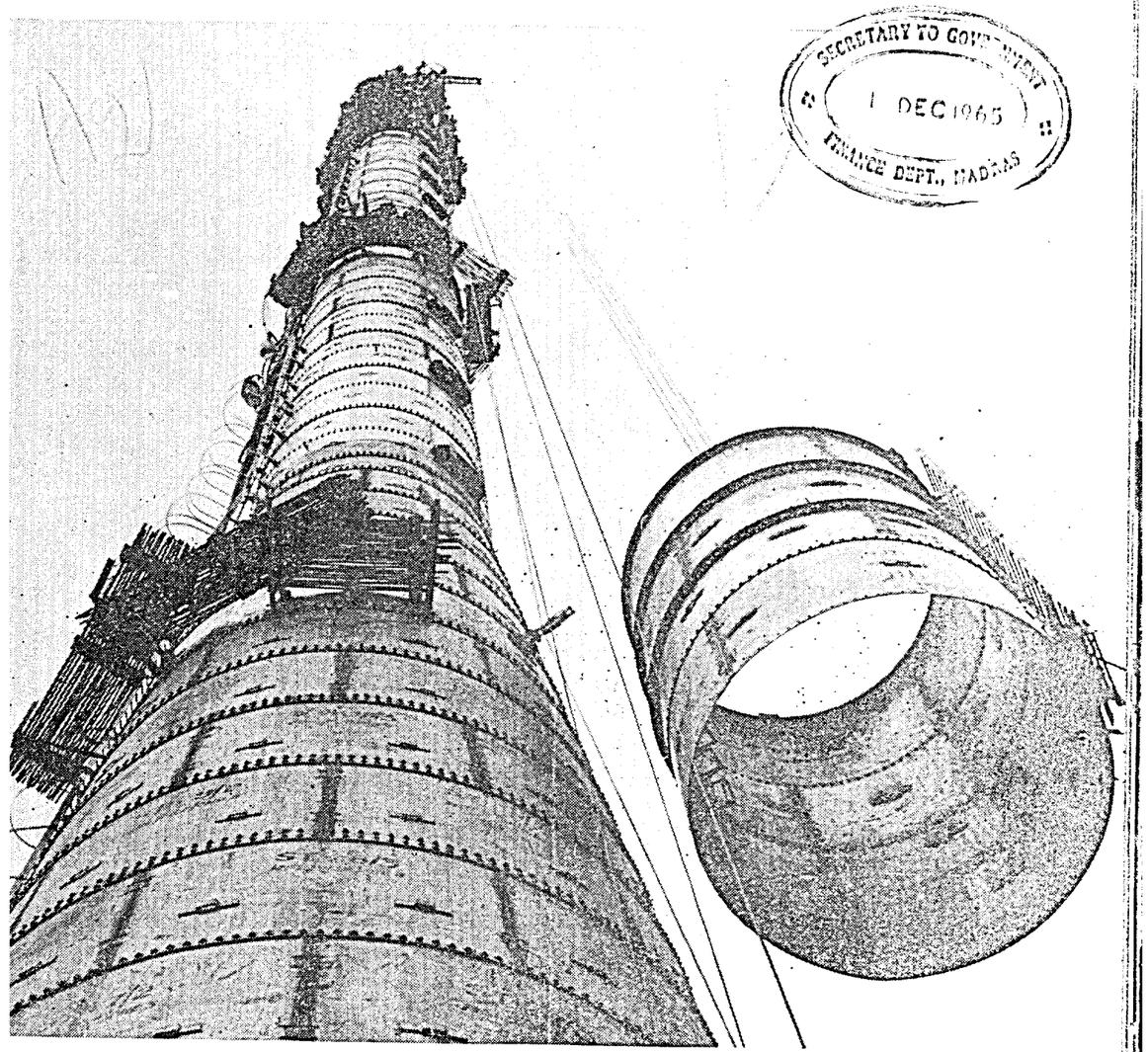
Look closely at it and you will see another remarkable thing, namely that in the United States the calorific content of the food consumed is practically the same for all income groups. In India on the other hand, the graph is based on Maharashtra surveys, persons getting less than half the average income have only 1500 calories, while those getting more than one and a half times the average have about 3800 calories per day. Not only is the overall supply of food inadequate to meet nutritional requirements but a large proportion of the people have such low incomes that they cannot afford even this minimum. There is tremendous disparity between the rich and the poor, not only in the quality of food but in the calories it provides.

Another notable thing about the chart, which has been published in the UN Food and Agriculture Organisation's bulletin (Volume 14, No. 7-8) is that some sections in India take in much more calories than the well-to-do of Americans!

YOJANA

NINTH YEAR
23
November 21 1965

SECRETARY TO GOVT. OF INDIA
1 DEC 1965
FINANCE DEPT., MADRAS



CONDITIONS FOR FOOD SELF-SUFFICIENCY
PSYCHOLOGY OF SELF-RELIANCE
INTERVIEW WITH KRISHNA MENON
MISSILES : HOW THEY WORK

25 PAISE

ABOUT YOJANA

Yojana seeks to carry the message of the plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

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N.P.C. Decisions Cover III

Meet the Challenge Cover IV

COVER: The 100 metre high chimney of Bhilai's ninth open hearth furnace. The last plate of the chimney, seen at right, was placed in position in August. (*Courtesy, B.S.P. Magazine*)

As The Plan Moves

INSTRUMENTS FACTORY AT KOTAH

THE foundation stone of the instruments factory at Kotah (Rajasthan) was laid on November 6. The factory, which is expected to start production by the end of 1966, will cost Rs 7 crore. It will produce electro-magnetic instruments, electronic instruments and transmitters and sensing elements, valued at Rs. 11.5 crore every year. A bureau for designing new instruments and developing new processes, and a training centre will be the special features of the factory, which is being set up with Soviet collaboration.

Another instruments factory is being built at Palghat (Kerala) at a cost of Rs. 7.5 crore. It will produce mechanical, hydraulic and pneumatic instruments worth Rs 9.7 crore every year.

BINOCULARS FOR TANKS

The Defence Research and Development Organisation has designed an infra-red binocular for use in tanks. The binocular will enable tank crew to locate targets during operations at night.

The Organisation has also designed a sniper-telescope and a new device for mine-clearing.

Considerable progress has been made in developing a blast-proof anti-personnel mine and a non-detectable anti-tank mine. Both these items may soon go into production.

The Naval Chemical and Metallurgical Laboratory, Bombay, has devised various means of safeguarding naval ships against marine deterioration.

The Defence Research Laboratory at Kanpur has designed and set up a pilot plant for the reclamation of used engine oil. The Railway Research Designs and Standardisation Organisation has already set up some oil reclamation plants on the pattern of this pilot plant.

The Laboratory has also evolved an anti-freeze coolant for use at high altitudes. It will prevent the freezing of coolant water used in automobiles at high altitudes.

BRIGHT SPOT

BUMPER CROP OF POTATOES

The production of potatoes increased by 35 per cent to 34.52 lakh tonnes in 1964-65 from 25.54 lakh tonnes in the previous year. The increase in the area was only 2.8 per cent (from 4.05 lakh hectares to 4.16 lakh hectares).

BEL'S PROFITS

The Bharat Electronics Limited, Bangalore, earned a net profit of Rs. 59 lakh in 1964-65 and declared a dividend of 5 per cent. It doubled its production for defence services since 1962.

Alumina Plants

A new company, Bharat Aluminium Company Limited, will soon be set up in the public sector for the construction, management and operation of the two proposed aluminium plants—one at the Koyna Project and the other at Korba (in Madhya Pradesh). The Soviet Union and Hungary will help the Korba Project and a West German firm is expected to prepare a project report for the Koyna plant.

An agreement has been signed with a Hungarian firm to prepare a project report for the Korba plant whose annual capacity has now been revised to two lakh tonnes.

NEXT FORTNIGHT

Maj.-Gen. S. S. SOKHEY

On the Drug Industry

*

A. C. GUHA, M.P.

On "The Challenge of Self-Reliance"

*

D. S. DATAR

On "Fertilisers from the Sea"

*

Brig. T. N. R. NAYAR

Artillery in Modern Warfare

A PROGRAMME AND A PASSION

ELF-RELIANCE is in the forefront of national discussion now. There is general agreement that the ost important lesson of the recent military and polial developments for us is the need speedily to achieve f-reliance.

Self-reliance, however, is no new discovery. We ve always understood freedom to mean not only litical independence but economic freedom as well. onomic freedom implies self-reliance. It implies nething more. Like political freedom, economic edom, too, is not an end in itself but a means to some- ng more desirable and urgent—increase in human opiness, increase in national strength, and furtherance equality and social justice.

Throughout our national movement for indepen- ice we stressed the fact that we intended to exercise freedom not to isolate ourselves from others but develop closer relations with the rest of the world. our quest of economic independence, too, we believed international co-operation. We welcomed and epted aid. We needed an inflow of finance, materials d technical knowledge. We had too little of all this selves; and we set our faces sternly against causing ther misery to our people, who had known enough it, in order to mobilise finance for imports. All the ile we also had known that aid should be *aid* in the se of enabling us to build on our own as soon as sible. That is why even when gifts were offered to we wanted them to be converted to loans. For ns, as entrepreneurs know, act as a spur to effort. ey are a responsibility to discharge which we have to rk hard. Let it not be forgotten that whenever we ured a loan, it was not the end of our worries. The ns did not meet the whole cost of projects, but only art. We had to find matching resources from within country. In the politics of international lending l borrowing importance is attached to a country's lity to absorb a loan. Everyone has recognised that have that ability. Without such ability a nation s into economic indigestion. Our problem is not of indigestion but of hunger for more.

No reasonable person will dispute the great advance have made, especially in the industrial field, in the eighteen years. No one will assert, either, that this ance would have been possible without foreign aid. with light goes shadow, and the best of virtues has within it a core of vice. The vice of aid has been that we have often neglected to put forth our best to find within our country what we sought from outside. Import of food-grains from abroad, let us not forget, has prevented famines that were ever present in India's Song of Sorrow. But P.L. 480 grain supplies, which saved so many lives, also made us take somewhat lightly the task of growing more ourselves. While getting foreign equipment we did not show the alacrity that the Japanese did earlier in the century to imitate, adapt, innovate and invent. Since collaboration agreements were made between a needy, inexperienced party on the one hand and an affluent, experienced party on the other, we had often to pay more for what we got. Although we were quick to learn from our mistakes, even now we have a price to pay for the advantage we get. Not all our collaboration agreements are of the same nature as would be signed between two advanced countries. Often, the desire to get on with the work has clouded the goal of self-reliance. We have tended to sacrifice, the ultimate good for the immediately practicable.

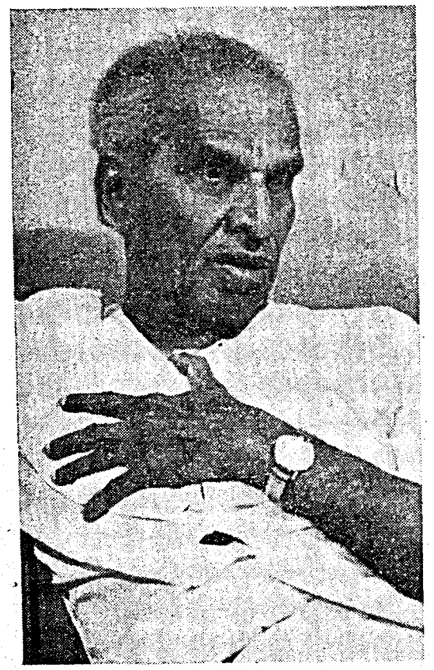
The renewed emphasis on self-reliance does not mean that we shall wholly do away with economic collaboration with others. This cannot, like Southern Rhodesia's, be a unilateral declaration of independence. We shall continue to take and seek assistance, industrial and agricultural, because we cannot do without it. As Mr Asoka Mehta told the National Planning Council, it is because we are now at the mid-point of our development that we need assistance more. By taking aid now, we shall soon be free from having to depend on it. We should treat aid like medicine—take it so that we can soon do without it.

But in every sector and segment of activity the overriding consideration should be: "Can't we do it ourselves? How soon can we do without borrowed money, materials, machinery and methods?" While we think of today we must also be thinking of tomorrow. Numerous technical studies have been initiated in order to find out how to put our capacities to fullest use and save on imports. But we can't leave it all to technicians and the administrators. Saving and innovating must become a national passion. Already, with the Punjab war receding in time, the national tendency to take things easy seems to be returning. We must learn to drive ourselves harder.

"There is Little That We Can't Make in the Country"

SELF-RELIANCE

The Hurdle Is Partly Psychological



PICTURE : T. S. NAGARAJAN

KRISHNA MENON talks to YOJANA on Foreign Collaboration, Defence Production, Use of Science and Food Imports

This represents the Editor's recollections of his questions and Mr. Krishna Menon's responses. Neither of these should be taken to be verbatim reports.

Interview

Yojana: Self-reliance seems to have become the current catch phrase with us. Mr Menon, you have been a great champion of international co-operation. In this supposedly shrinking world, how valid is the concept of self-reliance of individual nations ?

Mr Krishna Menon: Self-reliance does not mean doing *everything* ourselves. I once told Lord Beaverbrook, Britain can't grow bananas in Birmingham. Self-reliance does not mean there is no collaboration with other nations. All nations that have achieved self-reliance—Soviet Union, Japan—have collaborated with other nations. They have bought, borrowed, often just copied, designs, know-how, equipment from others.

Yojana: That is, you do not object to collaboration in principle ?

Mr Menon: No ! How can any one? My objection is to such collaboration agreements as impose restrictions on us; agreements which say we can't improve on a design, or export the product or use it in a fight or invent something. In my view a collaboration agreement should be like hiring someone's services. We should remain the masters. The collaboration should be such that the need for it tails off as quickly as possible. Collaboration should mean no economic or technical subservience, certainly no political subservience. The net gain, fiscal or technological, must be ours.

Yojana: When we are the supplicants, can we drive such hard bargains ?

Mr Menon: Supplicants! That is what's wrong. That is what we should avoid. It is only when you stand up that you are recognised. The more you take the less you get. If someone does not accept our terms, we can turn to others. That is the big change that has come about in the world.

Yojana: May we, sir, talk about defence production? Mr Agha Hilaly, Pakistan High Commissioner in London, spoke of our ability to produce 80 per cent of our defence requirements. The nation is proud of this achievement and grateful. Can we be 100 per cent self-reliant in defence requirements ?

Mr Menon: Tell me what we can't make—and I may tell you how and where it can be done. There is practically nothing we can't make. I am certain about it. We have the technical competence. Our defence science organisation is quite something. It has the required ability to design and innovate. After all the Gnat which we now make, you might like to know, isn't the Gnat we bought. We have so improved it. Another thing we must do. We must import and stockpile some strategic materials like special alloys which are even today made according to secret formulae. We should make use of capacities and of agreements made. I can't say more.

Yojana: What do we need to do, then, to achieve 100 per cent self-reliance in defence production ?

Mr Menon: First of all we must realise that when we speak of 80 per cent self-sufficiency, it is 80 per cent quantitatively. It would include blankets and sheets and all that. Real self-reliance may be determined by the crucial 5 per cent. It is this that has to be singled out and taken up. This is a matter not merely of "decisions", but of continuous initiative. This cannot be left to committees. This cannot be left to the Planning Commission. This cannot be left to odd officers, civil or even military. Let me tell you there is no "ideology" in defence production What's required is knowledge, and sense of direction—a clear idea of what must be done, and of how to put scientists to the work and encourage worthy people at all levels.

Yojana: Yes, how best can we use our scientists ?

Mr Menon: This is something our Government should know, and the finance people don't know, and certainly the U.P.S.C. doesn't know. The U.P.S.C. methods are such that defence science gets the poorer pick of the young scientists. And you shouldn't push out scientists at 55 or 58—many of them may be doing their best work then. In fact, judges and scientists shouldn't be *made* to retire at all. Their knowledge and wisdom are great social assets. They improve with years. And then, the finance people can't understand the importance of pure research. It took me no little effort to get a scheme through by which we recruited fifty young scientists, paid them Rs 350 a month and told them "Do just what you want." This was excellent investment. 350 rupees is nothing.

Yojana: You mentioned financial rules. Have they held back our defence progress very much ?

Mr Menon: Do you know that the Defence Ministry was the only one that did not have financial autonomy? We took this idea of the predominance of the Treasury from the British and added to it some of the worst features of our own bureaucracy. It is easier in Britain to persuade the Treasury than here. There is a story, perhaps not true, about the Audit. Two Vampires were once out on a survey mission. One of them lost bearings, and the crew recorded in the book that extra gasoline had therefore been consumed. The audit remarked: "Noted that extra gasoline was consumed, but what happened to the bearings?"

Yojana: Your remarks on the financial rules prompt us to ask you: can we achieve the objective of self-reliance through the existing administrative structure ?

Mr Menon: If there is one major obstacle in our path, it is the outlook of some, not all, of our civil servants and military officers. To them nothing Indian can be good. They have in the past stood in the way of our making what we need. Let me tell you, this same Gnat which has given so good an account of itself was opposed every inch of its way when we took up its manufacture. This is true of the MIG also. In fact, there were those who opposed our making the Automatic Rifles. There were those who said we needn't take up the Tank project which is now half way through. Why, I remember an incident when some, by force of habit, insisted on a certain brand of foreign pencil! We might have freed ourselves from British rule and all that but some of our people made a father image out of Britain, and when Britain failed, they make a father image out of the U.S. It is this resistance that is a big block in the way of self-reliance. If we have to become self-reliant the minds must be changed first. If Panditji had not been there and hadn't rammed his ideas down the throats of the "administration" we wouldn't be even here.

Take this whole attitude to indigenous production. The Industry Ministry had the rule of allowing 20 per cent more in cost if produced within the country. The Defence Ministry reversed this principle and said costs should be *less* and not more if it's Indian.

Yojana: You referred to how the Government had to go ahead with some schemes despite the opposition of the officials, who in this case, become specialists. In this case Government was proved right; in other cases the specialists might have proved right. Isn't there a delicate problem of accountability? How is this to be solved in a democracy?

Mr Menon: Democracy doesn't mean making a mess of things. It is the Government which governs, even in a parliamentary democracy. And Parliament criticises. Take our public sector enterprises. There is no reason why a public sector enterprise shouldn't be as successful as any other. A public enterprise *can* succeed provided you give latitude

to the man who runs it, and provided you place it outside Government audit but under commercial audit. Public enterprises should not be under the purview of the auditor-general; because our auditors seem to think their job is to find fault. All this is discussed in the report of the Committee on public enterprises.

Yojana: In the matter of defence production there is a feeling that the Government wants to produce everything itself instead of farming out some of the items among private sector manufacturers. What comment would you offer ?

Mr Menon: Defence production, as I said, isn't based on "ideology". We need not talk of a socialist defence production. If the Defence Ministry produces so many things it is because nobody else does it in our country or does it to satisfaction. One serious lack in our industry is quality control. Because of it, farming out won't work. Defence equipment must *function;* otherwise the life of the fellow is in danger. I am sure our paratroopers would jump to death if our parachutes used the kind of nylon that is under-quality. There just isn't enough integrity in our private sector—with some exceptions of course. Defence specifications are much stiffer than what the civilian consumer demands. Jerry cans that the Army rejects are gratefully bought by the oil distribution companies.

Yojana: How do you ensure higher integrity in the case of defence establishments ?

Mr Menon: Certain amount of integrity is produced by example and inspiration at all levels. I have no hesitation in saying we can meet this problem.

Yojana: And you don't think integrity won't improve in our private sector?

Mr Menon: Not as long as money is the main consideration. But if the producing people become themselves technically minded, standards will gradually improve.

Yojana: But isn't it possible at all to introduce a greater non-governmental element in defence production?

Mr Menon: It can be done and is being done even now. Work is farmed out to families of the employees. Armature winding can be done at home by the women. So can tailoring, finishing and packing. Defence production should not become a means to profiteering and nepotism.

Yojana: What about the universities? Can't a good deal of the research be handed over to them ?

Mr Menon: Go and see the work that is done by the universities, then go to our Institute of Armament Studies, or the Institute of Nuclear Medicine, or the Solid States Physics Laboratory and come back and tell me. I am not saying that the universities are no good. We had given a number of projects to the universities where there were the right men. Some small projects can be given to them, and some problems in pure science, but the bulk has to be done by our own defence laboratories.

Yojana: The quest for self-reliance demands more resources. How can we enlarge our resources ?

Mr Menon: In no country are resources so greatly wasted as in ours. Take buildings. So many of them are used for only six hours a day. Why can't we put them to better use? The training facilities we have are underutilised. Our young men want to improve their skills and we won't let them.

Yojana : One of the things I was wanting to ask you as I came here was : what kind of two-way flow do you suggest between civilian and defence production ?

Mr Menon : The attitude should be one of helping industry to help defence. Everything that defence requires can't be done directly. Then there are a number of processes devised in defence laboratories that will be of use to civilian industry. For example we developed a method of converting old wire into new wire. This know-how was in fact made over to industry. But industry must pay for acquiring it.

Yojana : What do you think of the P.L. 480 grain imports ?

Mr Menon : My views on P.L. 480 are well known. P.L.480 imports have ruined us. They are economically wrong and they are politically wrong. Three-fifths of our currency is in foreign hands. P.L. 480 has discouraged Indian production. They have curtailed the possibilities of our acquiring foreign exchange. They have fed our black market. We should not forget that nobody gives away something for nothing.

Yojana : But without P.L. 480 grain how could we build buffer stocks?

Mr Menon : The whole theory of a buffer stock is meaningless. For an underdeveloped country chronically short of food there can be no buffer stock. It is all current account and no fixed deposit. You can't tell a child : keep the sweets till tomorrow; don't eat it today. You can't expect me to give a short answer to this.

Yojana : If we don't have these imports, can we fill the gap between production and consumption?

Mr Menon : The whole question is how to enable the farmer to produce more and part with more of his surplus. The incentives we usually think of may appeal to the larger farmer; but it is the small farmer we must think of. And the way to make him produce more and sell more of his produce is to enable him to buy those things he needs to live a slightly better kind of life, cloth, bicycles,—the so-called luxuries which are not luxuries at all.

Yojana : This is what Mr Rostow calls the Sears Roebuck approach: make the farmer's wife want to buy more things for the home, and the farmer will grow more.

Mr Menon : Call it what approach you will. We must open shops which sell such simple utility articles in small towns in the midst of rural areas and they will act as an incentive for higher production. To return to P.L. 480, it can take our mora fibre away. It is not compatible with our determination of self-reliance. Self-reliance does not however mean that we tell our Jawan that he must stay there and be shot up until we produce all that he needs. Self-reliance means our capacity for the satisfaction of our wants. This capacity must progressively increase.

Bold and unconventional action is called for. Something more must be done than heretofore, something different from what was done during the first three plans

SELF-SUFFICIENCY IN FOOD
Some Fundamental Requirements

N. D. GULHATI

Member, National Planning Council

Food became a problem in India soon after the outbreak of World War II, more particularly in December 1941 with the entry of Japan into the War. The principle of a "statutory maximum price of wheat" was then imposed, for the first time, followed by "control over movements of wheat between Provinces and between Provinces and States" and "control over futures and option trading". The Foodgrains Control Order was first promulgated in May 1942. The Food Department was established in December 1942 and the first formal Food Conference, held in the same month, was concerned primarily with determination of the surpluses and deficits of different Provinces and States and with plans for the distribution of the surpluses. The Foodgrains Policy Committee laid down in September 1943 that, for the duration of the War, in respect of foodgrains, India must cease to be a net exporting country and must become a net importing country; it urged that, during the following five years, there should be an average annual net import of one million tons with an additional half million tons, in the first year, for a Central Food-grains Reserve. Other measures then suggested to deal with the problem related to procurement, distribution and consumption, price control and improvement of agricultural statistics which the Committee regarded as "most unsatisfactory". In addition, as part of a country-wide "Grow More Food Campaign" initiated in the summer of 1942, emphasis was laid on the use of improved seeds and organic fertilisers, manufacture of chemical fertilisers, expeditious promotion of "such irrigation and drainage schemes as promise quick results", use of agricultural machinery, research, especially that "bearing upon the immediate short-range problems of food production", rules to regulate crop production, cultivation of culturable waste lands and strengthening of the Agricultural Departments in the Provinces and at the Centre.

People's Own Effort Needed

Attention has been drawn to the above-mentioned measures, proposed and undertaken twenty-four years ago, in order to put into proper perspective the drive for self-sufficiency in food launched in the wake of Pakistan's aggression in August 1965 and the hostilities thereafter. Many of the measures that are now being advocated to achieve this goal are not very different from those proposed in 1942 and on which no inconsiderable effort has been put in continuously for more than two decades. Since 1943, as many as nine eminent Indians have held the food portfolio in the Government of India and given their best. A host of foreign "experts" have advised and worked on all kinds of problems connected with food and agricultural production. The First Five-Year Plan, adopted in 1951, aimed largely at increasing food production but, after fifteen years, the Fourth Plan must have the same aim. Recent events have shown that food is still a problem next only to defence and there is a forceful reminder that this problem has now to be resolved, not with the help of imports as during the last twenty-five years, but from within the country and with the people's own efforts.

There have been several calls in the past for increased food production and towards self-sufficiency; but it should be quite clear from past experience that much more is needed than the formulation of a target or declarations by the Government or the leaders of the nation. Also, if the new drive has to succeed, as it must, something more must be done than heretofore, something different from that during the first three Plans. Not that little has been achieved in the past, but whatever has been done, the target of self-sufficiency is still distant. From an average of one million tons annual imports for an undivided India, advocated in 1943, as mentioned above, the actual average annual imports were 2.65 million tons during the five years preceding the First Plan, 2.42 million tons during the First Plan, 3.41 million tons during the Second Plan and 4.44 million tons during the first four years of the Third Plan.

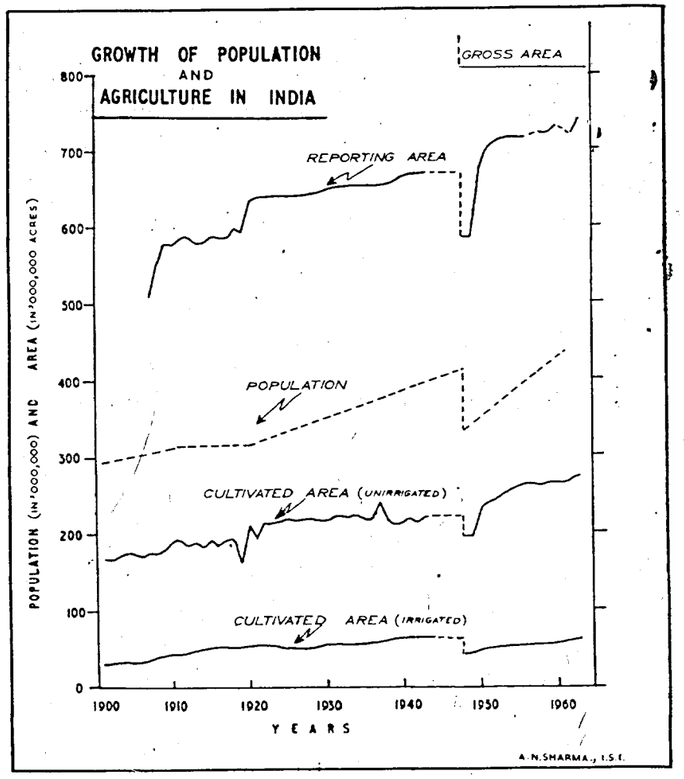
From 1942 onwards, emphasis has constantly been placed on schemes that promise "quick results" and on measures which have a bearing on the "immediate problem". The short-term aspect of the food problem is no doubt vital and must receive full consideration of the Government of the day; but it should be quite clear by now that this approach will not lead to a lasting solution. With our rapidly growing population and inevitably increasing per capita food consumption, we

must not ignore future demands in the interest of the present; otherwise, it will always be a hand-to-mouth situation as it has remained over the last quarter of a century. Taking full advantage of whatever can be achieved quickly but not ignoring the limitations inherent in such schemes, the food problem and agricultural production as a whole must be viewed from the long-term aspect and nothing must be done which would in any way prejudice large-scale and lasting developments. Much more thought is needed than has apparently been given in the past to allocate the available financial resources between the needs of the present and those that will arise a few years hence.

Advantages of Irrigation

It has also to be remembered that food production in India is partly from unirrigated farming and partly from irrigated agriculture. The former is conditioned largely by natural phenomena and, in any given area, the yield varies with the rainfall during the crop period and its distribution during this period. In most parts of the country, such cultivation provides a bare subsistence for the cultivators, the outturn is small and not assured from year to year. For this reason, the cultivator is shy of increasing his "working expenses", whether such increase be for improved seeds, for fertilisers or for other improvements in agricultural methods. On the other hand, irrigated agriculture is relatively secure from the vagaries of nature; the yield is much larger and the cultivator can look forward to an assured return for his labour and investments in land forming, drainage, seeds, fertilisers, insecticides, etc. A substantial part of the yield from irrigated lands finds its way to the market. While the qualitative difference between irrigated and unirrigated cultivation, as described above, is well understood and is responsible for the general desire for extension of irrigation facilities in all parts of the country, little information is available of the quantitative role of the two kinds of agriculture in the total food supply and agricultural production in the country. Immediate steps must be taken to gather this information, regularly, as an element essential for proper planning.

Some insight into the food problem of the country and into the results of the efforts so far undertaken to increase food and agricultural production can be obtained from a study of the above diagram showing the growth of population and agriculture in India since the early years of this century. It will be seen that, since independence and up to 1962-63, during a period of 15 years, whereas population increased by about 31 per cent, the increase in the net area irrigated, from all sources, was about 34 per cent*. In the same period, the apparent increase in unirrigated cultivation was about 37 per cent; apparent because a large part of this increase immediately after 1949 is obviously an increase only in the recorded figures corresponding to the increase in the reporting area; the actual extension of cultivation into new areas during this period may perhaps represent an increase only of 15 to 20 per cent. Much greater efforts must, therefore, be made than in the past to break new lands for cultivation and to develop new sources of irrigation.



It has been stated earlier and is well recognised that irrigated agriculture gives much larger yields than unirrigated cultivation and that the former responds much better than the latter to all improvements in agricultural practices. But it does not seem to be fully appreciated that irrigated agriculture is, in several respects, fundamentally different from rain-fed cultivation and that, for maximum results, the former requires expert supervision at all times, to deal with the problems peculiar to it, and an integrated approach by different disciplines—irrigation and drainage engineer, agronomist, soil-specialist, etc.—not only at the planning stage but for all time. In spite of all that has been done during the first three Plans, neither has the cultivator adequately been provided with the expert supervision referred to above nor has it been possible to bring about any co-ordinated approach by the large

(Continued on Page 8)

Excellent co-operation among public enterprises in Ranchi. Ninety per cent of mining equipment can be made within.

Self-Reliance in Equipment & Spares

COAL CORPORATION MAKES PROGRESS

S. T. RAJA

Managing Director, National Coal Development Corporation

THE recent Pakistani aggression and the various problems arising therefrom have necessitated an urgent reappraisal of our policies and programmes whether they are in the field of diplomacy, agriculture, industry or economic development. What is of prime importance to the country at the present juncture is a strong and solid base for national defence on the one hand and reduced dependence on foreign countries for food or finance on the other. This, naturally, calls for a new spirit of self-reliance all over the country by harnessing indigenous talent and material for the best possible national use. This situation is by no means easy but in its present mood the nation is determined to go ahead. This spirit, happily, is perceptible today in all the sectors of our national life and steps are being taken to reduce our dependence on imported food equipment and spares. While dependence on imports to a certain extent is inevitable and no country in the world is entirely self-sufficient, the idea is to bring down imports and stimulate exports to such levels that a proper balance between the two can be maintained.

So far as the National Coal Development Corporation is concerned, the gravity of the foreign exchange situation was realised earlier and serious efforts were started in various directions in May 1964 to reduce the foreign exchange content of its programme. Being the largest producer of coal in the country with a high degree of mechanisation, the NCDC has considerable equipment for open-cast and underground mines which had to be imported from different countries depending upon the availability of foreign exchange at the time of imports. This equipment varies from country to country and from operation to operation. The major problem before the N.C.D.C. has for some time been the maintenance and operation of this equipment at a high level of efficiency. This naturally requires adequate supplies of spare parts at all times in accordance with the specifications of each individual machine. This is sought to be achieved in the following manner :

SPARES:

1. The Central Workshop of the N.C.D.C. at Barkakana (about 56 kilometres from Ranchi) has taken up manufacture of a large number of spare parts and retreading of giant tyres which have to be imported. A museum of spare parts has also been opened at this workshop so that private foundries and engineering firms could get all the information to enable them to taking up such manufacture.

2. The Mining and Allied Machinery Corporation at Durgapur has been given a long list of spare parts together with samples and, wherever possible, working drawings of spare parts in order to enable them to manufacture and supply these parts. A firm order has also been placed on them.

3. The Heavy Engineering Corporation at Ranchi has also undertaken to manufacture certain bigger spare parts of machines like shovels together with the manufacture of the equipment itself.

4. The Engineering Association of Calcutta and other private firms have been furnished details of spare parts required by the N.C.D.C.

5. Wherever necessary, they are being given long term contracts at prices comparable to landed cost of imported spare parts so that they are assured of a fair price and a long-term market.

6. A cell for the manufacture of spare parts has been created in the N.C.D.C. and similar cells have been set up in the Mining and Allied Machinery Corporation and the Heavy Engineering Corporation. Close contact is being maintained between these cells of the three undertakings, and, happily, the closest co-operation, co-ordination and identity of outlook prevails at the top level of all the three corporations.

EQUIPMENT:

The equipment in the N.C.D.C. can be broadly divided into the following categories :

(a) Heavy earth-moving equipment such as drag-lines, shovels, dozers, dumpers etc.

(b) Underground mining equipment such as coal cutters, loaders, conveyors, crushers etc.

(c) Washery equipment for washing of coking coal and reducing its ash content before utilisation in steel plants.

(d) Coke oven and by-products equipment for further processing of coal gases.

As regards the heavy earth moving equipment, the Heavy Engineering Corporation is taking up very soon the manufacture of 4.6 cu.m. shovels. The capacity for building smaller size shovels and other heavy earth moving equipment is being developed in the country; but this will take some time and in the meantime imports may be unavoidable. The Soviet Union has been the principal supplier of this equipment lately,

wing to paucity of foreign exchange rom U.S.A.

As regards underground mining quipment, the Mining and Allied Machinery Corporation at Durgapur s rapidly developing manufacture of practically all the items required or deep mining including winding quipment. If the plans of the Mining and Allied Machinery Corporation materialise according to schedule the mining industry in India would probably find that nearly ninety per cent of the imported equipment can be substituted by indigenous manufacture.

As regards washery equipment, three washeries are at present being constructed by the N.C.D.C. under the Third Five-Year Plan : one at Kathara with a capacity of 3 million tonnes of raw coal input per year is being constructed with Soviet collaboration, and the other at Gidi with a capacity of 2.8 million tonnes of raw coal input is being constructed with Polish collaboration. The construction of the third washery at Swang has been entrusted to an Indian company which will receive some German equipment.

The Fourth Five-Year Plan provides for five more washeries which are proposed to be constructed through the Mining and Allied Machinery Corporation; they are making all the preparations for undertaking this job on a turn-key basis. Whatever imported components would be required for this programme, and these would not be many, would be arranged by the M.A.M.C.

As regards coke ovens and by-products equipment, this is also proposed to be manufactured at the Heavy Engineering Corporation, Ranchi, on the basis of the designs and project reports furnished by the Central Engineering and Designs Bureau of Hindustan Steel Ltd. It would thus be not only an indigenous effort from beginning to end, but also a public sector effort between the three public sector organisations mentioned above located at Ranchi.

QUOTATION BOX

One unexploded bomb is still lying in the (Halwara) airfield as the Accounts Department would not sanction the employment of a demolition squad.

—Mr. K. Rangaswami in "The Hindu"

When an idea gets hold of Delhi, Delhi persuades itself that it is good for the whole country, and thereupon begins an unvarying process of highminded exhortation, not-so-high-minded cajolery, some bullying and large-scale bribery. Every State finally succumbs.

—Professor V.V. John in "The Statesman"

The ruling party may be wedded to democracy, sadachar and what not, but like some husbands the ruling party is living apart from what it is wedded to.

—Prof. Hiren Mukerjee, M.P.

The tyranny of colonialism still persists in the guise of the audit code and the here-we-go-round-the-mulberry-bushism that lies entrenched in the dim corridors of the secretariat and wherever else officials and Ministers gather to proliferate paper in neat files bound in red-tape, evading decision.

—"The Times of India"

You must follow the footsteps of your forefathers who in spite of enormous riches looked like grocers.

—Mr. Jaya Prakash Narayan to businessmen

Dr. Radhakrishnan suggested an improvement on the old formula—"My country, right or wrong." According to the new values emerging before humanity, we should take to a new slogan, "Our country, let it always be right," he said.

—Report in "The Hindustan Times"

Service No.-6 Ltd operating between Electric House and Atomic Energy Establishment was converted into an ordinary service No. 6.

—Bulletin of the Bombay Electric Supply and Transport Undertaking

People concede to me intelligence, influence, insight, *et cetera*, even patriotism, but refuse to concede that for these very reasons my view may possibly, if not probably, be the correct view.

—C. R. in "Swarajya"

In the perspective of his seven-year rule, Ayub has missed his opportunity to put welfare ahead of warfare.

—Dr John E Owen of Arizona University

It is too early to erect arches of triumph. What India needs today may be arches of travail.

—"Now" magazine

"Before Liberation," explained the vice-director of the handicrafts factory, "there was no art in China." "Since Liberation," said the modern dealer, "reproductions are as good as originals."

—Prof Hugh Trevor-Roper after a visit to China

Of all German couples married since the second World War, more than one in ten were brought together through classified advertisements and by the nation's 260 professional match-making agencies. But before they (the partners) meet, the latest machinery in electronic data processing has often times been brought into action.

—From article on "New Vogue of Marriages by Computer" in "The Hindu"

N. D. GULHATI *(Continued from Page 6)*

co-ordinated approach by the large number of departments both in the States and at the Centre which deal with irrigated agriculture. Production is therefore much below the optimum. If anything, the number of departments and organisations concerned with this task has grown in numbers and several committees intervene. Unless steps are taken to deal with all problems relating to irrigated agriculture on a functional basis, it would be difficult to get satisfactory results. The hydrologic unity of each river basin must be recognised in the organisational set-up; major, medium and minor schemes, private tanks, tube wells, percolation wells and private pumping units in a basin all draw upon the same source of water and should, as far as possible, be regarded as part of an integrated system. It is not enough to know how much water is stored in a reservoir, or diverted to the land or even the extent of land area that is irrigated; the overall criteria should be the gross production from a given area and a given water supply and the resulting position of the sub-soil water table and the salt balance in the soil profile. The sooner the organisational set-up is oriented to give due attention to all these in an integrated and scientific manner, the earlier can the country look forward to a solution of its food and agricultural problems. Some bold and unconventional action is called for.

Bhopal shows how nation has to overcome lack of facilities and know-how in a field where the standards are exacting.

INDIANISATION OF DESIGN
Heavy Electricals' Steady Advance

K.C. LALL
Managing Director,
Heavy Electricals Ltd.

HARDLY a decade ago India decided to enter the field of manufacture of heavy electrical equipment required for her power development schemes. The construction of the first factory for building a variety of highly sophisticated power equipment began at Bhopal during the Second Plan period.

Being the spearhead in the field of design and manufacture of such equipment in the country, the Bhopal factory obviously had to face numerous intricate problems inevitable in such a highly specialised industry. These problems included non-availability of technical personnel with mature experience in the design and manufacture of heavy electrical equipment, non-availability of the bulk of the raw materials and a shortage of capacity in supporting industries capable of producing components and equipment for this complex and precision demanding industry.

It was against this background that the Bhopal factory initiated production activities in a limited way in the latter half of 1960. In the course of last five eventful years incessant efforts have been made not only to meet some of the requirements of the country for heavy electrical equipment, but also to build up a cadre of technical personnel competent to tackle design and manufacturing problems independently. The factory has also been attempting to develop indigenous potential for meeting the special requirements of raw materials and components. These efforts are a continuous process. Their success depends largely on the pace at which technical skills mature and feeder industries get established. It is in this context that the problem of self-reliance in the design and manufacture of heavy electrical equipment or, in other words, the process of Indianisation in heavy electrical equipment has to be examined.

The heavy electrical industry is new to the country and, as such, in the initial stages of its development, it has to lean heavily on foreign countries not only in regard to design and manufacturing techniques but also for a large portion of its requirements of raw materials and components. While in the advanced countries of the world the sources of supply for such industries are plentiful and easily accessible to them, we have to develop indigenous suppliers for our specialised requirements before we can grow to our full stature. The design and manufacturing techniques learnt from our British collaborators have to be suitably adapted to Indian conditions.

Do Away with Imports

The manufacturers of heavy electrical equipment have to make their debut by persuading customers to accept equipment with minor deviations in the collaborators' designs and manufacturing techniques which are made with the object of making maximum use of available indigenous resources. Imports cannot be eliminated in the manufacture of heavy electrical equipment at the very start. Efforts have therefore to be made to reduce the imports to the minimum at all stages of development by substituting indigenous materials.

In the initial stages, development of indigenous potential is costly because of development costs. This is a long-term investment which will give returns in course of time. The extra cost in the early stages has to be borne by the country. Unless such development costs are borne now, the country would have to continue to depend on imports indefinitely. The Bhopal factory, still in its initial stage, is striving hard in that direction. It is indeed an uphill task for a highly sophisticated industry which is situated in an industrially backward part of the country and which need supplies of thousands of items made of special or proprietory type of materials. Practically all these materials are based on the much more highly developed industry in the U.K. The change-over from the foot-pound-system to the centimetre-gramme-system (CGS) in India has added further difficulties because all our British consultants' designs and specifications have to be modified before use.

The design and manufacture of highly sophisticated electrical equipment at Bhopal has been undertaken in the face of certain inherent limitations. Being the first industry of its kind in the country, staff of all categories have yet to attain maturity in the skills required. This requires long experience under actual working conditions and cannot be provided by mere training, however well-planned it may be. Unlike their counterparts in advanced countries of the world, our staff have had no opportunity of sharpening their skills by rubbing shoulders with more experienced staff or by taking advantage of the experience of their predecessors.

The very exacting specifications of the materials, the inadequacy or non-existence of facilities to carry out proving tests on materials and altered designs and the reluctance

of the customer to take a risk by accepting even minor deviations in material specifications and designs are some of the other handicaps under which this new industry has to grow in the country. Consequently there is no alternative but to borrow in entirety or lean heavily on the designs of the foreign collaborators in the initial stages of development.

Indianisation of Designs

With the development of skills in particular products, the engineers of the Bhopal factory have started designing some equipment themselves and the need for advice from the technical consultants grows progressively less. Thus they have gone ahead by independently undertaking the design of power and instrument transformers including tap changers and bushings with ratings upto 75,000 KVA in the 132 kV class. Also two standard designs of transformers of still higher ratings in the 220 kV class have also been made at Bhopal with the assistance of our consultants. In switchgear, the process of Indianisation in respect of design would be accomplished soon after the switchgear testing station, now under construction near the factory with aid from UNESCO, is commissioned. *The commissioning of this testing station will be a landmark in the process of Indianisation in switchgear design.*

The process of Indianisation of designs and manufacturing techniques is being carried out continuously in the Bhopal factory with the object of making maximum use of indigenous raw materials and components. Most of the products manufactured in this factory are custom-built in accordance with specifications agreed to with the customers. In the efforts for import substitution Bhopal engineers have to continuously make use of available facilities in their testing laboratories for testing samples of indigenous materials. *The substitution of Hot Rolled and Pickled and Oiled (H.R.P.O.) sheet steel by ordinary black sheet steel, and experiments and tests being undertaken to substitute copper by aluminium are two instances.* Bhopal engineers have also to ensure that the suppliers are able to deliver materials to the specified standards consistently and within the scheduled delivery periods.

These design engineers have to be in constant touch with various Indian research institutions for the substitution of imported materials with indigenous raw materials. In certain cases indigenous materials have already been established, e.g. indigenous wood as a substitute for Yugoslav beach wood and indigenous materials for springs, pressboard and paints. Discussions are under way with research organisations for substitution of other materials like shellac and allied products for insulation manufacture, Kaffer cement for cementing metal components to porcelain, butyl rubber (used for current transformers) and substitution of copper conductors with aluminium conductors.

With a view to further intensifying the import substitution drive, an Import Substitution Cell has been created in the factory. The manufacturing divisions have prepared a complete list of critical imported items for exploring possibilities of replacing them by indigenous items.

Indigenous Materials

The Heavy Electricals is a jobbing industry. The raw materials for such an industry are mostly the finished products of some other industries, e.g. finished steel, copper extrusions etc. Not only are the raw materials and components required for this industry of a specialised nature and of rigid specifications but they also vary with the nature and capacity ratings of the products. Non-availability of raw materials in the country and insufficient indigenous capacity for available raw materials and components are severe handicaps under which the heavy electrical industry in India has to develop. The magnitude of the problem can be gauged from the fact that thousands of such items are required for the Bhopal factory alone.

The problem, therefore, for the heavy electrical industry, still only an infant itself, is not only to develop itself into maturity but also simultaneously to assist in the establishment and growth of essential feeder industries. There is no way out of this dual responsibility because the pace of progress of the heavy electrical industry is dependent on the pace at which the indigenous manufacturers of raw materials and components develop. The faster we develop in these two spheres the sooner we will achieve independence from imports.

With a view to assisting in the development of indigenous potential for components and raw materials, the Bhopal factory is making available the technical know-how and testing facilities to existing and prospective indigenous entrepreneurs. Assistance is given, wherever possible, in procurement of raw materials of required quality. Efforts are also being made to make the maximum use of indigenous resources by making minor modifications in design with the object of maximising the use of available material. Over 350 factory standards have already been issued on various aspects like raw materials, industrial fasteners, design data, etc. Variety in sizes and dimensions is being reduced to the minimum depending upon the availability of materials and components to metric standards within the country. It is also our endeavour to bring as many of our material specifications as possible in line with the Indian standards for whichever material they exist.

For want of adequate experience in the manufacture of specialised components and materials, indigenous materials tend to be inconsistent in quality. Technical assistance is given to the manufacturers to improve quality and they are also invited to Bhopal for on-the-spot study and better understanding of our complex requirements. In this process of give and take every effort is made to accommodate each other's difficulties and limitations. Wherever necessary in the larger interest of the industry, standards are relaxed but with caution so that the quality and reliability of the Bhopal Factory's products do not suffer.

All these efforts aim at speeding up the process of self-reliance in an industry which is of basic and strategic importance to the country. While we continue to be bedevilled with numerous intricate problems, the many similar problems already solved have built up confidence. The growing spirit of self-reliance, which is the key-note of current thinking in the heavy electrical industry, augurs well for the future. The pace of progress will depend on how purposefully this spirit of self-reliance is harnessed.

HOW TO ACHIEVE FOOD SELF-RELIANCE AT BLOCK LEVEL

Fertilisers & seed for specific programmes; Repayment through grain; Guaranteed sale to families during lean months

M. Y. GHORPADE
Member, National Planning Council

THE Prime Minister has given us the call of "farms to back arms". What should be done to translate this vital message into action? There is great need to give practical content to this question and draw up an operational strategy.

Better production and better distribution of food-grain form two complementary parts of this strategy. P.L. 480 imports are more a measure of our inefficiency in distribution than of dire physical deficits. Taking the country as a whole, and at existing levels of nutrition, we can do without imports of grain if only all the State Governments really subscribe to a national food policy, based on the principle of per capita equality in the availability of food. This implies a scientific assessment of State-wise deficits and surpluses and its effective equalisation through an automatic, agreed process. A compulsory levy at a purchase price, fair to both the producer and the consumer, has already been suggested for this purpose.

A statutory maximum price, at which the Government is not able either to purchase grain in the open market or to supply it to the consumers, has no meaning and can cause great hardship to the consumer. In a situation of scarcity, a maximum price cannot be implemented in an otherwise free market. It brings in its wake unnatural restrictions and corruption defeating its own purpose.

It is well known that prices of food-grains during the lean period of three to four months every year are almost double the harvest prices. In the last two years, the price of jowar during the lean period in Mysore State ranged from 80 to more than 100 paise per kg as compared with 50 to 60 paise per kg immediately after harvest. The cost of stocking grain for a period of about nine months in a co-operative society godown cannot be more than about 10 paise per kg including local transport interest and administrative charges. The rest of the difference between the harvest and lean period prices represents the trading profit which could be cut down. The problem of non-availability of grain during the lean periods even at high prices in the rural areas can easily be solved by stocking sufficient grain at the *taluka* or block level for distribution during the lean months. In Sandur *taluka* (Bellary district Mysore State), the Taluka Marketing Society, which stocked about 2,500 quintals of food-grains in the post harvest months, has been able to introduce informal rationing for a rural population of approximately 50,000 by issuing family ration cards to every family through the village panchayats and the co-operatives, and guaranteeing a supply of ½ kg per week per person, including children, for a period of ten weeks. It was able to issue jowar against family ration cards at 70 paise per kg when the market price was about 90 paise per kg and when, even at high prices, grain was not readily available. Some jowar was purchased by the marketing society at Rs 60 a quintal when the market price was Rs 70 on the condition that this grain would be kept for the specific purpose of local distribution. Every village was allotted, for distribution on a family card system, 5 quintals of food-grains per week for every thousand of its population. If on a family card there were ten persons, the card holder could take his quantity of 5 kg on any day of the week. This eliminated the need for queues and nervous, disorderly grabbing of available stocks.

A rather explosive situation was brought into control in this manner last year. Those producers or traders who were holding stocks in order to maximise their profits had gradually to bring out their stocks and lower their prices. From our experience at Sandur, it is obvious to us that any *taluka* marketing society which stocks some 5,000 quintals of grain at harvest time for distribution during lean months to a population of

about a lakh can easily hold the price line and give tremendous security and satisfaction to the people. Self-reliance implies basic self-sufficiency. Co-operative finance of about Rs 2 to 3 lakh for each community development block or *taluka*, as key loan for this purpose, is quite sufficient. And a storage capacity of about 5,000 quintals for every lakh of rural population at the *taluka* and district level is also well within our reach.

Repay Loan in Grain

Such a purchase-and-distribution programme can be effectively linked with increasing production. All that we have to do is to insist that the cultivator returns the co-operative agricultural loans, including the value of such scarce inputs as fertilisers, good seeds and insecticides, *in grain* at Government rates, i.e. the purchase rate fixed for purposes of the compulsory levy (assuming of course that this purchase price is not very much below the harvest prices and is fair to both the consumer and the producer). The economics of these operations are quite simple. Take for instance hybrid jowar. Crucial inputs such as hybrid seeds (5 kg per acre), fertilisers (Rs 100 to 150 an acre depending on water facilities), insecticides etc., of the total value of about Rs 200 to 250 an acre can increase production by about 10 quintals per acre, under conditions of assured and timely rainfall (about 30") or light irrigation. With hybrid jowar seed (CSH-1), some farmers in Sandur were this year able to produce 15 to 20 quintals per acre as compared to 5 to 10 quintals previously. The yield on one acre in my farm was 26 quintals with well-irrigation and fertilisers. Even 30 quintals an acre is not impossible under ideal conditions. With CSH—2 hybrid *jowar*, it would be possible to grow 40 to 50 quintals per acre. A farmer who has been enabled to achieve such high yields by timely supply of crucial inputs will not grudge parting with some 4 or 5 quintals of his produce at Government levy rates (apart from the grain levy which everybody has to give) by way of returning the agricultural loan including the cost of inputs. If even about a 1,000 acres are taken up under this intensive, integrated programme in each development block, it will be easily possible to get some 5,000 quintals at Government rates for distribution in the block during the lean months.

Such an intensive, integrated programme for about 5000 acres, on an average, for a population of every one lakh or one community development block, will make a quick and significant impact on both production and distribution. Hybrid jowar, bajra and maize, including improved varieties of ragi, could be taken up in the predominantly millet producing areas, preferably under well-irrigation and conditions of reasonably assured rainfall. Such an intensive millet programme in about half the number of development blocks in the country (on the same lines as the package programme in the paddy areas) would involve about 10 million acres for 20 crore of people on the basis of 5,000 acres for every lakh of population. The fertiliser needed, at an average rate of 2 quintals per acre, would be only about 2 lakh tonnes. The resultant increase in yield, at the rate of 10 quintals an acre, would be of the order of 10 million tonnes. If we got grain from this increased production to the extent of even 4 quintals per acre, in return for an agricultural loan and input assistance of Rs 200 per acre, on an average (which works out to Rs 200 crore for 10 million acres), it would amount to about 4 million tonnes of grain for planned distribution. It will work out to one kilogram per head per week for a period of 10 weeks for a population of 40 crore. It means half a kilogram per head per week for 5 months (20 weeks) for the whole country, or for 10 months for half the population mainly dependent on these coarse grains. As already stated, this is not a full ration but a crucial minimum distribution on a per capita family card basis, to hold the price line.

As a matter of fact we should adopt a general policy of grains in return for all agricultural loans and inputs. The village co-operatives could advance loans and supply crucial inputs such as seed, fertilisers and insecticides on the condition that the farmer follows the cultivation practices recommended for the area and closely supervised by the village level worker (as in a Package Programme district) and agrees to repay the loan and the cost of inputs in grain at the agreed rate. The grain so obtained could be deposited in the *taluka* marketing society, which could pay cash, enabling the village service co-operative society to return the loan it has taken from the district central co-operative bank by way of short-term loans and cash credit facilities.

Taluka marketing societies and large-sized service co-operatives have godown facilities. These could be supplemented by certified local storage facilities. Indigenous methods of storage which have stood the test of time should be suitably adopted for this purpose. Underground grain pits are still the best known and the cheapest method of storing jowar. We must get out of the habit of thinking of the food problem only in terms of wheat and rice. Greater emphasis must be placed on the production and distribution of coarse grain, which is the staple food of the bulk of our people, especially the poorest sections who labour hard on land and suffer most.

Timely Supply

Such an operational strategy will immediately make us more input-output conscious, which is the need of the hour. Scarce inputs, especially fertilisers, must be used to maximum benefit. At present the growers of food crops find it extremely difficult to get fertilisers in time and in relatively reasonable quantities. There is an imbalance with regard to the supply of fertilisers, crop-wise and region-wise, and quite a bit goes into clandestine channels at exorbitant rates. Growers of cash crops such as sugarcane are in a much better competitive position to purchase available fertilisers. What is to happen to the food crops? Hence the need to allocate fertilisers towards specific programmes on a priority basis.

Similarly, there is great scarcity of hybrid jowar, bajra and maize and other improved seeds. Much has been said about the wonderful Mexican wheat seed. But how long will it take for this seed to travel from Delhi to the States and then to the progressive farmers? In Mysore it was authoritatively stated that the hybrid jowar seed being produced in the State for the next *Kharif* season would suffice for only 10,000 acres which does not cover the

(*Continued on Page 16*)

New Priorities

Some Suggestions

K. B. MATHUR

THE uneasy 'Cease Fire' and the international political pulls that are being exerted on our nation bring home to us the urgent need of self-reliance. It has been unanimously recognised that our defence should be given new dimensions through our own efforts and our own agencies. In this endeavour, optimum use of existing potential is the first *must* and reorientation of further development to foster this objective is the second *must*.

The nature of defence requirements and the industries which can serve this purpose are fairly well known. A detailed suggestion on how we can optimise the existing potential has been given by me in a recent article in *Yojana*. Long-term objectives can only be covered by a reappraisal of the Fourth Plan. The Government is already engaged on the task and presumably will tackle the problem in stages as the situation unfolds and develops.

Cowdung only for Manure

FOOD still remains the priority of priorities, because the sustenance of a massive population cannot be left to chance. We cannot rely on continued import and run the risk of dependence on the whims of others. We must, therefore, make an earnest bid to cover the deficiency estimated at 8 to 10 per cent of the indigenous output—certainly not an insuperable task. While taking action to develop modern implements of agriculture, irrigation facilities, fertilisers, etc. we must, as an immediate solution, fully explore the potentialities of conventional methods. Conservation of cowdung for manure and its substitution by low-grade coal, at least in areas easily accessible to Railways, seems vital, unless economic considerations intervene in an overwhelming manner. In any case, we have to make up our minds, once for all, that we shall do without import, come what may.

In the industrial field, where should the emphasis lie ?

The highest priority naturally belongs to the production of SPECIAL QUALITY STEEL, including alloy steel plates, sheets, billets and tubes which constitute the basic raw materials both of defence and other important needs. A number of schemes covering them have already passed through the planning stage and foreign exchange allocated for them. The rapid execution of such schemes should now be our goal.

The second essential is expansion of PIG IRON production to cope with important needs.

Considerable thought has been bestowed on the target for steel production and the present is no time to rake up this issue. But the compelling need for conservation of finances impels rethinking. The fifth steel plant for which no commitment has been made may be deferred and developments ancillary thereto may be held up for the present. Planning work, however, may continue, so as to avoid any delay in its execution, should it be so decided.

High priority must also be assigned to development of capacity for high quality ALLOY STEEL CASTINGS AND FORGINGS which are needed both for defence and for other important industries. The Central Foundry Forge Plant falls in this category.

Then I would list the development of ALUMINIUM and ZINC production. Both are important raw materials, and have export possibilities.

Development of the HEAVY ELECTRICALS and HEAVY ENGINEERING sphere already contemplated is of immense value. The equipment for these industries, on the import of which there is a commitment, should be secured as quickly as practicable. In regard to the Hardwar plant, preference should be given to the equipment for manufacture of thermal units. These units can serve the defence requirements as well, if need be.

The expansion of the High Pressure Boiler Plant at Tiruchi, which has been provided for during the Fourth Plan, should now proceed as it can serve diverse needs including defence and chemical industries.

Should the exigencies so demand, the development of the machine tool industry may be deferred. Gaps which we should like to cover, such as sophisticated tool grinding machines, precision tool making machines, gear cutting machines, may be left over without serious detriment, unless some of it can be arranged within the existing framework.

The Instrument Factory at Kotah and its counterpart in Kerala are important adjuncts to other developments and should be speeded up.

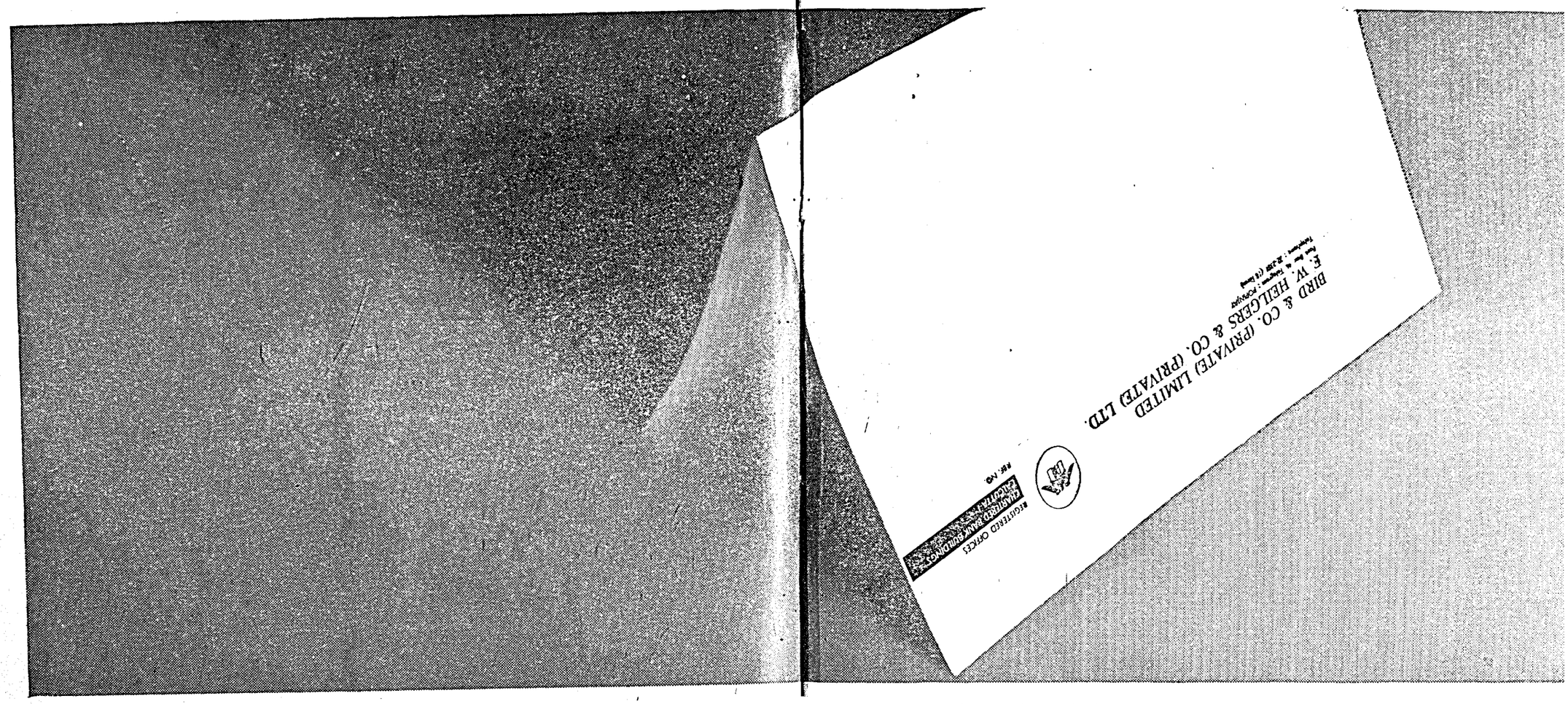
Expansion of the capacity for the manufacture of EQUIPMENT FOR CEMENT, SUGAR AND CHEMICAL industries is related to the development of these industries which are basic ingredients of overall growth. Emphasis, however, should be placed on the development of existing units so as to avoid multiplication of consultants and additional commitments on preliminaries.

Commitments with Caution

Besides these, there are commitments in regard to a number of other industries, and their foreign exchange has been covered. Unless there are overwhelming reasons to defer any of them, they may be allowed to proceed.

Fresh commitments, however, must be viewed with caution. Not only the capital goods but the recurring imported raw materials and

(*Continued on Page 16*)



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components should also be taken into account in considering them.

Small-scale industries, most of which are independent of imports, should not be held up as they serve a variety of social purposes.

Production of luxury goods for home consumption will naturally have to be circumscribed and we must be reconciled to this until the return of more propitious days.

Development of ORDNANCE FACTORIES is obviously fundamental, but this will have to be conditioned by the availability of the requisite equipment. Should it be necessary to find free foreign exchange for this purpose, we should examine whether the matching task can be executed elsewhere. It is, however, difficult to draw a rigid line, and things will have to be determined on merits.

Reappraisal of Transport, Communications & Power

Once the ideas on the important directions of development have crystallised, a reappraisal of Transport, Communications and Power based on essentiality might be attempted. Because of financial stringency, these money-consuming sectors will have to condition their thinking to austerity without prejudice to the strategic needs which are fairly localised. More intensive use should be made of the assets by improving operational efficiency. The public will have to reconcile itself to some sacrifice inevitable in the exigencies. Passenger amenities and new lines may be held up. But rural electrification, which is linked with agriculture and small-scale industries, should have some preference.

OIL EXPLORATION and development of REFINERY CAPACITY, which have strategic value, should also go through to the extent foreign credits permit.

Tapping of Export Avenues

High in the list of priorities, although mentioned last, are export-oriented and import substitution activities. Agriculture has a significant role to play in this field. Cotton and jute, which make a substantial call on foreign exchange, must cease to be a drain. Sugarcane production can add to sugar export. Higher production of oilseeds can also enhance the contribution they make to exports. Ores are another important source of exchange. One need not enlarge upon this theme. Whatever avenue of export shows promise should be tapped with vigour, irrespective of the demand it might make on restraint in consumption on the home front. *Price*, *Quality*, *Service* and *Salesmanship* are the keys to the success of the export drive.

Because of the uncertainties in the political climate it is difficult to foresee how alignments will change and aid will flow. The picture of foreign credits and imports is therefore nebulous. We can only count upon what is in our hand. Immediate commitments can be made only in accordance with what we have. Strategic raw materials, hardware and components must, however, be stock-piled whatever be the sacrifice.

To conserve domestic money resources, not only a well-organised savings drive, but other energetic measures are necessary. *Ad hoc* cuts should be made in all Government Departments consistent with the need to maintain a balance in the economy. State Governments should be asked to follow suit and the public too should be persuaded to observe austerity. Perhaps a black-out once a week in every large town would be a beneficial exercise.

This is how we might order the realignment of the forces of development for the present. As we move on, and see more light, further readjustment can be considered. What is needed most at this hour is action. The will of the nation has to be further steeled in the furnace of sacrifice. COME WHAT MAY should be our motto.

FOOD

DISTRIBUTION (*From Page 12*)

jowar acreage even in one development block out of about 100 jowar-growing blocks or *talukas* in the State. Why cannot each block be enabled to have a hybrid seed producing farm? Twenty-five acres in each community development block could easily produce hybrid seeds sufficient for 5,000 acres. Adequate supply of parent seeds for supply to progressive farmers in a position to produce hybrid seeds should get the highest priority. This is merely a question of efficient organisation. There are no technical and scientific problems or bottlenecks. But this obviously cannot be done on an adequate scale (i) if we are going to waste a lot of valuable time before we take positive administrative steps in setting up these nucleus seed producing farms; (ii) if we are not going to train persons in the simple techniques of growing hybrid seed, at least at the rate of one person per block; and (iii) if we are not going to trust the progressive farmers to produce the hybrid seed in each community development block. Should this not receive the highest priority? So also, the supply of a bore well unit and a tractor to each block on a hire purchase basis would be a great help in solving the problem of food on a war footing. Community wells and State tube wells and rural electrification on a massive scale are essential for this purpose.

This is a practical plan of achieving block-wise self-sufficiency in food, by using a part of the purposively planned increase in food production to solve the distribution problem, and holding the price line by assuring every person a minimum supply. Half a kg per head per week is by no means a full ration but it has some minimum relationship to the real purchasing capacity of the poorest sections of the people for food-grains. These quantities could be gradually increased depending on local effort and need. The richer sections can supplement this meagre ration by purchases in the open market. Moreover, everybody benefits by the effective maintenance of a reasonable price level. The scheme would operate as a minimum guarantee against starvation and put new confidence in the people. If this is done, the rural people will co-operate enthusiastically with Government in their general levy of food-grains, which is necessary to ensure adequate supplies in cities and labour areas throughout the year and for inter-district and inter-State equalisation. It will activate the extension service staff, village panchayats and co-operatives by placing before them a specific programme with dynamic content. It can become a movement in no time.

Growing to Eat

A person we know has taken the call for growing vegetables at home seriously and not with the levity with which most Delhi people have done it. He has a flower garden in his house, and now he proposes to make these changes in his cultivation plans :

Instead of	*grow*
Bougainvillaea	Brinjals
Roses	Chillies
Marigolds	Coriander
Hollyhocks	Bhindi
Phlox	French beans

Power of Pictures

AN old newspaper maxim says that a picture is worth ten thousand words. Good pictures are worth even more, and poor pictures aren't worth even one.

Earlier this year the President of the United States acknowledged the power and importance of pictures in a characteristic way. He named a group of outstanding photographers to look at the pictures released by Government agencies. From those recommended by the group, the President would choose one.

The institution of "The President's Choice" has been acclaimed by the world of photography. One of the choices is shown below.

When announcing the decision, Mr Johnson had said: "Photography can show with peculiar power that we are concerned with human beings, not statistics." Here is a good guide for all governmental publicity.



Miss Bernadette Pieza, a U. S. Peace Corps volunteer, holding a baby in a hospital in Sousse, Tunisia. This picture became a President's Choice recently.

Lotus Days

ON the morning of October 29, the news item that rated the highest readership in the capital's newspapers was the list of holidays for 1966.

The announcement said there will be 16 "closed" holidays in the coming year. (What are the open holidays? By any chance, is that how a working day is called?)

A few people we know spent a full hour calculating on what days in 1966 they should apply for casual leave. January 25 and May 3 are going to be hot favourites. Both are Tuesdays sandwiched between two holidays; and by taking a day's leave one can enjoy four days of respite from the difficult exercise of going to office.

October was a month of holidays. Besides five Sundays, there was a second Saturday and four other "closed" holidays in addition to a "restricted" holiday.

Now that the war has proved that we *are* secular, can't we afford to be secular in our holiday list also? And what is the nature of an emergency that asks Government servants to work only on 20 days out of 31?



IGNORMAN

Wants to Know

After Cease-fire

What?

Cease-Speech?

Code for Letters

EIGHT years ago, after a conference of State Education Ministers, the Government of India announced its preference for a Devanagari alphabet. Instead of ञ it wanted ञ; instead of क्ष it wanted क्ष. It also recommended standardised and simple ways of combining some consonants.

Last month a press note said that it had come to the notice of the Government of India that the reformed script was not in general use.

The reformed list has been circulated again so that the "general public" will use it. But have the State Governments adopted the script in their publications? What of the Union Government's own publications?

Books

Manpower Studies

Manpower Journal Vol. I No. 1. Published by the Institute of Applied Manpower Research, New Delhi. 204 Pages. Rs 3.

K. Saradamoni

MANPOWER studies form one of the essentials of planning. It is only proper that an Institute of Applied Manpower Research has been set up in our country apart from the Manpower Divisions of the Planning Commission and the Union Labour Ministry.

The first issue of *Manpower*, the Institute's quarterly journal, gives an account of the work that has been done by the Institute so far. The Institute, established in 1962, undertakes mainly (i) manpower group studies and (ii) area manpower surveys. A number of papers relating to the former, mostly about engineering personnel, have been brought out. As regards the second, some problems of manpower in Meerut have been examined. They include (a) manpower pattern in Meerut, 1961, (b) population growth and manpower in Meerut district, 1951-61, (c) structure of employment in Meerut district, 1961, and (d) a study of the existing vocational and technical training facilities in Meerut district based on a complete census.

Manpower, like material equipment, power and money, is an economic resource. Manpower, strictly, denotes the managerial, scientific, engineering and other skills employed in creating, designing and operating economic institutions. But in countries like India where technical knowledge is very low at present, manpower should mean the entire people. We aim not only at scientific and technological development, but also at an all-pervasive social, cultural and economic growth and change. The role of human beings in bringing about these changes cannot be ignored.

In view of this, one fails to understand why Mr J.P. Naik, Member-Secretary of the Education Commission, is sceptical about the policy of universal and compulsory education in the present stage of our economic development. We need an educated and enlightened people to sustain and strengthen our socio-political objectives as well as to bring about economic changes. He suggests the introduction of vocationalisation in secondary and higher education and linking of education with productivity and economic growth. He is critical of our tendency to imitate highly industrialised countries specially America, in respect of enrolment of students in schools and colleges. But in his sixty-page paper he has no radical suggestion to improve Indian education.

The next article, on "Planned Development and Population", by R.A. Gopalaswami, does not tell us anything more than what is commonly known, namely that a reduction in population growth is necessary to better our economic conditions. Professor Ritchie Calder narrates some early international attempts to fight hunger, disease and ignorance in his "Utilisation of Human Resources".

In the last article, "Machine Against Man", Mr Gerhard Schmidt tells us that entrepreneurs should be discouraged from using machines against men so as to prevent unemployment. He then cites the example of U.S.A. to show that there are many unused possibilities of employment.

We look forward to seeing better issues of the journal.

Inspection Inspected

Revenue Inspections at the District Level by A. Avasthi. Indian Institute of Public Administration. 230 Pages. Rs. 7.50.

S. B. Kulkarni

SOME Government officers were once asked why inspections were undertaken. One of them was so surprised at the question that he countered it with: "Aren't they prescribed by Government?" This is not a solitary reaction; it typifies the mechanical way on which inspections are usually done in Government administration.

Prof. Avasthi's study of revenue inspections at the district level is very timely. The book undertakes a critical evaluation of the inspection systems at the district level in the States of U.P., Madras and Maharashtra. On the basis of the study of the three systems, Prof. Avasthi arrives at a rationale of inspections. The Indian Institute of Public Administration, which selected the problem for study, and Prof. Avasthi, who conducted the study, have rendered valuable service to the students of public administration in India by throwing light on the practice and theory of inspections.

The book can be divided into three parts. In the first chapter, the author examines the general context of inspections, namely "the control mechanism in administration". He also indicates the place occupied by inspections in the general framework of administrative controls. He then raises certain issues regarding inspections. Chapters 2 to 6 describe the organisational set-up of the Revenue Departments in the States of U.P., Madras and Maharashtra and the various types of inspection done in these three States at the district level and below. In the last chapter, on the basis of this factual information, the author answers the various issues raised by him at the beginning.

In the opening part of the book, the author refers to inspections as one of the tools for securing proper implementation. He further indicates that inspection is thus a control mechanism on par with other mechanisms like "prior approval", "reporting" and "audit". What follows is a description of the inspections in revenue offices as they are actually practised. It does not appear to have been realised that not all these inspections fall in the category of "control mechanism." The role of advisory agencies (like the Collector for O. & M. matters in Maharashtra, or the Inspectorate of Government Offices in U.P.) is different from that of the controlling authority ; and hence the inspections conducted by them are not of the category of "control mechanism".

Since the subject of the study is "revenue inspections at the district level", the author has rightly taken into consideration all the forms of inspections in actual use in revenue offices. To evaluate their practical utility, however, the author should have examined the purpose of the different types of inspections. Instead, all these inspections appear to have been viewed as control mechanism and this has given rise to some confusion.

As an illustration, we may refer to the discussion of "Inspection by External Agencies" in Chapter 6. Viewed as a control mechanism, an inspection is a tool of the controlling authority, *i.e.* the higher line authority. An "external agency" would, according to the simple meaning of the words, be an agency outside the line authority. It is obvious that the inspections by such an agency can only be of an advisory nature, for no authority will allow itself to be overridden by an external agency.

The author has described the working of the Inspectorate of Government Offices in U.P. The principal functions of this Inspectorate are enumerated on page 116. They show that the agency is mostly concerned with O. & M. It is well known that this is an advisory function. Only three out of the ten functions enumerated refer to matters other than O. & M. Of these, two relate to economy. The doubtful item is the following:

> "(a) due observation of all instructions issued for the conduct of work".

This is an all-embracing item. It is not clear what stress the Inspectorate lays on this item. If it takes this too seriously, it will be hated like the Gestapo.

It appears, however, that the Inspectorate pays more attention to O. & M. and Work Improvement than to the item mentioned above. In the last chapter of the book, the author observes:

> "The nature of inspections done during recent years by the Inspectorate of Offices, however, gives evidence of some change in the content and purpose of inspections. A few illustrations of the types of inspections actually done may highlight their variety and usefulness."

The author then gives three illustrations and observes:

> "Such an Inspectorate, therefore, fills a role which cannot be filled by any inside agency."

The three illustrations given by the author all refer to O. & M. matters. It, therefore, appears that the activities of the Inspectorate are mainly in the field of O. & M. and Work Study. Whether the Inspectorate concentrates on Gestapo work or on Work Study, it is evident that its inspections are not inspections in the normal sense, *i.e.*, as a controlling function. If the author means to say that an outside agency is very useful for obtaining advice on O. & M., there need be no difference of opinion. But it is not correct to say that an inside agency cannot undertake this task. In fact, many organisations are setting up their own O. & M. cells.

The situation in Madras is:

> "...there has been, till recently, no provision for the inspection of the offices of Heads of Departments, the Secretariat and the Board of Revenue. This lacuna has been sought to be filled in by the recent decision to set up an 'inspection unit' in the Public Department".

From this it is obvious that in Madras the Inspection Unit is an instrument of the highest line authority, namely Government, created for the purpose of control over the next line authorities namely Heads of Departments etc. It can, therefore, hardly be called an external agency. It is an agency of the directly superior authority.

It is evident that confusion has resuted because the term "external agency" islnot precisely defined. Confusion has also resulted because it is not realised that all inspections are not performed as a controlling function. In Chapter 3, internal inspections are described. These are periodical inspections of the offices by the respective heads of offices. These are staff inspections intended to ensure that the office machine is working with normal efficiency. These inspections may be called maintenance inspections.

In Chapter 5, horizontal inspections are described. Such inspections do not exist in U.P. and Madras. Only in Maharashtra, Collectors are nominated as district representatives of the O. & M. section of the State Secretariat and are authorised to pay co-ordination visits to district Heads of other departments. The Divisional Commissioners are similarly authorised to pay co-ordination visits to Divisional heads of other departments. This arrangement presumes that the Collectors and Commissioners are experts in O. & M. (What justification there is for such a belief is not known). Inspections by these officers are for O. & M. purpose and are thus of a purely advisory nature.

Another type of inspection that has not been described is inspection of a regulatory nature. These are undertaken, not in respect of subordinate line officers, but in respect of outside agencies which are expected to conform to certain laws, regulations etc. An illustration of this type is the inspection of a factory by a Factory Inspector. Sometimes these may be done in respect of an establishment in another department of Government. For instance, the Inspector of Factories may also inspect a government printing press. Then there can be inspections for the purpose of collecting information: for instance, crop inspections conducted by revenue officers. Such inspections are properly kept outside the scope of this book. I have referred to them here merely to bring home the point that the word "inspection" covers widely different activities. It follows, therefore, that it is dangerous to generalise about inspections on the basis of practices prevalent in a particular field.

INDIA MAKES

WHAT does India make now which she was not making fifteen years ago?—Aeroplanes, railway engines, telephones, machine tools, pumps, textile machinery, antiseptics, insecticides, rayon, radioisotopes... The list can go on. The improvement in quality has kept pace with the range in production. The time is long past when people thought: "If it's good it can't be Indian." Now we can say: "If it's Indian it's bound to be good."

Good and useful things sell—within the country as well as outside. Indian goods have begun to sell abroad. At one time the exports consisted solely of raw materials; now we sell products too.

On the threshold of the Fourth Plan, we must make the world buy more Indian goods. The export earnings must go beyond the 7-8 billion-rupee level where it has stayed for years.

Export effort hinges on hard selling and high quality. *India Makes*, a booklet of the Indian Standards Institution, describes the work that has gone into improving the quality of Indian goods. The book itself is an example of high standards. Its 40 pages have a lot to say. The text is neatly written, and the 60-odd photographs (both in colour and black-and-white) are carefully chosen and displayed to good effect. A picture of Delhi's Iron Pillar is placed side by side with a modern steel plant, and a view of the Taj Mahal is next to a le Corbusier type building. There are photographs of young men handling big machines and rural children listening to radio.

We have only a couple of minor comments. In books of this type, the picture captions have to be more informative. For example, the caption to a picture of a steel plant does not say which one it is. Wouldn't it have been better to name it? Secondly, when a publication says "India now makes so much and so much" it has to carry the month and year of publication.

Publications Received

Productivity—Special Issue on Agricultural Productivity Vol. VI. Nos. 2 and 3, 1965. National Productivity Council, New Delhi. 482 Pages. Rs. 6.

Problems and Possibilities of Ancillary Industries in a Developing Economy by S. K. Basu, Alak Ghosh, Subrata Ray. The World Press (P) Ltd, Calcutta. 161 Pages. Rs. 12.50.

Economic History of India, 1857-1956. Edited by V. B. Singh. Allied Publishers (P) Ltd., Bombay. 795 Pages. Rs. 30.

Summer in Calcutta by Kamala Das. Delhi. 64 Pages.

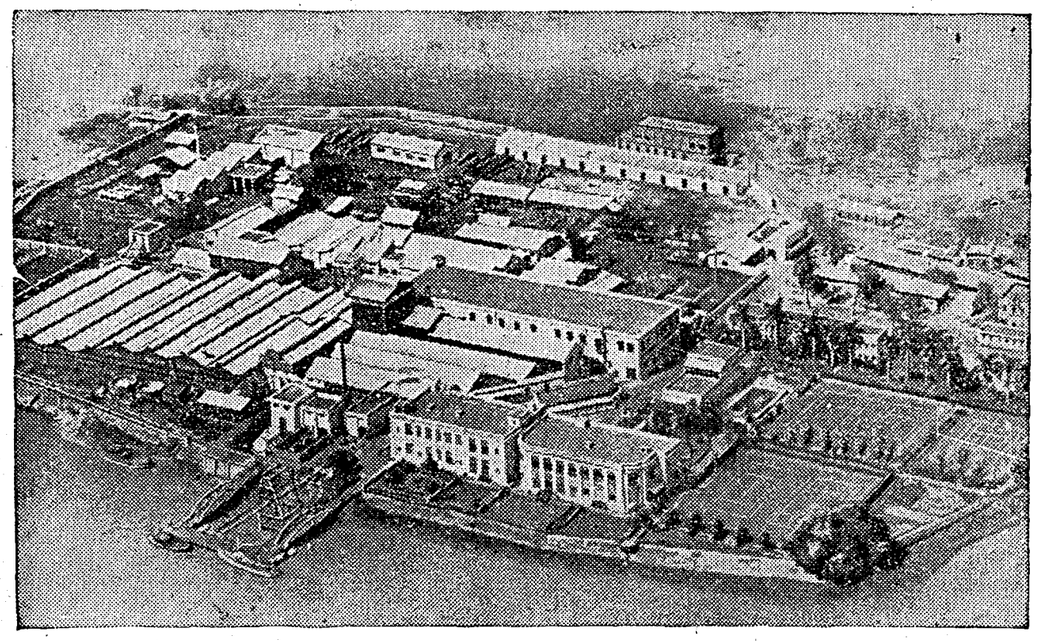
A Short History of Modern Indian Shipping, by T. S. Sanjeeva Rao. Popular Prakashan, Bombay. 278 Pages. Rs. 25.

Capital Formation in Indian Agriculture by Tara Shukla. Vora & Co., Bombay. 261 Pages. Rs. 20.

A Concise Economic History of Modern Japan by Sakae Tsunoyama. Vora & Co., Bombay. 132 Pages. Rs. 9.

Local Finance in Perspective by K. Venkataraman. Asia Publishing House, Bombay. 63 Pages. Rs. 6.

Panchayati Raj—Perspective and Programme. All India Panchayat Parishad, New Delhi. 128 Pages. Rs. 5.



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Hairpin and Hairclip Lacquers	Toy Enamels
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ARMS FOR FARMS

a new land army suggested that can be used for defence and agricultural production

RANJIT GUPTA

THROUGH his new slogan—*farms to strengthen arms*—the Prime Minister has put forward a basic national priority in proper perspective. There is, however, every possibility that, as in the past, it may not yield anything better than loud cheers followed by renewed efforts to push all the old schemes and programmes under the new banner. Unless we wish this to happen, we must examine what the slogan really means and how best can it be put into action.

The slogan, it may be stressed, does not draw a line isolating bread from arms, which the economists do to show that one cannot eat the cake and have it too. On the contrary, it puts them into mutually complementary roles. In so far as this is true, the roles could be reversed and the slogan reframed to read: *arms to strengthen farms.* Both slogans are equally valid. This is the first premise on which the strategy for future development must rest.

Since, however, this approach is the opposite of what the majority of our economists and planners subscribe to, it is likely to be vetoed by them—if not openly, then covertly. The idea that economic development always puts a choice between bread and arms has seeped down far too deep to permit any easy acceptance of the new strategy.

Those who favour *farms to strengthen arms* and its corollary *arms to strengthen farms* will, therefore, have to work out a convincing plan of action and demonstrate its workability. This is not a difficult task which can be well achieved by discarding a few traditional concepts of economic growth and some of the typically Sandhurst notions about military build-up.

The aggression that has been committed against us by China and Pakistan since 1962 amply bears out the fact that our borders are highly vulnerable to swift enemy attacks. To counteract them and put the enemy in its proper place, we shall have to raise several more divisions of the army and post them all along the borders. But if this is done by raising only the strength of the conventional armed forces, it will not only restrict the mobility of our army but would put severe restraints on the economy. A better way to tackle the problem would be to raise two types of army—one conventional but highly mobile and the other somewhat unconventional and relatively static in its movement. The latter could be in the nature of Home Guards or Land Army. This is the force which should be raised at the earliest and posted not only to defend the borders till the mobile army moves into action, but also to build up and cultivate farms, five to ten miles deep across the national frontiers.

The Land Army should be fully trained and equipped with necessary supplies. It need not be heavily armed, as the conventional army could always be moved to the front within 24 hours' notice or so. Besides cultivating farms and raising food-grains, the Land Army should be trained to lay bunkers and other military installations and constructions; provide effective support to the mobile army; preserve and protect our lines of supply and communication; repulse the initial enemy attack and restrain its advance, at least for a day or two; blow up bridges and other lines of communication of the enemy; and, if need be, even resort to guerrilla warfare. Such an army would have the added advantage of being part of the local population, mixing freely with the rest and mobilising them for defence at short notice.

The Land Army could also be deployed in the rural areas around important cities, mainly guarding the installations around cities that have a population of five lakh or more. From the point of view of food situation alone, it will be seen that the thirteen cities with a population of five lakh or more consume over 3 million tonnes of food-grains or nearly one-half of that which is being presently imported. If only one-fourth the requirements of these cities could be raised from reclaimed lands under the management of the Land Army, not only would the food situation improve but also a regular and organised source of supply ensured. This would greatly help the Government to implement its food policy. Even the landless farmers could be settled in these farms; this would in itself be a substantial achievement.

These suggestions might sound somewhat unconventional and may not therefore find much favour at the higher echelons of authority. But in a country where all sorts of experiments have been carried out at high cost and negligible returns, is there a way out save the unconventional?

Mr Gupta is Secretary, Institute of Social Studies, New Delhi.

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MYSORE'S BEST VILLAGE



And Its Neighbours

The newly built well (above) is the pride of the village Jagdal in Jamkhandi block. The village was adjudged the best in the district in 1964-5. Right: A girl student receiving her scholarship as a prize for regular attendance at the school in the village Navalgi in Jamkhandi block

Photographs by N. K. Dasappa

WHOEVER is interested in seeing how rural development works should go to Navalgi, a village in the Bijapur district of Mysore State.

All 464 farming families of this village of 2573 people have taken to new agricultural practices. They raise improved varieties of jowar (D-340) and wheat (M 35-1). They have understood the importance of pesticides. Two farmers of the village, Gangappa Mahalingappa Halli and Hanumanthappa Allappa Balvas won the first prizes in the Jamkhandi taluka for jowar and groundnut. Green manure is cultivated on 80 acres. Pesticides are used systematically. Eight families have begun rearing poultry. The service co-operative of the village in 1963-64 had 158 members, distributed 20.5 tonnes of fertilisers and marketed 1600 maunds of produce.

The village has also built two drinking water wells and a two-room school building.

The people of Navalgi are known for their skill in the folk arts. The "bear dance" of Navalgi has come to be appreciated all over the State.

Navalgi was declared the best village in Mysore in 1963-64.

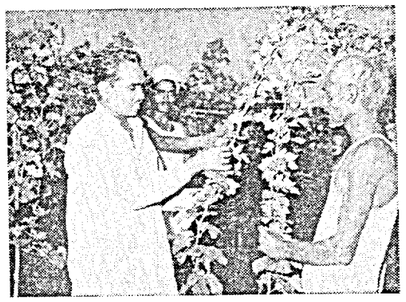




Members of the Navalgi youth club have distinguished themselves as the best folk dancers in the State apart from being progressive farmers.

Cheerful Farmers Raise New Hopes





New experiments in horticulture. Above: the first vineyard in the Jamkhandi block, a successful experiment by Vasant Govind Deshpande of Theradal. Left: an orchard of lime trees raised by four brothers on their farm in Navalgi.

Villagers discussing their problems at the rural radio forum at Ghote in Savalgiri block.



Yojana Bhavan Diary

The National Planning Council met on November 5 and its various Study Groups met on November 4 and 6.

The National Advisory Committee on Public Co-operation under the chairmanship of the Chairman, Planning Commission, has been reconstituted. All the Members of the Planning Commission, seven Members of Parliament, six prominent social workers, and representatives of 46 voluntary organisations will be its members. The Committee will review and assess the progress of public co-operation in relation to national development and advise the Planning Commission from time to time.

A high-level Committee with Professor M.S. Thacker, Member, Planning Commission, as Chairman has been set up by the Government to draft a model act for constituting statutory water and drainage boards in States.

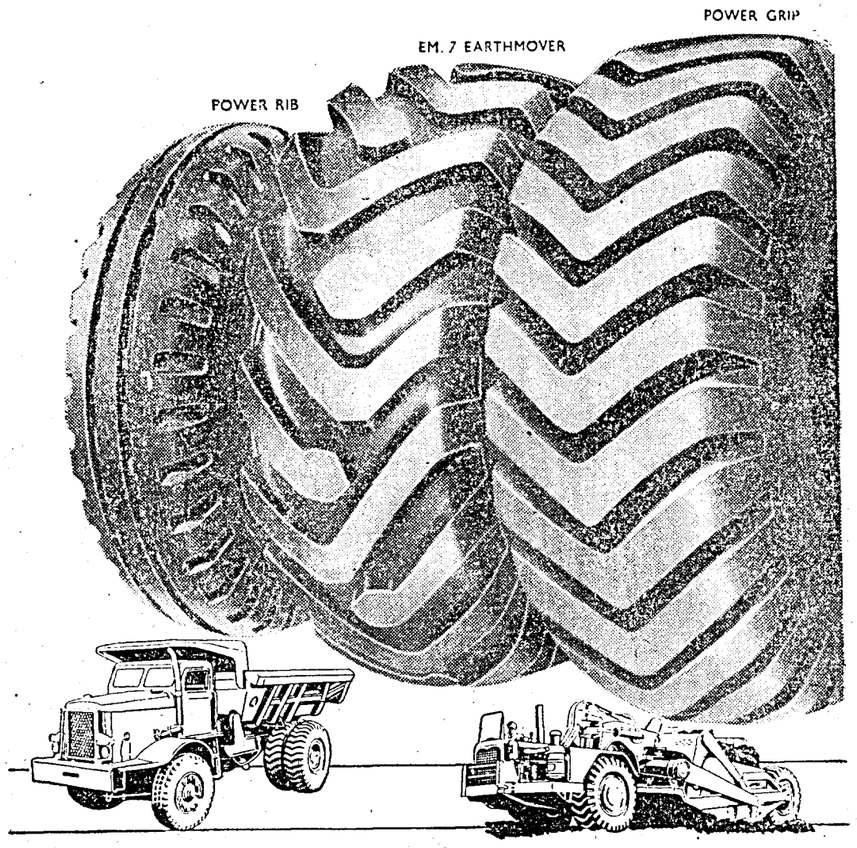
The second meeting of the Committee on Social Science Research was held in Poona on October 12 to finalise questionnaires for collecting evidence on various aspects of social science research in the country.

Professor Thacker left for Geneva on November 4 to attend a meeting of the U.N. Advisory Committee on application of science and technology to development, held from November 5 to 18.

Dr. J.P. Bhattacharjee, Director, Programme Evaluation Organisation, left the Planning Commission on November 15 to join FAO as Agricultural Economist at its headquarters in Rome.

Mr. S.M. Machiraju, till recently Chemical Engineer, the Hindustan Organic Chemicals Ltd., has joined the Planning Commission as Senior Specialist in the Industry and Minerals Division.

Dr V.P. Kachwaha, Dr S.M. Shah, Dr K.N. Kohli and Mr D.R. Gupta, all Assistant Chiefs, have been promoted as Joint Directors in their respective Divisions in the Planning Commission.



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WEAPONS THAT SEE AND THINK

MISSILES *and how they work*

MISSILES have been in the news for some years now. There are anti-tank missiles, anti-aircraft missiles and intercontinental ballistic missiles. Our interest in missiles was further aroused recently by reports of missiles having been used in the recent Indo-Pak hostilities. But missiles are used not only as weapons of war but also as instruments for peaceful purposes to send cargoes like rations, medicines and other supplies to front-line troops, to shoot life-lines to ships in distress and to study conditions in the atmosphere and outer space.

What is a missile? It is, according to the dictionary, an object thrown by hand or shot from a bow, gun or other instrument. But such an object is now technically called a *projectile* and not a missile. A modern missile is self-propelled, that is, once it is fired, it goes ahead with the help of the fuel inside it and after attaining terrific momentum it goes even without any fuel in it.

A missile used as a war-weapon carries a nose called the warhead containing explosive material which explodes with the help of a fuse when it hits the target. In a peaceful missile the nose carries the payload, that is, instruments etc.

A modern missile derives its power to move ahead from a power plant or propulsion unit. This may either be a rocket or a jet engine.

Both rockets and jet engines get their power from the fuel that is burnt inside them. Any fuel requires oxygen to burn. Jet engines draw in oxygen from the atmosphere, while in the case of rockets oxygen is present in the propellants that they carry. So where there is no air or where air is thin, as at heights 20 kilometres above the Earth, jet engines are of no avail. On the other hand, rockets derive greater speed and power at great heights, where the air gets thinner, because there the resistance from air is less and the pull of gravity is also less. But rockets consume tremendously larger quantities of fuel than jet engines. Even a small rocket engine burns up to a tonne of propellants every minute and so for very long distances a rocket engine cannot be used. But for firing missiles which have to fly at terrific speeds for very brief periods, rockets are the most suitable vehicles.

SCIENCE NOTE

BY ROSSCOTE KRISHNA PILLAI

Hyder Ali's Rocket

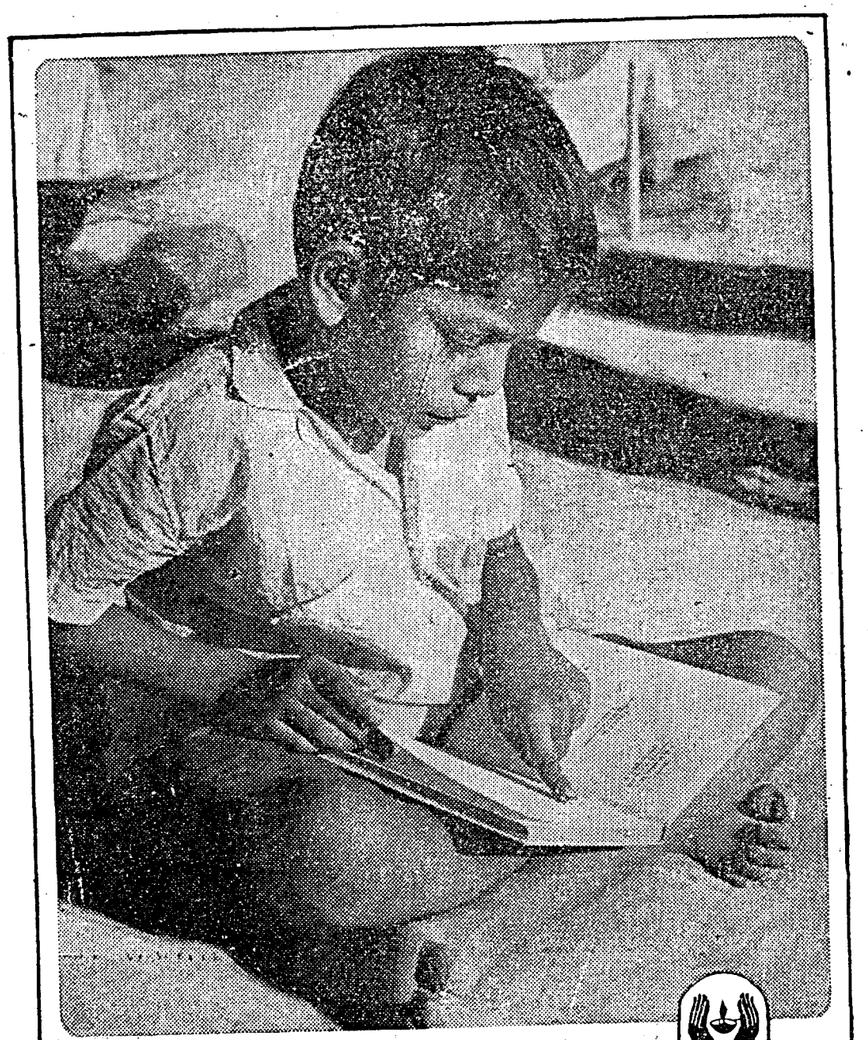
The use of rockets for firing missiles is not a 20th century development. It is only the guided missile which is modern. It is more or less a rocket with an electro-mechanical 'brain' which guides it to its target.

Rockets and missiles are not a novelty in India. In fact the rocket using gunpowder as fuel was first used in China and from there it travelled through India to Europe. When guns and cannon were developed, the European militarists lost interest in the rocket, it being less accurate in its primitive form. But India maintained its interest in rocketry and in 1780 the English received a severe jolt from Hyder Ali's army which used iron-cased rockets weighing up to 5 kilogrammes each and with a range of nearly a kilometer at Guntur. This led to the pursuit of rocket research in England and later on in Germany, France, America, Soviet Union and Rumania. Among those who worked towards the evolution of the modern rocket missile were Britain's William Congreve, who developed the gunpowder rockets as an alternative to artillery, U.S.A.'s Robert Goddard, who spent 20 years in evolving the first liquid fuel rockets, Tsiolkovsky of Soviet Union, who showed that a rocket could work in a vacuum and designed the model of a space ship, and Hermann Oberth of Rumania.

The second World War gave further impetus to the evolution of guided missiles. Germany's V-2 rocket, which fell on London on September 8, 1944, was the forerunner of the devastating inter-continental ballistic missiles (ICBM) of today. The 14-metre missile, weighing about 13 tonnes, had a speed of 4,500 kilometres per hour. Nearly 65,000 design changes were made before V-2 was perfected as a weapon. Since V-2, development of missiles has gone on at a terrifying pace.

A modern missile generally consists of the extreme nose cone containing the explosive charge, the fuse and payload (instruments etc.). Behind it is the control compartment containing the gyroscopes which turn the missile towards the target after its vertical take-off and keep it steady during flight. A device to switch off the supply of propellant, when the rocket attains sufficient speed to carry the missile to the target, is also in it. When liquid fuel is used as propellant, there will be one or two tanks to hold the fuel and the oxidant. Fuel is pumped into the combustion chamber situated in the tail of the rocket with the help of a turbine and pumps.

How does a rocket work? The propellant burns inside a metallic casing and the resultant gases are ejected through a nozzle at a high velocity. Following Newton's law which says that every action has an equal and opposite reaction, the momentum of the exhaust gases provide the necessary thrust to the rocket which is thus projected forward. Although theoretically the speed of the rocket should equal the



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speed at which exhaust gases are ejected. But the friction against atmospheric air and the pull of gravity reduce its speed. But the rocket is the only vehicle capable of powered flight through a vacuum.

There has been considerable improvement in the fuels used by the rockets. The best propellant in theory is that which produces the greatest volume of gas at the higher possible speed. In the beginning of rocketry, the fuel used was chiefly gunpowder. Then liquid propellants began to predominate. Kerosene, petrol, alcohol and hydrazine are the common liquid fuels. Hydrogen peroxide, nitric acid, nitromethane and flourine provide the oxygen necessary for combustion. But, of late, solid fuels are replacing liquids in rockets, because they do not evaporate or deteriorate in storage and do not require pumps, turbines, generators or gears. Among them are cordite, nitrocellulose and nitroglycerine.

Nine Types of Missiles

Missiles have replaced guns and cannon in many fields of battle so much so that there is an immense variety of them of all shapes and sizes. They can be classified into nine basic categories according to their deployment.

(1) *Air-to-air*: These missiles are fired from fighter planes to shoot down enemy aircraft. They are very small (8 to 175 kilogrammes) and are carried under the aeroplane's wings or the fuselage (main body), or wing-tips or in an internal weapons bay at the bottom of the fuselage. The fighter plane's radar fires the missiles automatically.

(2) *Air-to-surface*: Among these are anti-tank rockets launched from aircraft. They are among the smallest missiles. The stand-off bombs fired by bombers from afar also fall in this category. They are used to destroy targets on the ground or at sea.

(3) *Air-to-underwater*: They consist of a torpedo fitted with detachable wings, engine, and guidance system which are shed at a predetermined range and then the torpedo flies towards the submarines under water.

(4) *Surface-to-air*: These are used against enemy aircraft when they escape the interceptor planes. Normally they have a range of 150 kilometres although missiles with a range of 700 kilometres have been developed lately. They are launched from a ramp on the ground or from a ship.

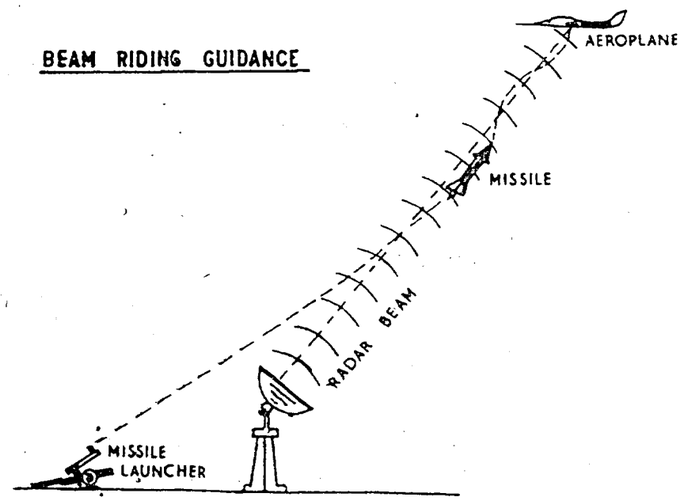
(5) *Surface-to-surface*: Launched from the ground or a ship against any target on land or at sea, these missiles take the place of guns or attack aircraft. They include small rockets fired by soldiers against tanks and IRBMs and ICBMs with a range of up to 15,000 kilometres

(6) *Surface-to-underwater*: These are fired from ships on other ships or submarines.

(7) *Underwater-to-surface*: These missiles fired from submarines are pushed by compressed air to the surface, then the first stage rocket burns off and falls away and then they shoot up like ordinary surface-to-surface missiles. The Polaris belongs to this class.

(8) *Underwater-to-air*: These are anti-aircraft missiles launched by submarines.

(9) *Underwater-to-underwater*: They are used to attack ships and submarines over long distances. Fired from submarines they push themselves to the surface and then travel through the air with the help of a booster rocket which burns out and the warhead re-enters the water near the target.



Among these missiles the most terrifying is the inter-continental ballistic missile which is designed to carry a hydrogen bomb warhead for at least 8,000 kilometres. The Atlas ICBM made by the U.S.A. consists of a very large liquid propellant rocket with two booster motors which take the missile well above the atmosphere when launched. The ICBM is about 2.5 metres long and weighs about 115 tonnes and has a speed of more than 22,000 kilometres. But the Atlas rocket has long been outclassed by rockets used for firing space vehicles into space. The rocket which carried Sputnik III in 1958 weighed 1,300 tonnes and had a speed of more than 35,000 kilometres.

The Brain of A Missile

The most interesting and most complex and intricate part of a guided missile is the guidance system which enables the missile to hit its target accurately. What a pilot is to the fighter, the guidance system is to the missile. It is actually the electro-mechanical 'brain' of the missile. Some of the most advanced 'brains' approach the human brain in that they are able to turn away the missile from any friendly aircraft provided the aircraft is fitted with I.F.F. (Identification, Friend or Foe) radar. Among the advantages of a guidance system are that it can withstand acceleration, heat or cold and can be sent on missions of no return for which human pilots cannot be.

There are three stages in the guidance, namely *launching phase*, *mid-course guidance* and *terminal guidance*. In the first stage the missile is directed into the correct path, in the second the warhead is carried as close to the target as possible and in the third stage the missile is brought within lethal distance of the target.

The three stages of guidance operate differently with the different guidance systems which vary according to the nature of the target. The system that is used for missiles intended to hit stationary targets on the surface of the Earth and whose positions can be seen or known precisely differs from that designed to attack an aeroplane or submarine which might change direction. And the guidance system used in missiles fired from the air have perforce to be small.

Among the guidance systems the mplest is the *wire command* use- il only for visual targets. As the iissile flies towards the target, one r two very thin wires unwind from obbins in the missile and trail ehind it. These wires continue to onnect the missile with the opera- or's control.

With this arrangement the operator able to steer the missile into its irget by passing electric signals irough the wires. Such a guidance used in small anti-tank missiles.

When the target is not visible and more distant, signals are trans- iitted by radio instead of through ires. The operator can keep track f the missile on a radar screen and teer it into the target. This system known as *radio command.*

One of the most important guid- nce systems is the *radar command.* Most of its equipment is on the round in two radar transmitters nd not much is in the missile. One f the transmitters locates the target nd calculates its speed and posi- ion. Then the missile is fired and he other transmitter 'locks' on to the missile and keeps track of its speed and position. Then data from both radars are fed into a computer which works out the correct course for the missile and transmits the signals by radio command so that it will intercept and destroy the target. This system is used in surface-to-air anti-aircraft missiles.

In *beam riding guidance* the missile is fired along a beam of light or radio signals 'locked' on to the target. This requires less equipment than radar command and is used for air-to-air or surface-to-air firing.

Then there are three types of 'homing' : semi-active, active and passive.

In *semi-active homing* a radar on the ground locates the target, 'locks' on it, and sends a very strong radar beam to it. This radar beam bounces back from the target and a receiver in the missile picks it up. The missile then 'homes' on to the target through the reflected beam and destroys it.

In *active homing* the radar transmitter along with the receiver is in the missile instead of on the ground.

Missile Seeks Heat and Hits

No signals are transmitted by the guidance system in *passive homing.* The missile is fitted with a device which homes on to heat or sound emitting from the target. The hot exhaust from the engine of a plane attracts a small heat-seeking unit in the nose of the missile and the missile hits the target. The Side winder air-to-air missiles made by U.S.A. have this kind of guidance system.

Among the guidance systems the most sophisticated is the *inertial guidance* which uses gyroscopes to measure the minutest changes in the direction of the missile's flight. The system sets the missile on its correct course by automatic control.

The cost and the technological intricacies involved in missile making are tremendous. In making a missile more than a dozen sciences have their roles to play. Some of the large modern missiles consist of more than two million parts and even the slightest defect in even its minutest part will make it absolutely futile.

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Defence Direction to Fourth Plan

Continuous Study of New Needs and Tighter Execution

A CONTINUOUS search for greater operational efficiency in the implementation of Plan programmes was one of several recommendations made by the National Planning Council, which met in Delhi on November 5.

The Council reviewed the work done so far by its study groups and considered measures for the reorientation of the Fourth Plan in view of the emergency.

The Council felt that it was necessary to identify the absolutely essential schemes and implement them efficiently. It felt that maximum use should be made of existing capacity and the potential created in all sectors of economy. In the execution of schemes, particularly those relating to agriculture, there was need for proper co-ordination of all activities at the local level.

The Council felt that close integration of defence and economic planning was needed at the moment. The principal objective of defence-orientation of the development plan was to secure urgent increase in the supply of goods and services for defence, including civil defence; maintenance of essential requirements of civil population and conservation of foreign exchange by import substitution and increased exports.

In the course of the discussions it was pointed out that co-ordination of defence efforts and economic planning was a complex matter and needed careful study. It was necessary to study the implications of national security for economic planning and *vice versa.* It was agreed that members might give further consideration to the issues involved and make their suggestions.

The Council felt that in reorienting the Plan some of the existing programmes and projects might be converted to meet the specific needs of defence. Programmes which would augment production or yield benefits only after a period of years had to be slowed down or discontinued, especially if they were dependent on imported equipment. It noted that availability of foreign exchange, which was already stringent, might become still more difficult on account of increased defence demands for imports and the possibility of reduction in foreign aid.

The Council agreed that expenditure on construction works and on projects requiring the use of scarce materials had to be kept to the minimum. There was need for greater efforts to be made to mobilise additional resources and savings and avoid deficit financing so as to ensure general economic stability.

Mr Asoka Mehta, Deputy Chairman of the Planning Commission, presided over the meeting. He said that the National Development Council, at its last meeting in September, had expressed its determination to push ahead with the developmental programmes. He added that there would be some delay in the formulation of the Fourth Plan. The scope and content of the Plan might also have to be altered to take into account the emergent situation.

In the meantime, Mr Mehta said, it became necessary to do some orientation for the remaining part of the current year and to prepare an emergency plan for the next year. As far as the next year's programme was concerned there was inevitably a certain amount of uncertainty about the external and internal resources. On the whole, the resources that would be available next year for the Plan would be considerably short of what was needed or originally anticipated.

Emphasising the urgent need to achieve self-reliance, the Deputy Chairman pointed out that we had reached that middle stage of our development where we need not be wholly dependent on any one country but could not be wholly self-reliant. It was an area where careful co-ordination was needed to achieve the maximum degree of self-reliance under the existing situation.

Referring to import substitution, Mr Mehta expressed the view that full advantage should be taken of the present position and push ahead with the programme not only in terms of utilising the available material capacity but also the technical and other resources that have been built up.

FIVE PROJECTS WITH CZECHOSLOVAK AID

CZECHOSLOVAKIA will collaborate in setting up five important projects in India. The projects will be: a railway wheel and axle plant, a ball and roller bearing unit, a crane and structural factory, a machine tools accessories plant, and a petroleum coke calcinating plant. The high tension insulator project at Ranchi will be expanded.

The foreign exchange cost of these projects is estimated at Rs 22 crore, which will be given by Czechoslovakia.

India has also sought from Czechoslovakia a non-project credit of Rs 45 crore to cover the gap between the export earnings and import expenditure in trade with Czechoslovakia.

NEW CEMENT PLANTS

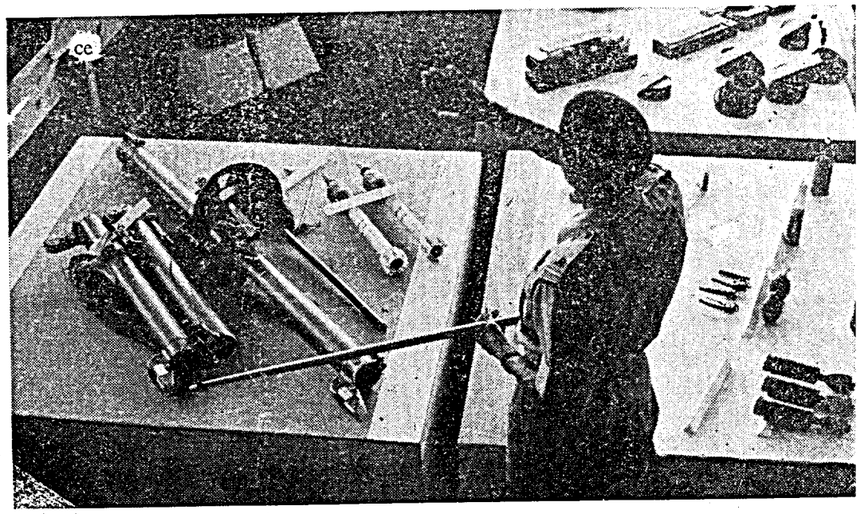
The Cement Corporation of India will set up two new cement plants—one in Bastar district of Madhya Pradesh (capacity—10 lakh tonnes a year) and another in Cuddapah district in Andhra Pradesh (capacity —2 lakh tonnes).

Reg. No. D—876



The Challenge We Met

Visitors and exhibits at the "Meet the Challenge" exhibition in Delhi which put on view arms and equipment captured from the Pakistanis and vivid pictures of the war

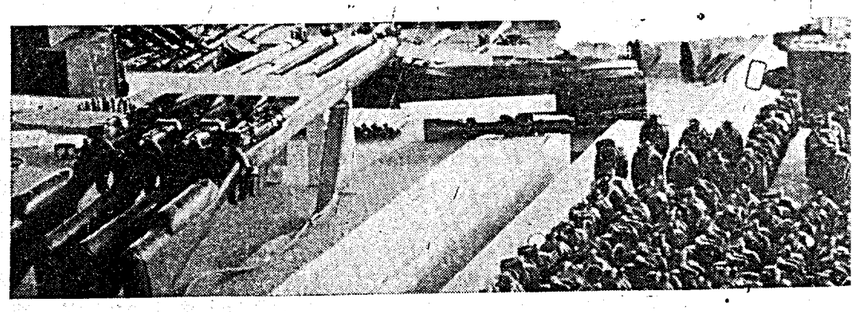




Another exhibition of the type was opened in Madras in the last week of October. It will also come up in other major cities.

Photographs by

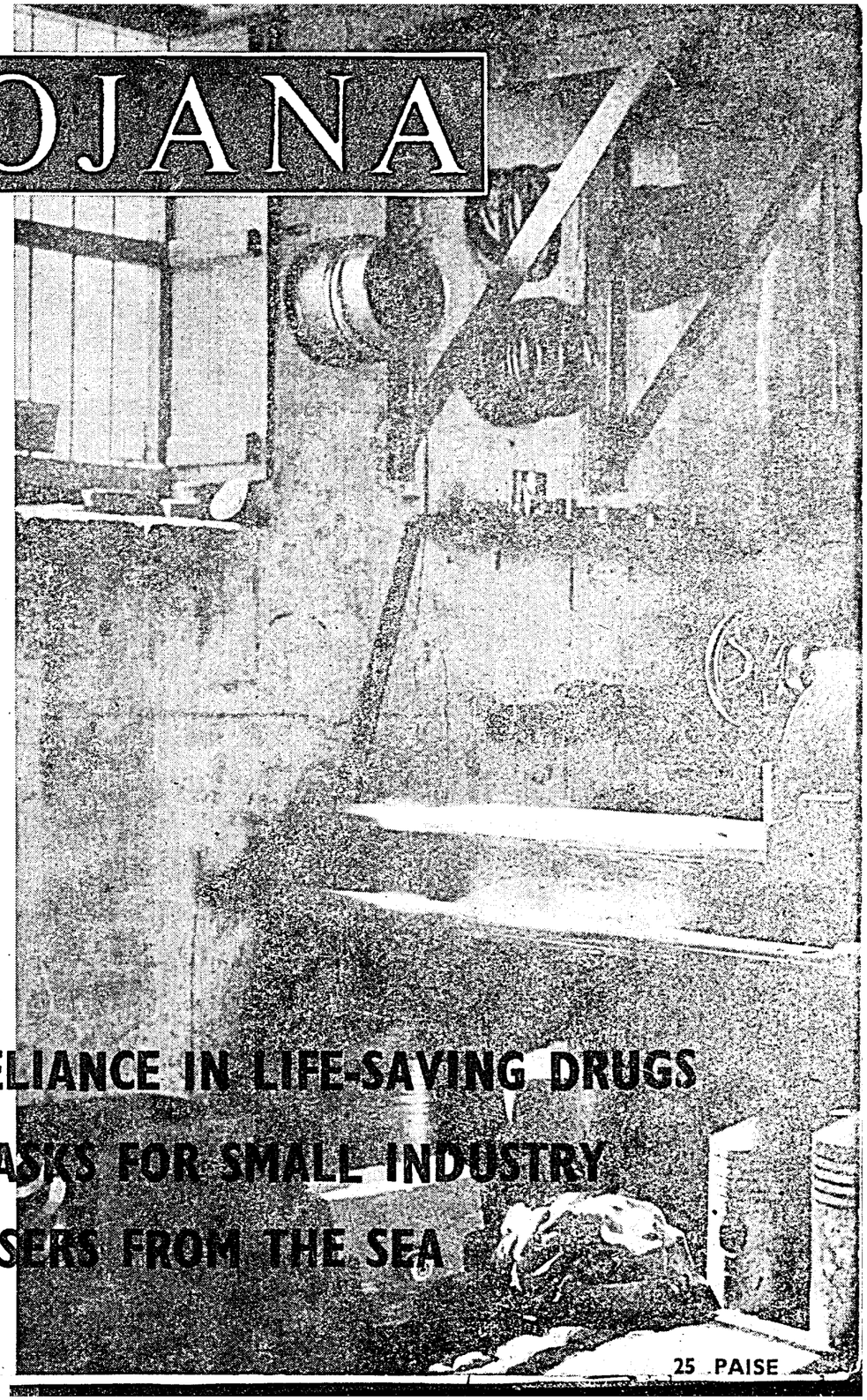
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YOJANA

NINTH YEAR 24 DECEMBER 5, 1965



SELF-RELIANCE IN LIFE-SAVING DRUGS

NEW TASKS FOR SMALL INDUSTRY

FERTILISERS FROM THE SEA

25 PAISE

ABOUT YOJANA

Yojana seeks to carry the message of the plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

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Letters

Why Not More Fertilisers?

THE article on the Trombay Fertiliser Factory (*Yojana*, November 7) explains the utility of the factory in terms of saving in foreign exchange and estimated increase in food-grain output. One portion said, "The total cost of the Trombay Project is 86 million dollars (about Rs 41 crore) out of which 38 million dollars form the foreign exchange content. This would lead to an increased grain output of one million tons per year and a net foreign exchange saving of Rs 15 crore in terms of reduction in import of fertilisers."

If this is a fact and the figures even approximately correct, then even a layman can see that with a total investment of Rs 246 crore (for six such plants), having a foreign exchange component of Rs 109 crore, we will be able to achieve an increase in food-grain output of 6 million tons a year. Besides the foreign exchange we spend on the import of fertilisers, we are paying an annual freight bill running to several crore rupees in foreign exchange for the import of 4 to 6 million tons of PL-480 food-grains. We have an annual import bill of Rs 1,200 crore against exports of Rs 800 crore. In addition we are being aided by various countries.

I am sure the experts in the Planning Commission have thought about these problems and planned out fertiliser production accordingly. But you will perhaps agree that it does baffle a layman as to why a crash programme for fertiliser production is not being undertaken. The PL 480 freight bill and the current fertilisers import bill would justify such a step.

Kanpur VISHNU BHAGWAT

The Fertiliser Corporation of India has already undertaken a crash programme for the production of fertilisers and factories are coming up at Gorakhpur, Rourkela, Durgapur and Namrup. The construction work is being expedited in view of the present emergency. All these units are expected to go into production in the next two years. More units are being planned. The Trombay unit is the third among the Corporation's factories under production, the first two being at Sindri and Nangal.

The country's production of fertilisers is expected to reach 3 million tonnes in the Fourth Plan, nearly enough to meet our requirements.

This programme of fertiliser production, which is already being implemented, is not far removed from Mr Bhagwat's expectation.

However, it may be noted that fertiliser is not the only thing that is required to increase agricultural production. Fertiliser is useless without irrigation. There are other factors too, such as soil testing, improved seeds and modern farming practices. A co-ordination of all these factors is necessary to achieve increase in food production—the sufficiency of one is ineffective if the other is inadequate. A crash programme of fertiliser production alone, therefore, is not going to yield the estimated production of food-grains.

—Editor

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YOJANA

Vol. IX No. 24 Fortnightly Journal Published on behalf of the Planning Commission Agrahayana 14, 1887

TESTING TIME

PAKISTAN has just had a supplementary budget. Its main feature is that it provides Rs 115 crore more for defence.

This fact is a simple illustration of the impact that defence has on the economy. We are a larger country than Pakistan and we have to guard ourselves from two enemies. Obviously it cannot be done without spending a considerable proportion of the national budget on defence.

The economic implications of the double emergency are still to be fully worked out. Even the calculations are not going to be an easy matter, because of the numerous uncertainties. One of the biggest uncertainties is of course that of foreign resources. Reduction in foreign aid, not to mention its suspension, will have serious effects on internal resources. The two are interrelated, for less foreign aid means less of imports and less industrial production and these in turn mean less from excise and customs and other levies.

What makes the outlook for the next year even more unhappy is that this uncertainty in regard to external resources coincides with one of the poorest monsoons that the country has known. Mr Asoka Mehta has said that in the matter of rain this has been probably the worst year in this century. If both the bullocks limp our cart cannot hope to go very fast.

A disquieting feature of the failure of the rains is that practically all parts of India have suffered, including the traditional surplus States. The Punjab, in addition, has had to bear the direct brunt of the fighting, with its repercussions on farms and factories. Fears in the South were to some extent allayed by the coming of rains in the last week of November; front-page headlines in newspapers reflected this relief. But between a few belated showers and a good harvest there is a long distance of time.

Meanwhile, various official estimates put the likely decline in grain production in the current agricultural year anywhere between three and seven million tonnes. After three stagnant years we had managed to have a good harvest last year, but there is a dip again.

It is true that even after this drop, we are still likely to have a harvest that is much higher than the average of the last ten years. That itself is a tribute to the strengthening of our economy in recent years. Since planning was undertaken, it is well to remind ourselves, industrial production has trebled, and food production itself has gone by more than two-thirds.

In the other pan of the balance must be placed the facts that there has also been a phenomenal growth in population and that the holding capacity of a large part of the agricultural community has gone up. With a market system not wholly amenable to regulation, what matters is not how much is grown, but how much is sold. In food production and distribution, unfortunately, we cannot yet claim that the State and Union Governments play together as one good orchestra.

This is not to say that a resolute effort is not being put forward to meet the food crisis. The programmes of intensive production that have been drawn up—the need for which received further reinforcement from the uncertainties regarding American food supplies—now acquire added urgency. The Union Food and Agriculture Ministry has gone ahead with the emergency food production plan and has announced a reorganisation of its structure to make it wholly action-directed. With the additions to irrigation potential already achieved and with the kind of inputs now available from industry, the administrative machinery should be able to meet the challenge of production. An equally pressing challenge is that of distribution. All States and everybody connected with governance must take a vow to make rationing a total success. The people too can then be expected to respond.

A necessity that the war with Pakistan has forced on us, even more than the war with China three years ago did, is to concentrate on the immediate. The compulsions are such that at present we can think only of what to take up and achieve in the coming year. After this emergency plan has been achieved will it be time to resume the general tasks of the Fourth Plan. The Annual Plan for 1966-67 is not going to be smooth sailing. Indeed much less of resources will be available for it than in 1965-66. As against this year's Rs 2,250 crore, the 1966-67 plan is likely to have lower than Rs 2,000 crore. The States have, however, as a result of the discussions with the Planning Commission, undertaken to find Rs 130 to 150 crore through additional mobilisation of resources.

As for the development schemes to be taken up, the first claim and priority will be that of agriculture—the allocation for which will be stepped up by almost 50 per cent. Next in importance will be the irrigation and power schemes as also the industrial and transport schemes which are so intertwined with defence needs. All other schemes have been cut to the bone.

By realising that time has begun to tick faster, by concentrating on the next twelve months' hard work, and by being ready to bear burdens cheerfully, we can pass the test that Nature and international politics have combined to set for us.

"IN DRUGS GENERALLY, INDIA RANKS AMONG THE HIGHEST PRICED NATIONS OF THE WORLD—A CASE OF AN INVERSE RELATIONSHIP BETWEEN PER CAPITA INCOME AND THE LEVEL OF DRUG PRICES"

(American Senate Committee Report, 1961)

SELF-SUFFICIENCY IN LIFE-SAVING DRUGS—A MUST

We Must Re-Examine Patent Laws

Major-General S.S SOKHEY
Honorary Adviser, Council of Scientific and Industrial Research

To grasp the full importance of self-sufficiency in modern life-saving drugs, it must be borne in mind that during the last 30 years or so science has made some phenomenal advances and given medicine, for the first time in human history, a number of life-saving drugs like sulphonamides, antibiotics, costico-steroids, hormones and insecticides like D.D.T. which give us full control over most of the infectious diseases causing high mortality.

For example we can now cure almost 100 per cent of the cases of pneumonia while formerly, no matter what medicines we gave, 40 to 50 per cent of the patients died. Similarly infections of child birth and early infancy can be entirely checked. Malaria, which used to cause millions of deaths a year, can now be prevented almost altogether and any stray cases still occurring may be cured in 36 hours. Similarly plague is no longer a dreaded epidemic it was; we could already do a lot against its spread and we can now cure almost 100 per cent cases that may still occur. In 1947 the Haffkine Institute showed that the then new antibiotic, streptomycin, was a specific remedy for it.

The same is true of a large number of other infections and other diseases for which modern life-saving drugs have been invented, which were still taking a heavy toll of life, particularly in developing countries. Even though full use could not be made of these drugs because of their excessive cost, still the result is apparent in the fall of the death rate from 27.4 to 21.7 per thousand from 1941 to 1960 and the fall since then will be still greater.

Vital Necessity

It has been obvious for considerable time that there is no substitute for the essential modern life-saving drugs. They are a vital necessity for maintaining our people in good health. Equally important is the fact that they enable war wounds to heal in a few days while after World War I it took months and even years to heal them if sepsis had set in. *These drugs must be always readily available, in times of peace and war, particularly so in times of war. This is possible only if they are made in the country, entirely from Indian raw materials and by Indian scientists and technicians; only thus can we become truly self-sufficient.*

In a field of such importance we have been grossly negligent and have even shown unpardonable levity. Though in 1945 the Haffkine Institute had shown that these drugs could be made for less than one-tenth the price charged then, even when made with imported raw materials, and a full-fledged project report was prepared early in 1947, very little was done for years afterwards. In 1954, the Government Pharmaceutical Enquiry Committee found that no drugs were made in India and said that "the drug industry in India may be considered to be non-existent". The situation was no better in 1956. The Soviet Expert Committee invited by the Government of India said that "almost all the essential drugs, the availability of which determines the effectiveness of medical attention in the treatment of the most serious and common diseases in India, are not being produced in the country but imported", except for penicillin and D.D.T. which had begun to be manufactured in two modern plants put up with the assistance of the World Health Organisation (W.H.O.) and the U.N. Children's Emergency Fund (UNICEF) under my direction.

We were precariously meeting our needs by importing from abroad, and could do so only from the foreign patent holders and at prices fixed by them, as our patent laws presented them with a fully protected market which they were exploiting ruthlessly for years. They were charging something like 20 times the cost of production, as an American Senate enquiry showed later. In 1954-55 we imported penultimate compounds and finished drugs for about Rs 25 crore and the imports were steadily rising.

Projects Delayed

In 1955 the Government of India's attention was drawn by me to a very effective, inexpensive and friendly way of solving the problem. The Soviet Union was approached and in 1956-57 that country offered India free technical assistance and know-how and a loan of 80 million roubles (old) on terms so easy that made the loan almost a free gift, to put up four large plants to give India a fully integrated drug industry to make the country entirely free of foreign imports of its requirements of synthetic drugs, vitamins, antibiotics, hormones and intermediate chemicals. These plants were intended to be completed and functioning by the end of 1960, to supply the country more than three times the amount of drugs we were then importing. This would have saved the country more than Rs 60 crore a year and made drugs available to the hospitals and public at one-fifth to one-fourth of the prices then prevailing.

But vested interests, which were making cent per cent profit over their imported drugs, used their influence at court to see that the agreement was not signed or at least the signing was delayed. Consequently the agreement was not signed till June 1962 and even then in a mutilated form. The basic plant which was to produce 94,600 tons of raw chemicals and 33,200 tons of intermediate chemicals from which drugs were to be made was left out and handed over to a German firm which has now refused to build it. Then again the plant which was to have made 2,400 tons of 65 synthetic drugs and vitamins was cut down to 800 tons of 20 drugs and the hormone plant was left out.

In the meantime when the foreign patent-holders, mainly American firms, saw that their lucrative market was in danger they, on the basis of their patents, hurriedly obtained licences from their friends in court and started small plants in collaboration with Indian parties. These plants still make drugs largerly from imported penultimate compounds, not from raw materials, and sell them at about the same price as the previously imported drugs, and make huge profits. According to the Reserve Bank of India's bulletin these foreign firms had since 1958 invested Rs 5 crore and had by 1964 already taken out of the couniry Rs 4.9 crore in foreign exchange in the form of royalties, the charge of technical aid and profits. This drain will continue to increase over the years.

Victims of Drug Patents

All this is rendered possible by our patent laws in force, which offer full protection to the patentee; even under the provisions of the new Patent Bill it will make no difference; only the products of the patentee or his licensee can be sold in the market and at prices fixed by them, debarring us from importing from any cheaper source. For instance, take the case of tetracycline, an antibiotic very much in demand; it was sold in India at Rs 20 in 1964 (16 capsules of 250 mg each) and in the United Kingdom at Rs 18.20 (28 shillings) from chemists' shops. But the British Government imported it at Rs 5.20 from a non-patent observing country for use in public hospitals. It could not be sold at that low price from chemists' shops because of the British Patent Law and was not so sold. Even then the patentee sued the British Government for infringing its own patent law. But the House of Lords gave a decision in favour of the Government.

These high prices are also true of all other essential drugs that India needs, and what is worse still, we are barred by our patent laws from importing from any cheaper sources. And even when a private Indian firm makes the drug under a licence from or in collaboration with the foreign patentee it charges the same high price as the patentee.

India is the victim of its own patent laws as they concern the drugs. The American Senate's exhaustive enquiry under the late Senator Kefauver (1961) cites India as an example:

"India which does grant patents on drugs provides an interesting case example. The prices in India for the broad-spectrum antibiotics, Aureomycyin, Achromycin, are among the highest in the world. As a matter of fact, in drugs generally, India ranks among the highest priced nations of the world—a case of an inverse relationship between per capita income and the level of drug prices."

Drug Patents Must Go

So the first step that requires to be taken is to make inventions in drugs, insecticides and foods non-patentable in the new Patent Bill, just the same as the inventions in atomic energy are made non-patentable. The new Bill introduced in Parliament, however, retains the drug patents though in a modified form and it leaves out insecticides which are vital to both medicine and agriculture, but even then the amended provisions in the new Bill will not protect the interests of the Indian people.

Much is made of the proposal to grant in future drug patents only for the process and not for the product. This may have some significance in countries with highly developed chemical industry where alternative processes can be evolved. But in our country where chemical industry is in its infancy this will mean very little because we shall have to build our drug industry, to begin with, with Indian talent developing known processes.

Then again the endoresment of the patent with the words "licences of right" will not break the monopoly of the patentees. The Indian firm which desires to manufacture a drug will have to go to the patentee to obtain a licence and because it will have to pay royalty it will be tempted to depend on the patentee for the know-how also, instead of giving a chance to Indian talent. Under these conditions the patentee would use all the pressure at his command to see that the licensee sells the drug at the same exorbitant price as the patentee himself. Indian firms unfortunately are not averse to making high profits.

Again the reduction of the life of the patents from 16 to 10 years is of no significance. In modern times few drugs or processes last for more than five years because of the very fast tempo of research in this field. In any case the Indian licensee would be interested to continue the process he has put up the plant for and

would collaborate with the patentee to make slight alterations in the specifications of the patent to extend its life and also it must be remembered that once the patentee has given a licence to one Indian firm he will not give licence to another firm nor is another firm likely to ask for it; so there will be no competition.

Furthermore, it is difficult to understand why, when last year the Government had decided to fix royalty at 2 per cent, it has now been raised to 4 per cent to be paid for ten years. Are we just planning for the benefit of foreign patent holders, who in as little as three years recover the total cost of developing a new patent and make adequate profit?

Drug patents simply must go. Though the Patent Bill has been introduced, fortunately it is still to be passed by Parliament, probably in this session. The desired abrogation of drug patents can be and must be carried through.

It should be remembered that as recently as August 1963 Jawaharlal Nehru had told me that the Cabinet had decided to make the inventions in drugs non-patentable, after extensive investigations and consultations with all the relevant scientific bodies. But early in 1964, some members of the Government brought up the matter again and represented that if we abolished the drug patents it would annoy foreign industrialists (mostly American), who would withhold investments and know-how in the fields in which we needed them badly. This plea is utterly without substance. Firms work to make profit; if not huge then even a small profit is welcome. Take again the case of tetracycline; they sell it to chemists in U.S.A. at $ 5.10 for 16 capsules, but in Argentina, which does not grant patents in drugs and also controls their prices, the American firms sell the same 16 capsules at $ 1.19 and make profit even at that low price and are ready to do so.

This plea of annoying foreign industrialists is not only baseless but absurd. Anyhow we are not developing our country for their benefit; and the interests of our own people must come first. The life-saving essential drugs must be made available to our hospitals and people at almost the cost of production, which is about 1/20th of the present sale prices.

More Plants in Public Sector Needed

The next step would be to go back to the original Soviet plan and put up, with Soviet aid, the large plant for intermediate chemicals which the Soviet experts had designed. The present organic chemicals plant being put up is inadequate to meet our requirements.

The Antibiotic Plant put up at Rishikesh and the Surgical Instruments Plant at Madras will make us completely independent of the import of antibiotics and surgical instruments, if these plants are run competently, which seems doubtful at present. But the Synthetic Drugs plant being put up at Hyderabad is not even a ghost of the plant originally planned. And because of its physical location, it has no future. Therefore, a new drug plant bigger even than the one planned in 1956 should be set up with Soviet aid in the public sector at some sea coast town, to make all the needed essential drugs, vitamins and hormones. These State plants will not in any way interfere with the functioning of the existing private drug plants. However, the State plants must be run under competent scientific management on perfectly sound business line but on a non-profit-making basis. Drugs are obviously the one commodity which should not be exploited to make large profits, as is being done at present. That the drug industry makes much higher profits than any other industry was shown by the Kefauver Committee.

QUOTATION BOX

Shall we make the tricolour flag carry a rifle in the white middle strip instead of the Chakra as at present?

—Mr C. Rajagopalachari

Let us hope this is not going to be known in history as Indo-Pak War I.

—From an article in "The Radical Humanist"

The conclusion is that whatever one could do with PL 480, one could not depend on it.

—Prof. Amartya Kumar Sen

During the conflict with Pakistan there was a lot of misunderstanding in the United States, but gradually it disappeared. I found that in the beginning there was a lot of miscalculation about our strength; but when it was discovered that we had done a good job, the whole atmosphere changed. Therefore I think what we have to do now is to cultivate our own strength and not to depend on any country...Nothing succeeds like success.

—Mr G.D. Birla, reported in "The Hindustan Times"

The Indian princes were once very happy men... But democratic India has ceased to be conscious of their grandeur... Quite a few (of them) have abandoned the effort to sustain an aristrocratic position and, depending on taste and talent, have taken refuge in either democratic politics or alcohol.

—Professor Galbraith

People seem to think that as an Ambassador's wife I should not remain in Parliament, particularly as an Opposition member. They seem to forget that India is a democracy and that in other democratic countries there have been cases where members of the Opposition, leave aside their wives, have been chosen to represent their countries abroad.

—Maharani Gayatri Devi

Had such a feeling(of self-reliance) been powerful ten years or so ago India might not be importing American surplus grain to the tune of two shiploads a day.

—"The Times", London

Mr Khushwant Singh attributed the rise and prosperity of the (Sikh) community at the present time to their innate aggressiveness. This he defined as the "capacity for making an utter nuisance of themselves..."

—A report in "The Hindustan Times"

Smokers are not likely to be enthusiastic over an appeal issued by Mr R. Krishnaswami Naidu, Tamil Nad Pradesh Congress President, to miss a cigarette in line with the "miss a meal campaign" started by the Prime Minister.

—A report in "The Hindu"

A positive achievement of the Indo-Pakistan war is that it produced 930 items of news and comment in the British Press... In more peaceful times I would consider it a treat if I found even 9.3 items about India in British newspapers in two months.

—Mr Abu Abraham in "The Statesman"

Mr Red Tape is a creature of somewhat strange habits. He moves in grooves, he sits on files, he sleeps over reminders and occasionally he has been known to eat his own words.

—Mr L. K. Jha in a broadcast

1,280 Blocks Take up Programme

Intensive Area Development

Closer Co-ordination at Local Level

YOJANA summary of a working paper of the Planning Commission

ONE of the main lessons drawn from the record of agriculture in recent years is that much greater emphasis should be given to the development of scientific and progressive agriculture in an intensive manner in areas with relatively favourable agricultural conditions. In particular, in areas with irrigation and assured rainfall, everything possible should be done to secure high yields per acre. This is essential if a steady and continuous increase in agricultural output is to be obtained from year to year all over the country despite vagaries of rainfall.

In January 1964, at the suggestion of the Planning Commission, the Agricultural Production Board agreed that about 1,500 development blocks, covering roughly 20 to 25 per cent of the cultivated area in the country, should be selected for intensive agricultural development. The 15 districts covered by the Intensive Agricultural District Programme (IADP) include about 300 development blocks. In addition, about 1200 development blocks were to be selected and brought under intensive development over the three years 1964-65 to 1966-67. In selecting these areas initially, the predominant crops grown in them might serve as a guide, but the scheme of intensive development was to take into account the entire economy of each area.

Up till now State Governments have selected 1,280 development blocks in 114 districts and presumably they have constituted them into intensive agricultural areas. The programme is being assisted from the Centre by an organisation in the Ministry of Food and Agriculture headed by the Director-General of Intensive Areas.

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The approach to the intensive areas, as outlined in the Memorandum on the Fourth Plan (October 1964), is that each area selected should, be regarded as a 'project' for which appropriate programmes are worked out, the necessary inputs are made available, and programmes for the utilisation of existing irrigation, development of new irrigation, soil conservation, plant protection, improved agricultural practices and other methods of raising yields per acre are carried to the farthest extent practicable. The extension machinery would also be strengthened.

In the course of discussions which Mr Tarlok Singh, Member, Planning Commission, had with a number of States in 1964, it was felt that it would be useful for a group of senior officials in each State headed by the Agricultural Production Commissioner or the Development Commissioner not only to take advantage of the experience gained in the IADP districts but also to function together as a team in relation to one selected intensive agricultural area in the State. Arising from these discussions, 19 blocks were selected—Nilokheri, Thanesar, Ladwa and Shahabad in the Karnal district of Punjab; Chakia, Chandauli, Barhani, Shahabganj and Sakaldiha in the Varanasi district of U.P.; Amangal, Jadcherla Kalwakurthi, Shadnagar and Wanaparthy in the Mahboobnagar district of Andhra Pradesh; and Barjora, Sonamukhi, Patrasayer, Indus and Kotulpur in the Bankura district of West Bengal. It was also agreed that Mr Tarlok Singh would work closely with the State teams in following up the proposed projects. The Management and Administration Division of the Committee on Plan Projects (Planning Commission) constituted a Study Team on Area Development and Administration to participate in the study and evaluation of work undertaken by the State Governments concerned in the four areas mentioned above.

In each of the selected areas, a considerable amount of work is already under way. Some of this is along the lines being followed in other areas and some in the nature of new measures. Discussions with leading farmers, members of Panchayati Raj institutions, co-operative workers and extension workers generally throw into relief certain pressing problems. These include difficulties encountered in providing timely and adequate supplies of fertilisers and pesticides, difficulties in distribution of irrigation supplies, inadequate co-ordination between agriculture and irrigation agencies, insufficient inspection and supervision of work done by subordinate officials, lack of communication and marketing facilities, tendency to expand operations without consolidating the work done and strengthening the responsible organisations, the meagre extent to which benefits reach the smaller cultivators, inadequate godown facilities, handicaps caused by financial limitations and rigid administrative and other procedures and insufficiently precise planning and follow-up at various levels.

The work being undertaken at present under the guidance of State

district teams in the selected blocks of Karnal, Varanasi, Mahboobnagar and Bankura districts and further improvements which may be proposed are intended to assist in solving these problems. In the selected areas, it should be easier to explore new possibilities and to experiment and improvise and to go beyond traditional approaches. At the same time, in these areas, there will be continuous appraisal and review of progress and of the methods adopted.

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Throughout the country, the development block is now the unit of rural development administration. The block provides a body of administrative and technical personnel at the block level and a group of village level workers primarily for work in the villages. In areas marked out for intensive agricultural development, these personnel are available generally in somewhat greater strength than in other areas. One of the most important tasks in extension work relates to quality of the staff, adequacy of training, how the staff are motivated, whether they have a good grasp of the problems of the area and of the villages which they serve, and whether they know the people of the area closely enough to work with them as partners.

What are the activities which the people of the selected areas should be helped and stimulated to take up or adopt? These activities should be derived as far as possible from the needs and conditions of the area and from the experience and results gained by the people, specially by the more skilled and successful among them.

Commonly, various schemes are passed down to each district by Departments at the State level. Their value lies in directing the attention of the local staff to the broad range of tasks which have to be carried out and in providing certain resources in personnel and finance to enable them to fulfil the tasks indicated from the State level. It is important that State Departments should encourage local officials and workers to adapt the schemes to the conditions and requirements of each area.

The knowledge and experience available with extension workers at the district and block level are perhaps not sufficient to solve the problems of the intensive area or promote sufficiently rapid growth in it. These should be supplemented from outside in two ways. Officials and experts serving at the State and regional levels should devote a great deal of their time to village touring and discussions and to local inspections.

Another way is through the association of academic and research institutions with the problems and programmes of areas selected for intensive development. Such institutions include agricultural colleges, the economics, geography and social science departments of universities and colleges and those institutions which are able to undertake evaluation and surveys as well as those interested in regional problems. Engineering colleges and schools can also make a useful contribution without disturbing their own normal training functions. Other possibilities can also be suggested. Institutions which come forward to work with the people in the villages will gain a great deal for themselves and their teachers and students.

Within each intensive area, the programme to be undertaken should be visualised broadly for a period of, say, three to five years. It will have to be continually evolving and reshaping in detail. Forward planning, a sense of direction and ability continually to change and adapt and learn from experience in the field are important.

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Perhaps the most essential condition for success in an intensive area is that the supplies and inputs needed should become available at the right time and in the adequate quantity. There must be efficient planning and management at a number of points at the same time, that is, at the area level, for the region and the State, and also for the country as a whole.

The total supplies available should include not only those to be obtained from outside the area (for instance, industrial inputs) but also those which the area itself can produce (for instance, green manures and organic manures). The emphasis should be on local resources and the efforts which the people can themselves make. These local efforts, within each village and block, should be planned and implemented as a self-contained local plan.

If the two main institutions of the village, namely the village Panchayat and the service co-operative, are strengthened, they will be better able to bring together the people of the village into constructive activities and to help an increasing number of families to prepare their own plans. Farm plans for individual peasants have two objects. The first is to serve as a means of focusing attention on the requirements for credit and supplies of each peasant and for channelling these to the village. The second is to help each peasant to improve his land, to grow more paying crops and to increase yields per acre. The more these tasks can be taken up at the village level by the local institutions themselves the greater will be the coverage and usefulness of individual farm plans.

Efforts are now being made to enable the better farmers to take part and help in the work of extension and development. The holdings of the more skilled farmers should serve as demonstration farms and groups of farmers should be brought over to them. The best farmers of each group of villages and each block should be given a key role in preparing the local agricultural extension programme.

The scope of the agricultural programme is well known. There are some programmes in which often the progress achieved is much less than is hoped for or can in fact be realised. These programmes should be worked out with the greatest care for each block or group of villages and lessons from past experience should be pinpointed. In this connection, the programmes to be specially mentioned are : (i) making full use of the available irrigation potential, (ii) production and distribution of improved seeds, (iii) organic manures and local manurial resources, (iv) plant protection, (v) double cropping in irrigated areas, (vi) introduction of agricultural implements, and (vii) soil conservation.

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In particular areas, there will be other programmes besides these to which special attention will have to be given.

Generally speaking, schemes which are proposed by the Department of Agriculture and other Departments at the State level are in the nature of technical programmes. The special feature of work in the intensive area is that the two approaches are brought together. That is to say, an attempt is made to relate the various measures to be taken for agriculture or co-operation or any other activity to the needs and conditions of the selected area.

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If we look at the development of an intensive area as a whole and consider the activities now in progress, we shall probably find that there are some aspects to which sufficient attention has not been given. These aspects have to be pursued more systematically. They may be grouped under different heads as follows:

(1) Getting the best use out of the land, water and other resources of the area;
(2) Strengthening institutions and leadership in the area;
(3) Implementing the programme for land reform;
(4) Improving transport and communication facilities and the organisation of marketing;
(5) Extending improved implements and technology;
(6) Rural electrification; and
(7) Developing small industrial centres in the intensive area.

The existing physical base of agriculture in the selected areas can be strengthened in a number of ways. One of the most important among them is consolidation of holdings. In States in which consolidation of holdings is being undertaken on a large scale and its benefits are widely accepted, a plan for early completion of consolidation of holdings in the intensive area could be formulated.

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In most districts where agricultural improvement and development of irrigation have been under way for some years, important changes have occurred in the pattern of land use and in the scheme of cropping. Closer study of these changes and the factors which have influenced them, supported by the knowledge and experience of farmers and of agricultural workers in the area, would suggest the broad lines along which changes might occur in future and the directions which promotional and extension work should take. In each development block, for groups of villages and for different classes of land, extension workers should place themselves in a position to recommend broad land use and cropping plans which can be further adopted.

Allied to changes in land use and cropping is the question of distribution and use of irrigation available from both large and small projects. The agricultural plan of an intensive area should place a great deal of stress on practical possibilities of improving the irrigation system. Almost everywhere complaints are heard about the distribution of irrigation supplies. Many of them are capable of being remedied.

One of the main activities in the first phase of work in the intensive area should be to identify ways of improving the irrigation supply system within each particular block or group of villages, so that the correct approach may be evolved in co-operation with the cultivators and the administrative agencies concerned.

In many intensive areas, the institutional structure remains weak. This leads to excessive dependence on the extension machinery provided by Government. Without adequate support from co-operatives and Panchayats and enlightened local leaders, extension workers by themselves can achieve only limited results. Co-operatives are still very weak and and poorly organised. A thorough and systematic programme for co-operative development is a major condition of success in an intensive area. The role of village Panchayats and of service co-operatives is complementary and they are interrelated. The effort should be to work closely with each individual Panchayat and co-operative and to help them to secure fuller support and participation from the people, strengthen their financial resources and overcome internal weaknesses.

There are two steps which will help both the institutions : (1) training of local leaders and (2) linking of the village school with the development of the local community. For training of local leaders, the possibility of utilising existing non-official institutions, colleges and secondary schools should be explored in addition to Panchayati Raj training centres.

It is the accepted policy that the land should belong to the cultivator. Where the cultivator's rights are not fully those of a peasant proprietor, the next step in land, namely conferment of ownership on tenants, should be taken as early as possible. The position differs from State to State, but there is little doubt that in many States the incentive to greater production is weakened through evasion of the agrarian laws.

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At the district level, sufficient attention is not always given to the strengthening of economic overheads such as communications, transport facilities and marketing facilities. The communications plan of the district and of the intensive area can be so framed that prior attention is given to roads leading to market centres with which various aspects of distribution and supplies can be linked closely. In turn, villages may be linked with one another through approach roads which the people can construct largely through their own voluntary labour. In many market centres, appreciable improvements in facilities can be made with relatively small effort and expenditure. Proposals for improved marketing should form part of the development plan of the intensive area and should be carried out over a period.

In a large number of intensive areas very little effort is being made to utilise fully the available rural manpower. Considerable manpower can be harnessed for undertaking numerous works for developing the agricultural and economic potential of the area which may not fall into the customary patterns of development, such as afforestation, soil conservation, drainage, digging of field channels, levelling and reclamation, restoration of tanks, improvement of roads and village communications and tree planting near village homesteads and along roads, railway lines and canals. Systematically planned and efficiently implemented rural manpower programmes are an essential ingredient of intensive agricultural development. The working of the existing rural works programme

(*Continued on Page 26*)

BY REDUCING VARIETIES AND SHOWING THE WAY FOR USING LOCAL MATERIALS

STANDARDISATION PROMOTES SELF-RELIANCE

A.N. GHOSH

Joint Director,
Indian Standards Institution

THE aim of standardisation is the achievement of overall economy protection of consumer interest and safety and protection of health and life. This overall economy includes utilisation of all resources, human and material. This is of great importance in the economy of every country at all times and assumes added significance at the present time which calls for self-reliance and import substitution to the greatest extent.

In this context the part which standardisation will have to play is self-evident from past experience in other countries. During the last two world wars the great contribution which standardisation and rationalisation could make to the war efforts of the countries involved was conclusively proved. As a matter of fact standardisation as an organised activity received great fillip in many advanced countries during and after the two world wars.

In comparison with the industrially advanced countries of the Western world, the standardisation movement in India is of very recent origin. Though industry in India may be said to have moved forward to some extent during the early part of this century, it did so at a very slow pace, and gathered momentum only after independence, when national planning came to be accepted as a central policy for the country's economic, social and cultural development.

In the context of rapid industrialisation on a national scale it was natural that the need for organised industrial standardisation attracted early attention of industry and Government, resulting in the establishment of the Indian Standards Institution in 1947. From small beginnings in India, standardisation has now come to be accepted as a basic tool for all phases of economic development, be it industry or agriculture, internal or export trade, old established enterprises or those of recent origin. ISI thus occupies a prominent place in the economy of the country. This achievement has been possible because ISI sustained by the joint resources of the Government and industry and a wide circle of specialists in different branches of industry and government are engaged in the giant co-operative enterprise of preparing and promoting Indian standards.

Ever since its establishment, the Indian Standards Institution has been endeavouring to draw up Indian standards to suit Indian conditions and make use of indigenous raw materials. For instance in order freely to utilise the indigenous raw materials for the manufacture of cement, the magnesia content in cement has been permitted to be increased from that provided in the British standard which was being used in India earlier. Another example is that the replacement of Leighton luzzard sand by Indian standard sand (Ennore sand) for testing cement. Similarly African and American cedar used for pencil slats and imported ash and hickory for tool handles have been replaced by Indian species of timber. Himalayan fir and spruce replace imported Canadian spruce and Douglas fir for aircraft body construction and Andaman Padauk replaces imported birch and mahagony for aircraft propellers.

Indian standards for electric cables have been drawn up to provide for substitution of copper (imported) by aluminium, which is indigenously available. In the formulation of standards relating to electrical insulating materials care has been taken to ensure the maximum use of indigenous raw materials. Similarly, in water meters, water fittings and in builders' hardware items, the relatively scarce copper alloys have been replaced by more easily available indigenous materials. Aluminium is being widely substituted for stainless steel in Indian standards for dairy equipment.

ISI has been always endeavouring to conserve scarce raw materials such as copper alloys, nickel and tungsten. While developing Indian standards for alloy and special steels the availability of ferro alloys in the country has been kept in view and the use of nickel, tungsten and molybdenum and such other scarce materials, which are now imported, have been reduced to the minimum.

Attempts are being made to codify and popularise aluminising of steel instead of galvanising in order to conserve zinc which is an imported material.

To make the country as far as possible independent of import of X-ray equipment in India and to avoid importing of the X-ray tubes, both as original and replacement parts, the Institution has already formulated standards covering X-ray tubes diagnostic type, and further work on other related items is on hand.

Of the many cases of variety reduction achieved in the Indian standards a few may be cited as examples:

(a) The 1,500 varieties of carbon and alloy steels used in the past have been reduced in the Indian standards to 150 which is a typical example of variety reduction. As an emergency measure, attempts are now being made to reduce the variety further to about 40 to 50.

(b) In the revised versions of Indian standards only sizes of lead acid batteries have been recognised and three sizes of heavy duty batteries have been recognised in place of some 200 varieties existing in the market.

(c) More than 100 sizes of rectangular tins were reduced to 7, and 24 sizes of square tins for general purposes to 6 by Indian standards on this subject.

Company Standardisation

In order to meet the growing needs of the Indian economy ISI has been accelerating the rate of preparation of standards as much as possible. *But it is obvious that preparation of standards in itself will not be of much practical use unless they are widely implemented.* Widespread application of these standards will ensure optimum use of raw materials, machines and manpower resources in productive enterprises.

It is only in recent years that the importance of the introduction of standardisation at the company level based on and in line with national standards is being realised in India in a serious enough manner for concrete steps to be taken to meet the need. The Indian Standards Institution has already launched a planned programme for promoting company standardisation activity in the country and several training programmes for company executives are being regularly arranged. This activity of the Institution carries the message and advantages of standardisation to the basic operative levels where it can be most effective.

The public sector undertakings can give a firm lead in this regard by setting up in-plant or company standard departments within their organisations to develop company standards in line with Indian standards wherever available to guide every activity from the stage of design and procurement of raw material through production.

Apart from this the public sector undertakings should also take up the ISI certification marks for their products as they have already done for steel.

Foreign Collaboration

One of the most pressing problems which this movement of company standardisation activity is expected to resolve is that created by the multiplicity of company standards of overseas collaborators, which their counterparts in India are expected to follow more or less rigidly. With the growth of in-company standardisation in the country, it would be possible for all production units to review their internal standards and relate them to the national standards of India—and through them with ISO and IEC recommendations — thus minimising the divergence which leads to avoidable economic loss and increase in cost of production.

Overseas collaboration agreements in India have to be approved by the Government of India. ISI, through the Directorate-General of Technical Development (DGTD), has therefore, taken steps to bring the following recommendations to the notice of the prospective entrepreneurs proposing collaboration with overseas parties at early stages of negotiations.

(a) Collaboration should be based, as far as practicable, on available Indian standards and materials. To ensure this, when collaboration is sought, a realistic assessment of standards and materials should be made and the relevant information sent to the overseas collaborators.

(b) The assessment of Indian standards and materials should be projected to the immediate future so that any development taking place before the collaboration comes into effect and production begins, could be taken advantage of.

(c) To reduce the variety of parts, tools, equipment, etc., the Indian counterpart, if it is a new enterprise being established, should ask for the standards of the collaborating firm, but if the Indian counterpart is already established in manufacturing, it should provide the foreign collaborator with its own standard so that the same may be incorporated in the project.

(d) In any project agreement, there should be a provision to enable the Indian counterparts to re-design the product to the extent necessary to introduce Indian standards and the company's own standards materials, parts etc. as may be developed from time to time, provided the performance of the product remains unaffected or improves.

(e) Considering that standards are essential right from the pre-planning stage of the project, it stands to reason that every manufacturing project should provide for a standards organisation and activity.

(f) It will be helpful if, as a part of the collaboration's assistance, the collaborator is also asked to provide know-how for organising company standards activity.

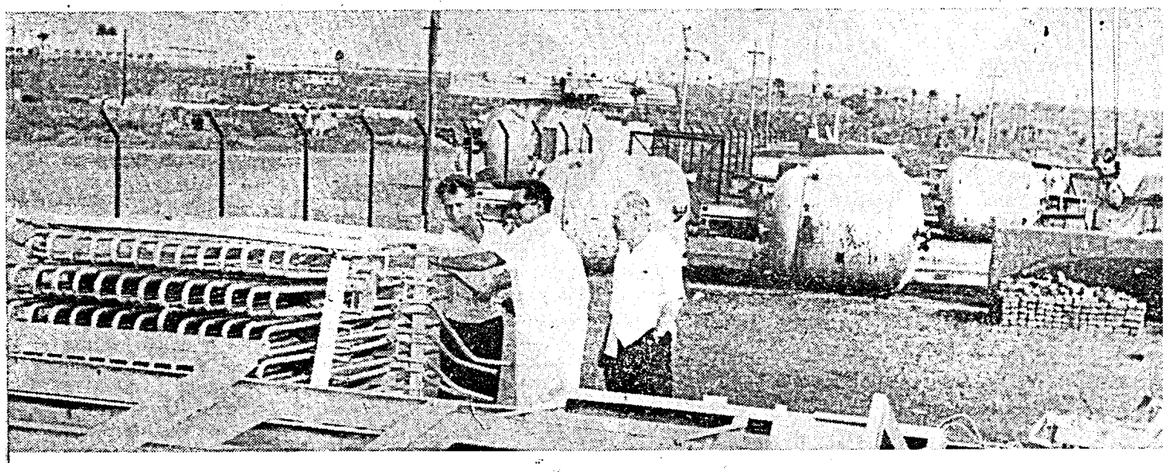
The above recommendations were also brought to the notice of the Federation of Indian Chambers of Commerce and Industry, the All-India Manufacturers' Organisation and the Associated Chambers of Commerce of India, but to achieve significant results a vigorous effort will have to be made for their implementation.

Other Implementation Aspects

A recent study made by the National Council of Applied Economic Research relating to saving in steel through standardisation indicates that if all the Indian standards so far published on the production and use of steel are fully implemented, *a saving of over 23 per cent could be effected.* This typical study would indicate the amount of possible savings of materials that would be achieved if Indian standards are implemented by all concerned. Similarly in the field of concrete construction the implementation of the concrete code which provides for strength grading of concrete and modern methods of design, use of deformed steel bars and adoption of composite constructions would lead to considerable economy. Further, the use of industrial wastes such as blast furnance slag and fly ash and pozzolana as building materials is becoming more and more important and their use has been covered in some of the Indian standards.

To obtain the benefits of such possible advantage, it is necessary for the Government as well as industry to take effective steps to see that the standards in all fields are fully and widely implemented in the whole country.

Sulpha Drugs and Vitamins from Hyderabad



Recently unloaded equipment from the Soviet Union for the Synthetic Drugs Project, Hyderabad, being inspected

Below :

Pre-cast columns for the welfare and medical block of the project

PILOT PLANT GOES INTO PRODUCTION

THE pilot plant of a new synthetic drug project has started working in Hyderabad. This takes the number of projects in our public sector manufacturing drugs to three. The factory making penicillin and streptomycin at Pimpri belongs to the Hindustan Antibiotics Ltd. The other two, the Antibiotics Plant at Rishikesh (pilot plant of which started production last month) and the new Hyderabad plant are managed by the Indian Drugs and Pharmaceuticals Ltd. They are both being set up with Soviet help.

Until the last few years, all the drugs known and used came from either the plant world or the animal world. However different the Ayurvedic *vaidya*, the Unani *hakim* and the allopathic physician were in looks and work, their medicine box had the same kind of origin. Sometimes a drug was borrowed from one system by another. Sarpagandha, for example, went to western medicine as reserpin.

But in this century, besides preparing medicines by *extraction* from herbs and glands, the chemist in his laboratory began *making* new drugs and thus the synthetic drug industry was born. And the birth of the man-made drugs has staved off the death of millions of human beings.

Antibiotics arose from the work done by Alexander Fleming in the late twenties. The era of synthetic drugs began in 1935 as a casual offshoot of the dye industry, with the discovery by Dr. Gerhard Domagk, a German doctor, that a red-brick dye, called prontosil, used for dyeing wool, was a remedy for streptococcal infection. A few years later, chemists and doctors of the Pasteur Institute in Paris analysed the dye and found that its medically effective part was a sulphonamide group.

This brought about a pharmaceutical revolution. In the last 30 years, some 2,500 different sulpha compounds have been synthesised and clinically tested. Of these a dozen have proved to be effective. They are used against pneumonia, meningitis, gonorrhoea and so on.

But sulpha drugs cannot cure certain diseases like tubercolsis, typhoid, syphilis and virus diseases. These are combated with the help of antibiotics—penicillin, streptomycin, aureomycin, terramycin and chloromphenicol. The last named was the first antibiotic to be synthesised in a laboratory.

In 30 years the drugs industry has grown to be so vast that every year more than 500 new pharmaceuticals are introduced throughout the world. And every day, some new drug or other goes out of use, being replaced by newer and more efficacious remedies. Some of these preparations, in developing which millions of rupees would have been invested, are replaced by others even before they complete their trials.

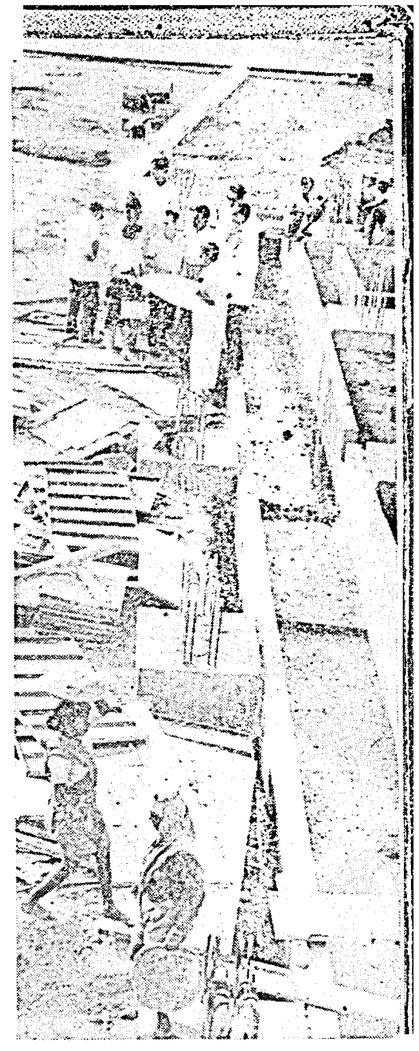
The discovery of a new drug against a particular disease may render out of date an entire plant manufacturing an earlier drug against the same disease. So every drug manufacturing firm continuously undertakes research programmes not only to improve their existing products but to find newer and better alternatives.

The Hyderabad Synthetic Drugs Project is also setting up an up-to-date research laboratory. A pilot plant will act as a link in transforming the research into large-scale production.

The project, which was prepared by M/s. Techneoexport, Moscow, is scheduled to start trial production by the middle of 1966. It is designed to produce annually about 850 tonnes of synthetic drugs like vitamins, sulpha drugs, anthelmintics (used against worms), analgesics and antipyretics (used to relieve aches and fevers), diuretics (used to rectify defects in urinary flow), etc.

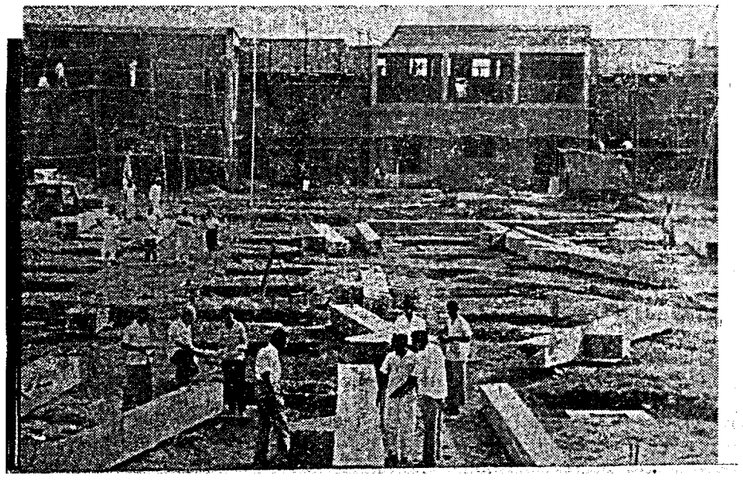
Vitamins, essential for normal metabolism, are administered as drugs in underdeveloped countries where the normal diet is deficient in vitamins. The Hyderabad project will make vitamins B_1, B_2, folic acid, and nicotinamide, all belonging to the B Group, which are associated mainly with oxidation-reduction processes and carbohydrate metabolism in the body.

The sulpha drugs to be manufactured by the Synthetic Drugs Project are (1) sulphadimidine which is used against pneumonia, streptococcal and other infections of the urinary tract, (ii) sulphaguanidine which is valuable in the treatment of intestinal infections like dysentery, (iii) sulphacetamide sodium used chiefly for local application in infections and injuries of the eye, and

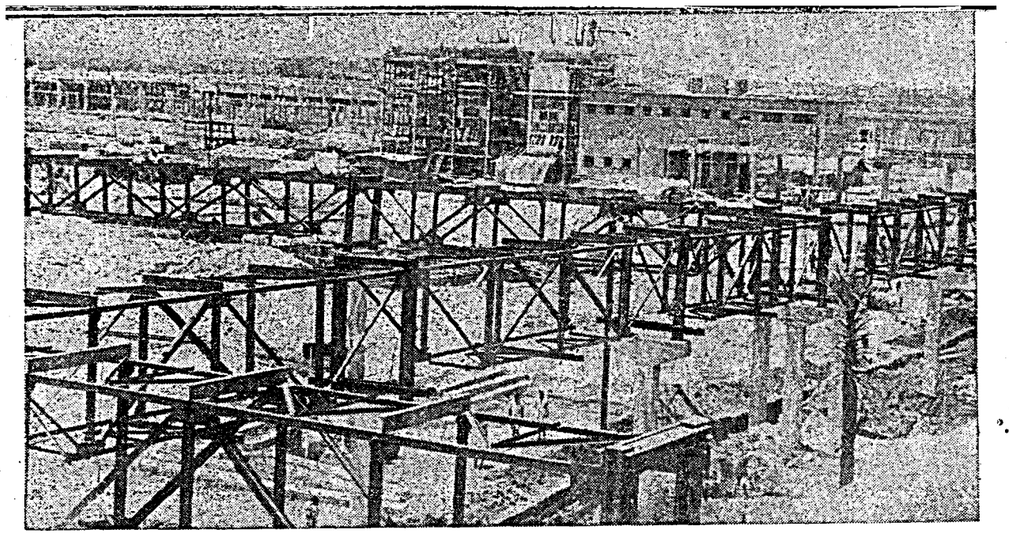


Above: Foundations of the Boiler House of the Synthetic Drugs Project at Hyderabad

Left: Work in progress on the first floor of the building that will house the sulpha drugs plant







A section of the plant under construction

(iv) sulphanilamide useful against pneumonia.

Phenacetin, amidopyrine and metamizol will be among the analgesics and antipyretics to be made at Hyderabad which are used to relieve headache, toothache, and rheumatic and neuralgic pain. Diethyl carbamazine citrate and piperazine adipate, which are called anthelmintics, will also be made in the factory. Phenobarbitone, which is used in the treatment of epilepsy, isoniazid, an anti-tubercular drug, and acetazolamide, a diuretic, are among the other drugs to be produced here.

These drugs will be manufactured from basic raw materials, most of which are available in the country. Out of about 30,000 tonnes of raw materials to be processed at the plant every year, about 25,000 tonnes will be obtained locally. As more chemical and petro-chemical industries come up in India, even the balance of raw materials will cease to be imported.

The plant will have the capacity to formulate about half the quantity of drugs made here into tablets.

Over 11,000 tonnes of equipment and machinery will be installed in the factory. About 90 per cent of the equipment to be imported from the U.S.S.R. is at site. Key technical personnel for the project are trained in the U.S.S.R. and some have already come back and are at work.

Skilled operators necessary for the project are being trained at the pilot plant, which has been commissioned, in the various chemical processes that would be adopted for large-scale manufacture.



A consultant examines the preparation of the flooring slab for the Vitamin B_1 plant

Entrepreneurs are being encouraged to establish ancillary industries near the project which can utilise the drugs that are not converted into dosage forms, and the intermediate chemicals which are made in the course of the manufacture for making their own pharmaceutical products.

CO-OP YARN FOR "BLEEDING MADRAS"

THREE co-operative spinning mills began production in Madras State at the end of October. These are organised by the district weavers' societies of North Arcot, Madurai and Coimbatore. With these, the number of spinning mills in the State has risen to eight.

Each of these co-operative mills has 12,000 spindles, with provision for expansion to 25,000 spindles in the Fourth Plan period. Preparations for the expansion have already begun.

Each co-operative mill has an authorised share capital of Rs 60 lakh. They were registered in October 1963 and construction work began in 1964. The mills will produce yarn for the handloom industry. The North Arcot Mill will produce medium and fine yarn specially for 101 weavers' co-operatives that make "Bleeding Madras" and "Madras handkerchief".

There are 700,000 cotton handlooms in Madras State and they consume about 20,000 bales of cotton yarn every month, and often the State experiences scarcity of yarn. The Government is therefore encouraging the establishment of co-operative spinning mills. The primary and the apex weavers' co-operatives hold a substantial share in the capital of the co-operative spinning mills.

Four co-operative spinning mills were set up in the Second Plan and nine more are to be set up by the end of the Third Plan of Madras.

SEA

INEXHAUSTIBLE SOURCE OF POTASSIUM FERTILISERS

Rs 2 Crore Can Be Saved : Equipment Produced to Process Bittern

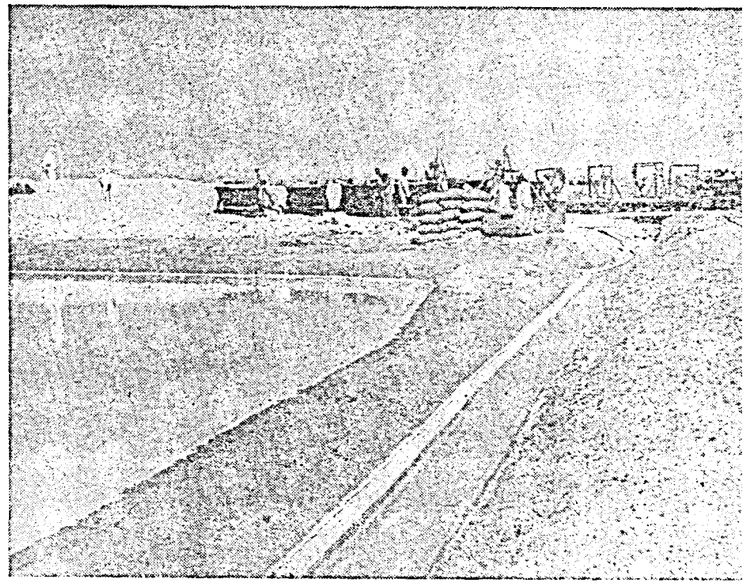
D.S. DATAR, Director, Central Salt and Marine Chemicals Research Institute, Bhavnagar

POTASSIUM is an essential plant nutrient. Application of potassium fertiliser yields an increase of 6 to 12 kg. in terms of grain or its equivalent in other crops for every 1 kg. of K_2O added. At the present price levels of crops and potassium fertilisers, every rupee spent on potassium fertiliser results in crop increase valued at Rs 2 to 4. The proportion of potassium fertiliser absorbed by different crops per kg of K_2O per acre of crop is sugarcane 86.6, tobacco 38.6, cotton 37.7, potato 35.0, paddy 18.6 and wheat 3.6. This gives an idea of the quantities of potassium fertiliser required.

India does not have any deposit of potassium salts except small quantities of saltpetre exuded from the soil in Uttar Pradesh, Bihar, Punjab and Madras. The potassium salts most commonly used as fertiliser are potassium chloride and potassium sulphate. Both are imported, and these imports at present require foreign exchange of Rs 2 crore. But the imports meet only a half of the estimated requirement of 150,000 tonnes of K_2O.

The main source of potassium fertilisers in India is sea water. We do not have processes at present for manufacturing potassium fertilisers directly from sea water; but it is possible to manufacture potassium fertilisers from bittern, a waste product obtained during the manufacture of salt from sea water. The present potential capacity for manufacture of potassium fertilisers from bittern is 25,000 tonnes in terms of K_2O.

It is, however, not economical to recover potassium fertiliser from bittern directly as it contains only 2-2.5 per cent potassium chloride. By solar evaporation of bittern, we can obtain a mixed salt that contains about 20 per cent potassium chloride. The other ingredients of this mixed salt produced from sea bittern are magnesium sulphate (30-35 per cent), sodium chloride (15-20 per cent), and magnesium chloride (6-8 per cent). For every 100 tonnes of salt production, 6 to 7 tonnes of mixed salt are obtained and the estimated cost for the production of mixed salt is about Rs 7 per tonne.



Part of a salt works in the Kutch region

Special attention and careful control of densities are required to obtain good quality of mixed salt. The contamination of mixed salt with crude has to be scrupulously avoided. The other possible variations in the mixed salt composition arise out of magnesium sulphate separating out at low temperature during winter nights and magnesium chloride being drained out during

storage under humidity conditions existing on the sea coast; these variations, however, do not affect the formation of the potassium fertiliser from mixed salt using floatation technique.

By careful planning and with controlled evaporation of bittern, it is possible to obtain mixed salt by solar evaporation of bittern in all parts of the country wherever salt is manufactured by solar evaporation. Field trials for the production of mixed salt have been successfully carried out in Saurashtra and Kutch in Gujarat and the Tuticorin area in Madras. These are to be extended to Vedaranyam area in Madras and numerous salt producing regions in Maharashtra, Andhra Pradesh, Orissa and West Bengal.

The three potassium fertilisers that can be recovered from mixed salt are potassium chloride (KCl), potassium sulphate (K_2SO_4) and potassium schoenite (K_2SO_4. $MgSO_4$. $6H_2O$).

POTASSIUM CHLORIDE

The manufacture of potassium chloride alone is not economically viable. Chemical purity grade potassium chloride is obtained by recrystallisation. This fetches better price and is used in the manufacture of useful and prized potassium chemicals like potassium chlorate, potassium hydroxide and potassium carbonate. The economic feasibility of the process is improved also by incorporating the manufacture of epsom salt along with potassium chloride. The Central Salt and Marine Chemicals Research Institute of Bhavnagar is setting up a semi-commercial plant to manufacture potassium chloride and epsom salt at Kandla. The plant will have a production capacity of 3 tonnes of potassium chloride per day and it will go into operation early in 1966.

It is not considered desirable, however, to put up additional units for the manufacture of eposm salt unless some new applications for epsom salt are found as there already exists considerable unutilised installed capacity in the country for its manufacture from magnesite and sulphuric acid.

POTASSIUM SULPHATE

Potassium in the form of potassium sulphate is preferred to potassium chloride for use as fertiliser for certain crops which cannot tolerate chloride ion, such as tobacco, potato, tubers and sugar beets. Also it is advantageous to import potassium chloride rather than potassium sulphate as we have to pay only Rs 5 per unit of K_2O in potassium chloride but Rs 8 per unit of K_2O in potassium sulphate. It is, therefore, imperative from the point of view of saving of foreign exchange that the two valuable radicals present in mixed salt, namely potassium and sulphate, are necessarily recovered in the form of potassium sulphate or potassium schoenite.

In the process recently worked out in the Institute for the manufacture of potassium sulphate from sea bittern, first carnallite and schoenite are obtained from the mixed salt separately. Potassium sulphate is then prepared by reaction of potassium schoenite and potassium chloride at room temperature. Potassium chloride is obtained by decomposition of carnallite, but to recover potassium chloride from the potassium sulphate end liquor, which contains 17-18 per cent potassium chloride, the extraction of potassium chloride from carnallite is carried out by the potassium sulphate and liquor instead of with water in the conventional method.

The above process is economical only if the cost of carnallite does not exceed Rs 100 per tonne. Under conditions where cost of carnallite is higher, use of imported potassium chloride for conversion of potassium schoenite to potassium sulphate is likely to be more economical. Efforts are being made to bring down the cost of manufacture of carnallite from mixed salt by minimising the equipment and also by substituting by cheaper equipment so that investment costs are reduced.

MANUFACTURE IN KUTCH

A process has been worked out for the manufacture of potassium sulphate based on the utilisation of bitterns from the salt works in the Little Rann of Kutch. Bitterns are available in the area, some practically free of magnesium sulphate and others containing magnesium sulphate. The varieties of mixed salt that can be produced from them are an ideal combination for the manufacture of potassium sulphate.

In March and April 1965, twenty-three salt works, both in the private and in the co-operative sectors in the Kuda region and the salt works of Hindustan Salts Ltd., Kharaghoda, were visited. A large number of samples of bitterns and brines were collected and analysed for their potassium and sulphate contents. Earlier the studies carried out on evaporation of bitterns showed that, depending upon the sulphate content, three types of mixed salt could be separated from bitterns, namely (1) kainite type from bitterns containing more than 6 per cent $MgSO_4$, (2) kainite+carnallite type from bitterns containing 2-6 per cent $MgSO_4$, and (3) carnallite type from bitterns containing less than 2 per cent $MgSO_4$.

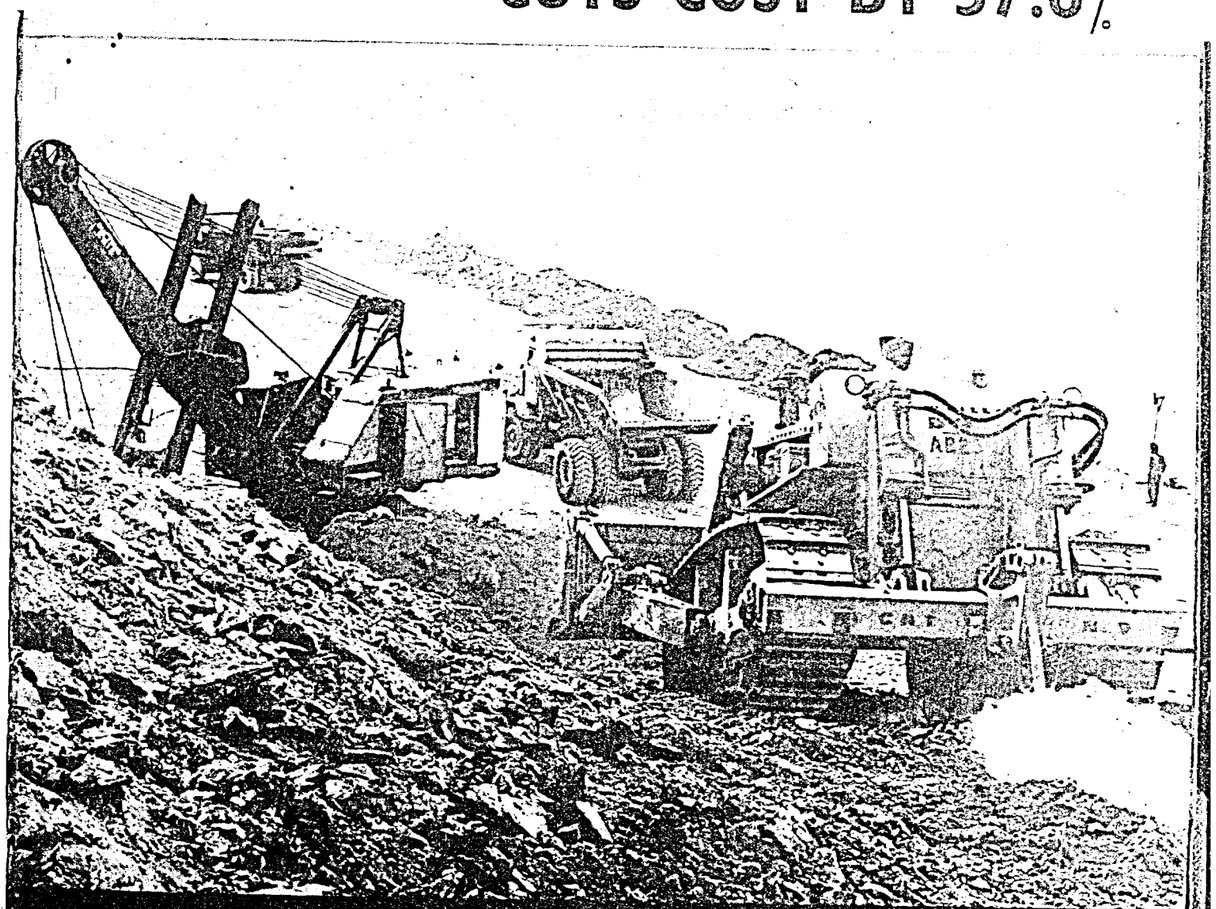
The mixed salt recoverable from bitterns in the inland salt works in the Little Rann of Kutch is of types 2 and 3. Very few bittern samples are found to contain more than 6 per cent $MgSO_4$, indicating that pure kainite type mixed salt is not likely to be obtained in the area. Kainite+carnallite type mixed salt contains on average 25 per cent potassium in the form of carnallite.

The new process developed in the Institute for the manufacture of potassium sulphate is based upon the two types of mixed salt available in the area and envisages the recovery of entire sulphate and potassium in mixed salt in the form of potassium sulphate. It is seen that for this process, the requirement of the two types of mixed salt is in the ratio of 1:2, that is, twice the quantity of the kainite+carnallite type mixed salt is required as that of carnallite type of mixed salt. It is seen that there is potential capacity in Little Rann of Kutch to produce 12,000 tonnes of mixed salt of carnallite type. For manufacture of potassium sulphate utilising this mixed salt, requirement of kainite type of mixed salt works out to 24,000 tonnes. In the area surveyed, 12,000 tonnes are available.

An additional quantity of 12,000 tonnes can be obtained from the near-by works lying between Malia and Navalakhi. The present salt production in about 120 salt works in the Little Rann of Kutch is 7.5 lakh tonnes. The potential for potassium sulphate manufacture in the region therefore easily exceeds 6,000 tonnes per year.

AT THE BEAS DAM PROJECT...

RIPPING REPLACES DRILLING AND BLASTING... CUTS COST BY 57.6%



The Beas Dam Project at Pong in Punjab is a gigantic undertaking which involves moving over 113 crore cubic feet of earth and rock for the dam alone and over 227 crore cubic feet of total earthwork. This multipurpose project is designed for irrigation, and flood control and includes a power house which will produce some 3,60,000 KW of electricity. The Beas Dam, on completion, will irrigate nearly 55 lakh acres of land in Rajasthan and Punjab.

Ripping replaces drilling and blasting . . .

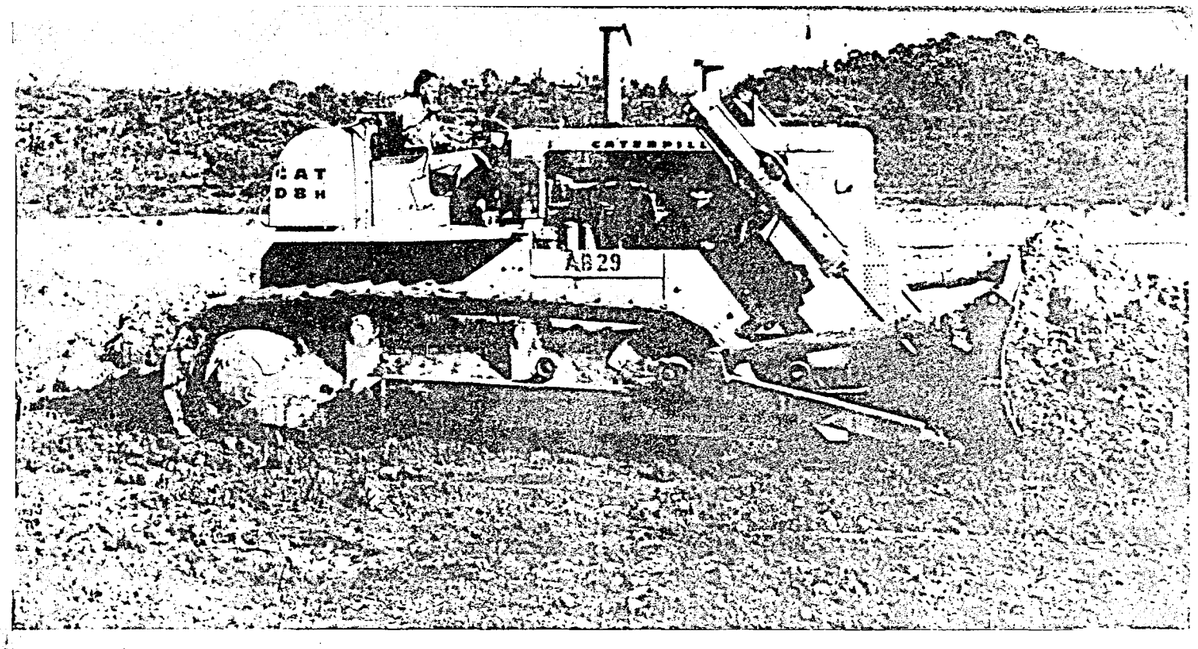
Work started primarily with drilling and blasting. The Caterpillar dealer conducted a seismic test and found that the major portion of sandstone encountered was rippable. An on-the-job demonstration with a Caterpillar D9G tractor equipped with a single shank ripper proved successful. The Project is now carrying out extensive ripping operations where previously they had intended to drill and blast.

Costs cut by 57.6% — more equipment ordered

It is estimated that drilling and blasting cost the project Rs. 1.25 per bank cubic yard. By using the Caterpillar D9G tractor and rippers, costs have been cut down by 57.6%. As a result of the demonstration, two new No. 9B rippers were ordered. Meanwhile, three D9G Power Shift tractors with rippers are ripping and dozing sandstone and clay shale round-the-clock, producing approximately 100 to 150 bank cubic yards per hour. Since the D9Gs are also dozing the ripped material to a stockpile for shovel loading operations, actual ripping costs alone, versus drilling and blasting costs, will be further reduced. Six D8H Power Shift tractors are working for opening new faces, spreading the fill and maintaining the ground for shovel loading.

Cat performance at Beas dam project

At the Beas project, machine availability is as high as 92%. Power Shift Transmission has resulted in shorter cycle time and hence greater production. Many exclusive built-in features in Caterpillar Crawler Tractors are continuously demonstrating substantial job economy. The high standard of after-sales-service has resulted in minimum downtime.

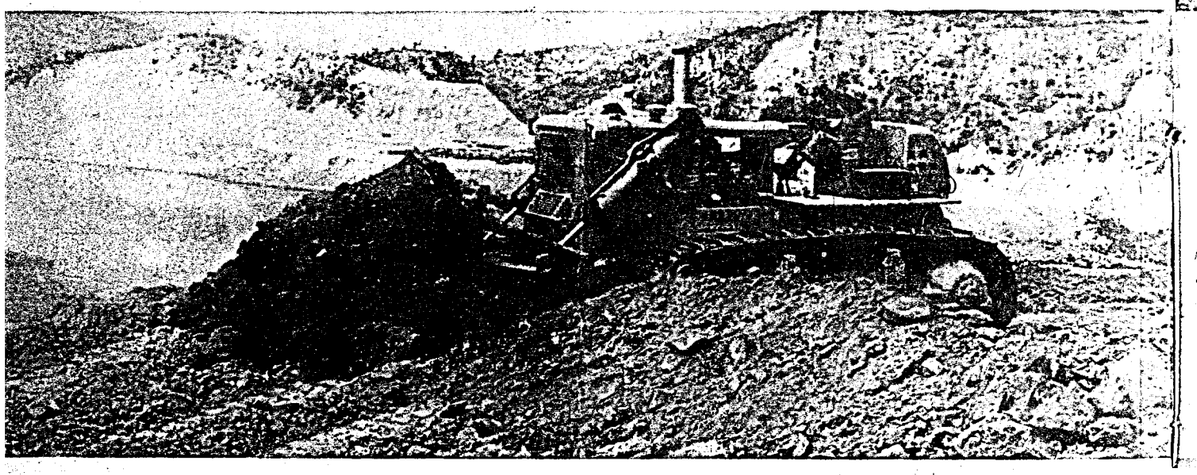


PRODUCTIVITY-FEATURES IN CATERPILLAR D8H TRACTOR GIVE TOP PERFORMANCE AT LOW COST

Most popular and the largest seller in the Caterpillar range—the D8H is powered by a specially designed 235 flywheel horsepower Caterpillar Engine.

Other D8H features include :—

- A Planetary-type Power Shift Transmission with exclusive Caterpillar Torque Divider Drive—gives 25% more production.
- A Direct Drive Transmission with oil clutch—optional for work not requiring frequent speed and directional changes.
- Oil-cooled steering clutches and brakes minimise heat, fade and wear.
- Patented sealed track and lifetime lubricated rollers and idlers extend life of ruggedly-built undercarriage. These are standard components on all CAT Crawler Tractors.



CATERPILLAR D9G TRACTORS FOR POWER . . . PRODUCTION . . . PROFIT

This giant 385 flywheel horsepower machine is designed for the roughest dozing and toughest ripping assignments. The massive, tough and long-lived undercarriage can take these jobs in its stride. Exclusive Caterpillar lifetime lubricated rollers, idlers and sealed tracks—all add up to a massive long-wearing undercarriage. (These components, together with the undercarriage, are standard on all Caterpillar Crawler Tractors). Fast manoeuvring on a mountain logging road, long life on a quarry floor—all are provided for by these features. Oil steering clutches and brakes with Hydraulic Control give fast response for full turns, gradual slipping for slight turns. Planetary Final Drive provides gear reduction and permits clutches to operate at higher speeds with less torque. And that means less strain, less load on the clutch plates and final drive pinions. All these built-in features will give more production, more profit.

CATERPILLAR TRACK-TYPE TRACTORS

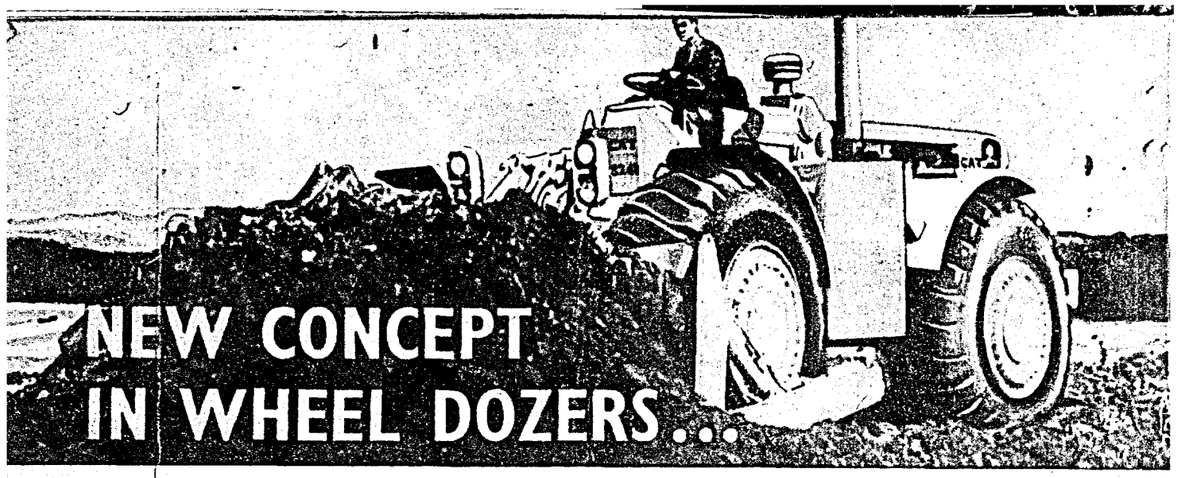
The range of Caterpillar track-type tractors combines simplicity in design, for easy accessibility and maintenance, with built-in rugged dependability for tough job conditions and more work at less cost. They provide the most complete range of models for the production rate needed on any job application.

Exclusive Features

LIFETIME LUBRICATED ROLLERS AND IDLERS, standard on all Caterpillar Crawler Tractors, require no periodic maintenance until rebuild time.

SEALED TRACKS do not permit dirt and other abrasives to enter and wear out track components 30% longer life than on competitive equipment.

Only Caterpillar dealers can offer indigenous undercarriage components—manufactured in collaboration with Caterpillar according to rigid Caterpillar specifications, quality control and inspection.



THE CAT 800s

Two new wheel-type tractors join the growing family of Caterpillar construction and mining equipment. The new concept combines long wheelbase stability with short frame manoeuvrability. The total design of the 824B (275 Flywheel H. P.) and 834 (360 Flywheel H. P.) results in machines built specifically for dozing and pushing and capable of handling their assignments reliably.

Features

Caterpillar Wheel Dozers, though new in design, feature the same dependability built into all equipment. Engines belong to the proven 5.4" bore family, successfully used on Caterpillar wheel tractor-scrapers. This common design of assemblies and components, with other Caterpillar-built machines, minimises maintenence problems and ensures rugged operation. These wheel dozers are particularly designed for jobs where underfoot conditions are favourable and high-speed push-loading or dozing is required. Caterpillar wheel dozers cut down push-loading cycle time and increase production.

These dozers feature wide-base, low pressure tyres for first-rate floatation and traction.

Attachments

Pushing attachments for the 800s include an inside-mounted cushion dozer to reduce danger to scraper tyres and to permit approach speeds of 3–4 M.P.H. without shock.

After-sales-service

Machine specifications alone do not form the only criterion of a unit's worth to the owner. Availability of genuine parts and skilled service must also be considered when investing in any earth-moving equipment.

Your Caterpillar dealer maintains an adequate array of parts, to service all the equipment working in his territory. His service department is staffed with trained engineers, equipped with the most modern machines and the time-saving service tools. These facilities protect your investment.

CATERPILLAR

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For further details, please contact the Caterpillar dealers at :

LARSEN & TOUBRO LIMITED	TRACTORS (INDIA) LIMITED	WILLCOX BUCKWELL INDIA LIMITED	TRACTOR & EQUIPMENT CORPORATION LIMITED
Bombay : Madras	Calcutta : Lucknow	New Delhi : Chandigarh	New Delhi

POTASSIUM SCHOENITE

It is preferable to recover potassium schoenite from marine mixed salt, that is mixed salt obtained by solar evaporation of sea bitterns, both from the point of view of capital investment and cost of production. The capital investment and cost of production in rupees per tonne of K_2O per year for the three potassium fertilisers are approximately potassium chloride Rs 2,500 and Rs 960, potassium sulphate Rs 160 and Rs 700, and potassium schoenite Rs 530 and Rs 390. Therefore, manufacture of potassium schoenite from marine mixed salt is recommended. On the other hand, manufacture of potassium sulphate from mixed salt obtainable from salt works in the Little Rann of Kutch is suggested because the compositions of the two varieties of mixed salt are not suitable for the production of potassium schoenite but are an ideal combination for the manufacture of potassium sulphate.

Potassium schoenite is the double sulphate of potassium and magnesium (K_2SO_4. $MgSO_4$. $6H_2O$). The mixed salt obtained from sea bittern contains potassium chloride and magnesium sulphate in the ratio as required for the formation of schoenite. The presence of sodium chloride in the mixed salt, however, hinders the direct formation of schoenite. Sodium cholride is eliminated by the process of floatation. The floated product on treatment with water under constant agitation yields schoenite. A process has been worked out on a pilot plant basis that produces 1.5 tonnes of potassium schoenite per day. By this process 80-85 per cent of potassium chloride in mixed salt is economically recovered as schoenite, containing K_2O 22-25 per cent and MgO 8-10 per cent.

Potassium schoenite can replace potassium sulphate in fertiliser mixtures. The only difference is that the K_2O content in potassium schoenite is nearly half of that in potassium sulphate. But this is offset by the presence of magnesium in the fertiliser. Magnesium is considered one of the secondary plant nutrients and helps in assimilation of other nutrients in the fertilisers.

It is seen that in the manufacture of potassium schoenite, the capital investment required is considerably less than that for potassium chloride or potassium sulphate. A cost estimate for the manufacture of 3,000 tonnes of potassium schoenite per annum has been worked out. A plant costing Rs 3.5 lakh processes annually 6,000-7,000 tonnes of mixed salt and is suitable for medium-size salt works manufacturing 75,000 to 1 lakh tonnes of salt per year.

The annual production of common salt in the country is to the extent of 4.32 million tonnes. The bitterns from salt works in Rajasthan and Himachal Pradesh do not contain potassium salts. In some other areas and in very small salt works it may not be possible to produce mixed salt. The recoverable mixed salt from salt works in Andhra Pradesh, Gujarat, Madras, Maharashtra and Orissa is estimated at 0.24 million tonnes. On processing this mixed salt for the production of potassium fertilisers, a saving of foreign exchange to the extent of Rs 2 crore can be achieved. No imported equipment or machinery is required for setting up the plants.

It is worth noting that by investing Rs 3.5 lakh in a medium-size salt works, 3,000 tonnes of potassium schoenite can be produced per year which means saving of Rs 5.5 lakh by way of foreign exchange every year by investing only Rs 3.5 lakh.

The present potential demand for potassium fertilisers in the country is 150,000 tonnes of K_2O, and it is expected to increase in future. It will be seen that the consumption of potassium fertiliser even after reaching the target will be much less than in other countries; USA—2 million tonnes, West Germany—1 million tonnes, USSR—0.7 million tonnes, and France—0.83 million tonnes. It is evident that even if all proposals made above materialise, the ever increasing demand of potassium fertilisers cannot be met by production based upon utilisation of bitterns. It is therefore necessary that an all-out attempt is made to see firstly that bitterns are fully utilised in the manufacture of potassium fertilisers. It is also essential to evolve cheap methods for manufacture of potassium fertilisers directly from sea water; high priority has been given in the Institute for the projects on the recovery of chemicals from sea water.

Valuable potassium fertilisers can be made from the bitterns left over when making common salt from sea water. The Central Salt Institute at Bhavnagar has evolved a process by which, investing only Rs 3.5 lakh, a medium-sized salt works can manufacture 3,000 tonnes of potassium schoenite a year, saving Rs 5.5 lakh of foreign exchange. If the process is taken up the country can save Rs 2 crore in foreign exchange every year. The Institute has a pilot plant to process 3 tonnes of mixed salt per day and demonstrations are arranged on the pilot plant for those interested. The Institute will also provide complete know-how and project report and render any technical assistance needed.

PLANNING DIARY

THE Planning Commission began discussion on the Annual Plans of States for 1966-67 on November 4. Up to November 27, it had discussed the plans of Pondicherry, Himachal Pradesh, Delhi, Andhra Pradesh, Orissa, and U.P.

Discussion on Punjab's Annual Plan was inconclusive.

The Planning Commission met on November 19 to discuss measures to meet the drought conditions in the country.

The Informal Consultative Committee of Parliament attached to the Planning Commission had its meeting on November 12 and 16.

The Sub-Committee on Research and Plan Implementation, set up by the Research Programmes Committee, met under the chairmanship of Dr P. S. Lokanathan on November 20 and decided to prepare reports on the following subjects: Farm management surveys, Land reforms, Evaluation of benefits of irrigation projects, Studies in urban development, Industrial relations, Problems of social change and welfare, and Small industries surveys.

Another sub-committee, the Sub-Committee on Research for the Fourth Plan, held its first meeting on November 23 under the chairmanship of Prof D. R. Gadgil. At the meeting members were requested to draw up notes indicating how the results of research had been utilised in the formulation of the Fourth Plan.

PROBING THE FRAME

No commission of inquiry appointed in our country in recent years has had so large a field to cover as the proposed administrative commission.

Even before its personnel and terms of reference have been announced, people have begun freely giving counsel to it.

There is one person who says that the worst thing about the Government in our country is that nobody can be dismissed. He thinks good work can come only when hiring is sensible and firing is prompt.

Another person we know thinks that the best thing the commission can do is to scrap confidential reports since they are a most whimsical institution rewarding toadies and working against independent and unconventional officials.

Yet another person fears that even after the report of the commission the two words by which our administration is run (namely 'Please speak') won't have disappeared.

A Jubilee

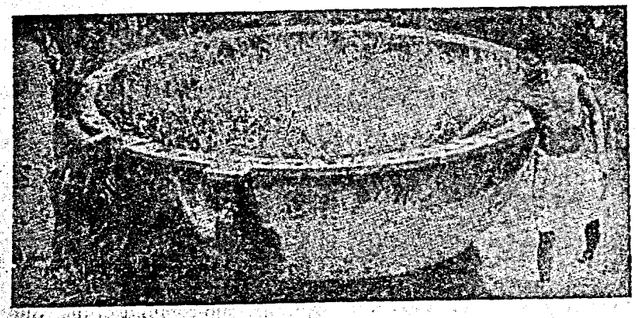
BATORI, the journal of the Assam Oil Company, says that the Digboi oilfield completes 75 years this month.

The first well there was completed in 1890, which makes Digboi one of the world's oldest oilfields still in production.

The first dignitary to visit Digboi was Sir Henry Cotton in 1898. He was then Chief Commissioner of Assam (and was one of the Presidents of the Indian National Congress). Sir Henry spoke of the striking spectacle that the four jets spouting black oil made.

In the early days of the company, crude oil was treated in open cast-iron pans, and wax and kerosene obtained. Most of it was transported by countryboat or bullock-cart.

It is only during the First World War that the motor car came to Assam.



The early "refinery" in Digboi was just a large iron pan in which the crude was treated! One of these was recently re-discovered in Digboi.

Ad-hoc-ism

THE Sugar Commission coined a useful word when it suggested that sugar policy should be saved from 'ad-hoc-ism'.

"Ad-hoc-ism" is a watered down version of expediency, which itself is a dilution of the quality known as "pragmatism".

Much is made of this word pragmatism. It is put forward as the better alternative to planning, which is supposed to be dogmatic.

Apart from the philosophical meaning of pragmatism—judging acts or ideas by their bearing on human lives—pragmatism is defined by dictionaries as "meddlesomeness", "officiousness".

This is what's really wrong with pragmatism and 'ad-hoc-ism'. Things are constantly meddled with. Plants are pulled out to see how the roots grow.



IGNORAMAN

Wants to Know

Why don't we invent a Process to convert Reports into Fertilisers ?

Best Export

IT is interesting to note that although many people in the country suggested withdrawal from the Commonwealth because of the U.K's attitude towards us and Pakistan, very few suggested that we stop speaking English.

English books and journals will continue to be printed, published and imported. A press release of the British Government says that Britain's most successful export ever is the English language.

The note also says that last year Britain exported books worth Rs 57.63 crore—nearly 44 per cent of the production.

Weaker Sex

A SOVIET biologist has pricked male pride while giving the impression of flattering it.

Evolutionary changes, he says, are imparted through males. That is because biologically the male sex is the weaker sex, more susceptible to unfavourable environment.

Military and Political Factors Compel

Self-Reliance in Basic Needs

A.C. GUHA, M.P.

SINCE independence, India has been trying to build up her economy through planned efforts and to attain near self-sufficiency in basic industries. As in industry, so in agriculture, we have been trying to stand on our own legs. So we have taken up ambitious schemes of heavy industrial units such as four steel plants, the heavy engineering complex, the heavy electricals complex and machine tools. We have also undertaken irrigation and fertiliser projects for increasing our agricultural production. Our production in cash crops, such as jute, cotton, tea, sugarcane, oilseeds and tobacco, has risen considerably. The increase in food-grain production, though not insignificant in absolute terms, has more or less been stationary if considered against the background of increase in population. For industrial production, we are yet dependent on imported materials; and that has caused difficulties in the full utilisation of the installed capacity of industrial units. In spite of our best intentions and efforts, our progress has not been commensurate with our necessities.

It should be recognised that no country in the present-day world can be completely self-sufficient or self-reliant. That international trade has been increasing every year by about 10 to 12 per cent is an indication of the dependence of every nation on supplies from other countries. But that does not mean that in the case of any emergency, or in the case of an international embargo, a country should allow itself to be starved or immobilised to submission. A distinction should be made between the connotation of the word self-reliance in normal and in abnormal times. India is in a war atmosphere now. From the present cease-fire between India and Pakistan, or the earlier cease-fire between China and India, it cannot be presumed that India has ceased to be a nation at war. Cease-fire, at best, means armed neutrality and an obligation to be ready to face a war emergency at any time. So India cannot now afford to be deficit in food, foreign exchange, military equipment or the capacity for machine building. With a grim determination, India must try to be self-reliant.

Incipient Big Power

We should also consider the peculiar situation of India in international politics. Generally speaking, we have not been able to convince most of the nations of the world about the rightness of our stand against Pakistan or even against China. It is possible that something is wrong in our foreign policy, or in the working of our different embassies. But even with the best foreign policy and with the most competent work on the part of our embassies abroad, it would still have been difficult to make other nations share our point of view. One of the reasons for this is that India has a political conscience which she is not ready to surrender. With the international scene pervaded by the politics of convenience, India may be considered an inconvenient partner.

There is another factor also. In intellect, in the quality of fighting forces, in natural resources, and in leadership, India has all the potentialities of being a big power. Our neighbouring countries with the exception of China, are all small countries; and it would be difficult for them to forget the politics of geography followed by the British Government of India during the eighteenth and nineteenth centuries. From Singapore to Aden and Suez, and from Tibet and the Pamirs to Ceylon and the Indian Ocean, the British extended their sphere of authority from India. Naturally our neighbouring nations may have apprehensions about a strong India emulating the British, that is, in spite of all our peaceful professions and of the tradition of Indian culture. Pakistan has been assiduous in spreading this panic among the smaller nations of Asia. China considers India a rival to her claim to be the leader of Asia and as such she is jealous of and hostile to India.

The Second World War left the world with two big powers—the U.S.A. and the U.S.S.R.; and a balance of power was sought to be established on some tacit understanding or military parity between these two powers. With the emergence of China as a big power, the U.S.A. and the U.S.S.R. have a feeling of embarrassment. And now if India also emerges as a big military power, the two big powers will feel still more embarrassed. Other smaller nations also will not feel comfortable in having to deal with another big power in India. This is the fundamental difficulty that India will have to face in the coming years—until she can indisputably establish herself as a big power without sacrificing or diluting her ideals and traditions.

Against this background, India has to be self-reliant in some of the basic needs. In this, food comes first, as no hungry nation can fight and win war. After the First World War, Lenin at first refused to accept American wheat on the ground that

"food is a weapon". But when famine broke out in 1922, they allowed Maxim Gorki to send an appeal to U.S.A., and American wheat through the American Relief Administration was accepted. For all these years the U.S.A. has been supplying us food-grains under P.L. 480. That has created in us a sense of complacency and contributed to the almost stagnant position in food-grain production. Now we feel the pinch, when U.S. food is likely to be used as a political weapon. The alternative of the non-supply of food by the U.S.A. is ominous; India may be faced with near-famine conditions, particularly in view of the bad harvest this year. The other alternative would be to accept the food contaminated with political pressure. I think no patriotic Indian will agree to that position; the American Ambassador Mr. Chester Bowles has realised this and has conveyed this in his letter to a Senator of America.

Right Policies

In the earlier years of the Russian Revolution as also during the "New Economic Policy", Lenin gave the slogan of tightening of belts. Food supply then in Russia was not enough to meet even the normal needs; yet out of that meagre production, Russia had to export wheat to purchase machinery. Russian workers and people faced the challenge and they did tighten their belts. The shortfall in India is only about 7 per cent. By changing our food habits and curtailing our daily intake, by avoiding waste and by adopting better storage, it is not very difficult to get over this problem. But increased production is the real remedy. Some increase in the production of food-grains has been achieved only by bringing more lands under cultivation; yield per acre has rather gone down; it is perhaps the lowest among civilised countries of the world. India must develop the psychological compulsion to produce more grain so as to be self-sufficient in food.

In the industrial field, we have installed machinery whose capacity is not being fully utilised. We require some imported materials for our factories to work to their full capacity. So long there have not been adequate attempts to find substitutes from indigenous sources. It is strange that the committee on import substitution was dissolved after the Chinese aggression—on the ground of emergency, which should have given an added importance to this problem. The Third Plan targets for the production of copper, zinc, lead, sulphur, etc. have not been seriously pursued. Similarly, sufficient attention has not been given to the production of special steel, aluminium alloy, etc. Nor was due attention given to putting into commission the heavy engineering and electrical complexes at Ranchi and Bhopal. For this, the Ministry of Industries should be held responsible. But it is regrettable that during the last six or seven years, that Ministry has not been given the importance it deserves. It has become a truncated and minor Ministry. This has contributed to the failure of industrial production. Machine-building is the basis of industrial and economic self-sufficiency.

The Pakistan High Commissioner in Britain stated that the embargo placed on the export of war materials both to India and Pakistan would harm Pakistan more than India, as India was almost 80 per cent self-sufficient in war materials (particularly in traditional arms), while Pakistan was 80 per cent dependent on foreign supplies. That advantageous position has mostly been achieved during the last two or three years. But even then, some of our fighting weapons manufactured in India require some foreign components. The import of these materials and components will become difficult as some of them may be put in the category of strategic articles. Moreover, in sophisticated armaments, we are still far from being self-reliant. This deficiency has to be removed if we want to be a self-respecting and respected nation.

It is imperative that in the manufacture of our fighting equipment, whether Gnats or tanks or automatic rifles or any other item, we should be self-sufficient in components and raw materials. In metallurgy and electronics, much more progress should have been made and could have been made during the last two years, but for some wrong administrative steps and decisions.

To make India self-reliant as far as possible in the present abnormal times, we have to be self-reliant in machine-building, increase our food production, find local substitutes for imported components and raw materials, utilise to the fullest the installed capacity in our industrial units including ordnance factories.

All this is within the competence and resources of the nation, provided there is the will and determination to be self-reliant. A national psychology has to be created that we must produce more, and that we must be content with what we can produce. The administration has to rise to the task. Scientific and industrial talents are not scarce in India; only, they require to be properly utilised and guided. Natural resources, if not abundant in all matters, are enough for our purpose; only they require to be scientifically and energetically processed and developed. National enthusiasm to work hard and consume less is not lacking; only it has to be properly canalised. Red tape has to go if we are to be self-reliant.

YOJANA BHAVAN NOTES

A meeting of the Panel on Labour Policy on the Fourth Plan was held on November 26.

Prof M. S. Thacker, Member, Planning Commission, has been unanimously re-elected President of the U.N. Committee on Science and Technology to Development. He attended the session of the Committee held at Geneva from November 8 to 18.

Prof V.K.R.V. Rao, Member, Planning Commission, attended the joint session of committees for studies on economic development in India and Japan held at Tokyo from November 18 to 22.

Dr K. S. Krishnaswamy, Economic Adviser, Planning Commission, attended, in his personal capacity as an expert, the study session of the Organisation for Economic Co-operation and Development held in Paris from November 15 to 26.

Mr Pitambar Pant, Mr. B. N. Datar and Mr. K. Mitra have been appointed Advisers for Perspective Planning; Employment, Labour and Social Planning; and State Plans, respectively. Until recently they were Chiefs of these Divisions.

Mr R. M. Kantharajan, Under Secretary, has left the Planning Commission to join the office of the Accountant-General, Central Revenues, as a Deputy Accountant-General.

Books

BRITAIN'S DEBT TO INDIA

Dadabhai Naoroji and the Drain Theory by B.N. Ganguli. Asia Publishing House. 152 pages. Rs 14.

K. U. Kini

THIS is a collection of the Dadabhai Naoroji Lectures delivered by Dr Ganguli in Bombay last year. Considering the massive and somewhat chaotic assortment of Dadabhai's published writings, speeches and memoranda, Dr Ganguli has presented a well-conceived and coherent picture. His analysis and exposition of Dadabhai's drain theory are penetrating. Dadabhai and his predecessors conceived of economic drain by the British as an external and internal process. During the East India Company days, the British plunder was plain and rather primitive. Warren Hastings, for instance, when he was a young servant of the Company, reported during an up-country visit that the approach of his party of British was regarded by the inhabitants rather like that of tigers. Most of the petty towns and *sarais* (markets), he reported, were deserted on their approach and the shops shut up. Later, the process of drain became refined and sophisticated. The British tiger could not be expected to change its stripes.

The question now is how much Indian money was transferred to Britain. Dadabhai estimated the drain at between £20 million to £ 30 million per annum. This figure has been questioned by some experts. According to Professor Furber, an American investigator, the drain involved something under £ 2 million. But his research was limited to a decade between 1783-93. William Digby, on the other hand, calculated that the "drain", or "tribute" as it was often called, of unrequited value extracted from India averaged £18 million during the whole period from Plassey (1757) to Waterloo (1815). Perhaps the truth lies somewhere between Digby's and Dadabhai's estimates. And if the normal multiplier is applied, the approximate figure, in 1965 money terms, the debt which Britain owes to India will be found to be indeed substantial. In such a context, Dr Ganguli's detailed projection of the Irish parallel appears pale, if not inappropriate. The more appropriate analogy seems to be the one mentioned by Horace Walpole who frankly confessed that the British in India had outdone the Spaniards in Peru.

Contemporary interest in Dadabhai's drain theory and its impact on Indian economy is to ascertain the extent by which attempts are being made by Britain, if they are made at all, to repay this enormous debt. Also, it is to find out how far his ideas are applicable to current economic affairs and how he would have reacted to the developments in free India. Leakages in exports and imports have occurred on an enormous scale. There is also considerable concealed wealth. Rural indebtedness has been shown by a recent Reserve Bank survey to be staggering. Inflationary pressures have intensified in an unprecedented manner. Little headway has been made in breaking the back of the problems of unemployment and underemployment. A few pockets of affluence are contrasted by extending regions of poverty and privation.

India may claim to be the eighth industrialised country in the world, but its prolonged and heavy dependence on food imports is a serious reflection on the progress of its economy. Dadabhai's views on land revenue, foreign trade, internal drain, 1s. 4d. ratio, which he regarded as a bounty on imports, and his cynicism in regard to the concept of the "per capita" or national income, in which his method of computation has rightly been regarded as a "path-breaking innovation", were all radical, considering the age in which he lived. It was significant that even though the cotton textile industry in his home town was directly and adversely affected by the 1s. 4d. ratio, he was reluctant to stress the aspect of its handicapping India's young industries. And the suspicion naturally arises that he was aware of the defects or deficiencies of Indian industries and chose deliberately to ignore them on the basis that where the greater malady of British domination was fixed, the lesser of Indian defects was scarcely felt.

Whatever the reason, economists of Dadabhai's stature and sincerity are needed today to expose the weaknesses of Indian economy. His analytical rigour, his verbal force, his sense of statistical magnitude, his uncanny insight, his courage, and his tireless campaigning on behalf of the under-dog are certainly qualities which are most needed today.

BOOKS RECEIVED

Market Towns and Spatial Development in India. 162 pages. Rs. 18. *Industrial Programmes for the Fourth Plan—Madras State.* 360 pages. Rs. 20. *Demand for Machine Tools.* 418 pages. Rs. 40. *Export Prospects for Vegetable Oils and Oilseeds.* 269 pages. Rs. 21. All Published by National Council of Applied Economic Research, New Delhi.

The Impact of Price Movements on Area under Selected Cropsin India. 1900-39. Cambridge University Press, London. 234 pages. Rs. 36.

Emerging Patterns of Rural Leadership in Southern Asia. Report on an International Round Table Conference. National Institute of Community Development, Hyderabad. 237 pages.

Keynesian Economics by R.D. Gupta and P. N. Chopra. S. Nagin & Co., Jullundar City. 487 pages. Rs. 11.

College Administration—A Proposal by J. W. Airan. Asia Publishing House, Bombay. 57 pages. Rs. 5.

Indian Journal of Industrial Relations. Vol. 1 No. 2. October 1965. Shri Ram Centre for Industrial Relations, New Delhi. 245 pages.

DUNLOP MANUFACTURE INDIA'S FIRST EXTRA LARGE OFF-THE-ROAD TYRES



In the race against time to complete various projects on schedule, giant earthmoving vehicles are being used in increasing numbers throughout the country. The extra large size tyres required for these vehicles were hitherto imported, costing the country valuable foreign currency.

Dunlop have now undertaken for the first time in India the manufacture of Extra Large Off-The-Road tyres in sizes 24.00-25 and 26.5-29 for these massive earthmoving vehicles. Weighing nearly half a ton each and standing over six feet high, these tyres are made to the highest international standards.

YET ANOTHER **DUNLOP** FIRST

SMALL INDUSTRIES and SELF-RELIANCE

TIME NOW TO DO WITHOUT IMPORTS

K. L. Nanjappa
Director, National Small Industries Corporation

TALKING of self-reliance in the context of small industry involves a review of the present status of our small industries sector and a statement on its future goals. A thorough review becomes somewhat difficult owing to lack of adequate information in respect of many small industrial units which have not yet registered themselves for assistance with the Directorate of Industries in each State. An analysis based on those units that come under the purview of the Development Commissioner of Small-Scale Industries will throw some light on the present status of small industries in the country.

As is known, the Government launched an extensive programme for the development of small industries as early as 1953, when the Small-Scale Industries Board was set up to plan and co-ordinate a programme for the development of small industries. The office of the Development Commissioner was set up in the same year, and the National Small Industries Corporation started functioning in 1956.

New Technique Adopted

The objectives laid down for these organisations have been largely fulfilled, and a social and economic environment has been created that offers adequate opportunities for the development of the sector. The development of electric power system and transport facilities has considerably improved the external economies available to small industries. Facilities of education, training, finance and marketing available in varied shapes offer further inducements for the small industries to develop.

In 1961, out of 42,900 factories registered under the Factories Act, 39,605 were in the small scale sector. Over 90,000 small units are listed as applicants for various types of assistance from State Directors of Industries. Out of an employment of 37.3 lakh in 1961, 13.6 lakh or 36.5 per cent was in the small scale sector. Out of Rs 4528.04 crore worth of gross output, Rs 1401.54 crore or 30.9 per cent was accounted for by the small industries sector. Out of Rs 1162.14 crore worth of total value added by manufacture, Rs 303.80 crore or 26.2 per cent was contributed by the small-scale sector. In 1962-63, the share of small enterprises in national income of Rs 15,400 crore was as much as Rs 1201 crore, or 7.8 per cent.

The growth of small industries during the last decade has been away from the traditional types of industries. In other words, more and more industries have taken to improved technical processes. The typical small industry of today is modern in terms of production, techniques of production, and management. Those who run the small industries of today, though coming from all sections of community, have one thing in common: they consider the starting of an industrial venture not merely as a step that will raise their economic or social status but as a contribution to the over-all economic growth of the country.

In achieving these ends the small entrepreneurs have come to depend on imported machinery, technique and raw materials. As we know, the small industrial sector, in accordance with the role assigned to it, started with the manufacture of consumer articles, many of which used to be imported by the country. In order to achieve a certain level of production, with regard to both quantity and quality, it became necessary to import machinery, spare parts and components and even raw materials.

But assiduous attempts have been made in recent years to provide substitutes for the raw materials by setting up certain basic industries. Industries have been established for producing standard machinery items which would substitute the import of similar items. Furthermore, the small enterprises, on their own initiative, have succeeded in duplicating many items which were hitherto imported by the country. Attempts have also been made in the direction of finding indigenous substitutes for basic raw materials and some success has been recorded.

With regard to providing training in the technique of production, a number of institutes have already been set up which train both managers and workers of small industries in management principles and in techniques of production.

Ancillary Role

So much as regards the present status of small industry in the country. What do we propose to achieve in the coming years? It goes without saying that what we want is continuation of efforts already taken to develop small industries. In view of the need of the hour, efforts towards self-reliance have to be intensified in all

directions, so that the scarce resources of the country are not depleted but enlarged. The approach will involve consolidation of what has already been achieved and marking out the direction in which the future development programme will proceed. The approach of self-reliance will need a change in the attitude of small industrialists all over the country to make the fullest utilisation of indigenous resources, and show minimum dependence on imports.

It will be recalled that a major role which was assigned to small industries in the country was for them to function as feeders of ancillary parts and components to large industries. In such an arrangement, many problems generally faced by the small industries in the context of providing technical know-how, raw materials and markets were designed to be obviated. This is an arrangement of interdependence which is to the benefit of both the small industry and the large industry. The initiative taken by the Hindustan Machine Tools Limited in having started an industrial estate of its own consisting of small units which are producing parts and components for use in the main factory is indicative of what can be achieved under such an arrangement. HMT has been able to obtain parts and components worth over Rs 50 lakh from these units. All this is net annual saving in foreign exchange. With self-reliance as an objective of the small industries sector, the ancillary movement should be intensified.

It is worth while to note how individual attempts have been made in duplicating certain imported machinery items. In surveys conducted by the National Small Industries Corporation many cases of indigenous duplication came to notice which in fact are proving quite reliable. If individuals on their own initiative could achieve this, one wonders why such an attempt has not been made on an institutional level. It should be possible to produce in the country many machinery items, both general machine tools and specialised machinery, for use in the small industries sector.

Need to Innovate

One cannot ignore the fact that the intention of some small industrialists was until now to obtain imported raw materials. With the emphasis on self-reliance, such an attitude must change and entrepreneurs should make it a point to launch industrial ventures which use indigenously available raw materials. In fact, a stage has now been reached in the course of planned economic development where the shortage of scarce raw materials is telling upon the growth of small industries, thus rendering the establishment of new industries fairly difficult. Interested entrepreneurs find themselves handicapped on this account even though they have the desire to start new industries and thus participate in the nation-building programme. The urgent need therefore is to innovate, so that scarcity of raw materials, imported ones in particular, will not retard the industrial growth of the country. It is up to us to ensure that the national targets are achieved.

This will require intensified action on the part of all institutions working for the promotion of small industries. Future programmes must be chalked out keeping in view the available resources, capacities, expertise and technical know-how. Would-be entrepreneurs must be educated as to the availbility of resources in the country and the lines of production that can be taken up. *The National Small Industries Corporation has brought out a list of more than thirty industries which can be started with indigenous raw materials.* An interested entrepreneur can study these industries in relation to location and existing capacities.

The programme of educating entrepreneurs can be achieved through the 'intensive campaign' technique in which the message of development is taken to the very doorstep of entrepreneurs. The technique apprises the entrepreneurs of the vast industrial opportunities existing in the country and the help available to them from various quarters. The emphasis in such a campaign should now be exclusively on the use of indigenous resources.

WATER FOR A THIRSTY CITY

By the coming summer Ajmer will be rid of the chronic shortage of drinking water when each of the 40 new tubewells will pour out 15,000 gallons of water per hour.

The 40 wells have been dug at Deoli in the bed of the Banas river, 110 kilometres away from Ajmer. Water from these wells will be collected at the Deoli headworks and carried to the city through a pipeline into a reservoir from which the distribution system will take off.

Five pumping stations with a small reservior attached to each of them have been installed on the 110-km route of the pipeline of which a length of 75 kilometres has been completed. The service reservior with a capacity of 20 lakh gallons and the 40 tubewells have been built.

The wells will be worked by electric power. Electric installations are in progress.

The distribution system in the city is being redesigned. Ajmer being a city of hills, the various parts are situated at different levels, and it is a problem to have the necessary pressure at each level. Under the new system, the city has been divided into three zones according to level range, each getting an adequate pressure to ensure uniform supply. The new system will be completed early next year.

Ajmer has a population of 2.5 lakh and it swells up considerably when pilgrims visit the city for the 'Urs' of Darga Khwaja Sahib and the Pushkar fair. The present supply of water, nine gallons per head in the best season, is inadequate. In summer, the cisterns in the surrounding hills dry up and scarcity of water becomes acute. Because of this, the underground sewerage system becomes almost impossible to work.

The new scheme, taken up as a Third Plan scheme, is intended to remove the water shortage in the city. It will augment the city's water supply of 22.5 lakh gallons by another 40 lakh gallons per day.

The scheme forms part of a bigger scheme to be completed at a later stage when a dam will be built on the Banas river to supply water to places up to Jaipur.

—Source material from Director of Public Relations, Rajasthan

SOIL CONSERVATION CAN MORE THAN DOUBLE PRODUCTION

THAKUR PHOOL SINGH

Plants, which give us food, themselves need food and moisture. We know that for higher food production, we have to supply more water to plants. But the purpose of irrigation is to give the plant the amount of water it requires and no more. As a matter of fact, irrigation at a level higher than what the plant needs may have an adverse effect on production.

The food that plants eat, and thrive on, consists of manures and fertiliser. These, by general consent, are one of the four major factors in stepping up production—the other three being irrigation, improved seed and good agricultural practices. Important in the last category is *soil conservation*. Application of irrigation, manure and good seed to a crop without adoption of soil conservation measures is like putting money in a pocket with holes. Some experiments have shown that while irrigation contributed to 2.1 maunds of additional production and manure and fertiliser to 3.85 maunds of additional production, soil conservation measures and effective cultivation contributed to 8.22 maunds. Thus soil conservation measures can contribute more than double of what irrigation, manures and fertiliser can do together.

This should be enough to emphasise the importance of soil conservation. But it has not gone home so far to either Government or the cultivators, and soil and water conservation measures receive far less attention than they deserve.

In 1928 the Royal Commission on Agriculture recognised the special importance of the problem of soil erosion in Northern India, in Uttar Pradesh in particular. Large rivers such as Jamuna and Chambal, the Commission noted, had caused ravine formation on the banks and taken large tracts out of agriculture. So the Commission recommended that a thorough investigation be made of the problem of erosion and schemes prepared for preventing it. One of the first enactments for prevention of soil deterioration was the Land Preservation Act passed in 1904 in Punjab. In Bombay, soil conservation was taken up in 1933. Considerable work was done not only to study the problem of erosion and methods of conservation, but also to extend the conservation measures to agricultural lands of cultivators. Uttar Pradesh had taken up the work earlier in 1884.

Increased Provision in Third Plan

The Planning Commission suggested in the First Five Year Plan an immediate reconnaissance survey of the waste land with a view to evolving a "system of balanced and complementary land use". But during the First Plan period the soil conservation programme could not be taken up in many States. Madras and the erstwhile Bombay State were able, however, to bring a total of 7 lakh acres of agricultural land under soil conservation. In March 1958 the Central Soil Conservation Board undertook an integrated scheme for an All-India Soil and Land Survey. Nearly 34 per cent of the total expenditure on soil conservation programme in the Second Plan was spent in Maharashtra. U.P. claimed only 9 per cent of the expenditure. But U.P. began laying a great deal of emphasis on research, demonstration and training.

As compared with the Second Five Year Plan, the Third Plan provision for soil conservation has increased by four times and the area to be covered by five times.

The following table gives the Plan outlay and targets for soil conservation in the Third Plan as well as proposals for the Fourth Plan:

Particulars	*Financial outlay*	*Physical targets*
Third Plan outlay-State schemes	Rs 72.7 crore	11 million acres
Proposed programme for Fourth Plan	Rs 215 crore	20 million acres

The two sets of figures for Uttar Pradesh are: Third Plan outlay Rs 33.79 million and 9.78 lakh acres; and Fourth Plan outlay Rs 230 million and 21.91 lakh acres.

With the passage of time, the State Governments not only have developed new yardsticks and norms for the Plans; there has also been a considerable improvement in the contents of the programme.

Proper disposal of rain water is an important factor in the soil-and-water conservation programme. The pace of erosion is governed by the amount of rain water and its intensity. Studies on run-off and soil losses under different soil conditions show that more than two-thirds of the rainfall is lost by evaporation from the surface of the soil. In the areas of low rainfall, practically the

whole of rain water is lost by evaporation. Where the intensity of the rain is greater than 2″ per day, the whole of the rainfall causes surface run-off. It is only the rain with an intensity of ½″ to 1″ per day that is found useful to crops. The crucial period of erosion by rainfall is between August and October when heavy showers are intermittently received. The land needs special protection against erosion at that time.

The usefulness or otherwise of rainfall is governed by soil depths. When the soil depth is more than 3 inches, loss of rain-water through drainage is not serious. But when it is less than ½″, between 6 to 10 per cent of the rain is lost by drainage. The final result is that only 10 to 20 per cent of the rainfall is actually retained by the soil. Some of it is held by the soil in a form not available to the plant. So far, only 5 to 15 per cent of the rain was actually useful to the crop. Thus, out of 25″ average rainfall received in a scarcity area, only 1.25″ to 3.75″ would be actually available for the growth of crops. It has been established that levelling and bunding together contribute to a balanced amount of increase in production. Terracing, contour ploughing, proper rotational practices including the growing of crops, strip-cropping and intercultural practices, go a long way to help conservation of soil and water.

Findings of Land Survey Committee

In 1959, the Government of India constituted a Waste Land Survey and Reclamation Committee to undertake a survey of such land. The Committee came to the conclusion that the area that could be offered for reclamation in blocks of 250 acres or above formed hardly 2 per cent of the area under the categories "other uncultivated land excluding fallows" and "fallows other than current fallows".

The Committee also noted during its enquiry that land that had been classified as culturable waste at the time of settlement some years earlier still continued to be shown as such in revenue records, even though it could not be made culturable despite incurring a reasonable level of expenditure. Such land accounts for a total of 163 million acres. However much irrigation may spread in the country, we shall still have 140 to 150 million acres on which increase in yields will have to be obtained through contour bunding, soil conservation and dry farming techniques. Similarly, out of 37 million acres of land in the catchment areas of major river valley projects so far taken up, 15 million acres need to be treated with soil conservation measures. But the factual data on the extent of the land needing conservation treatment are inadequate.

Even if the targets of the Fourth Plan are achieved and the tempo is maintained during the Fifth Plan, it would take at least five Plan periods to cover the whole of the agricultural land requiring soil conservation measures. This means that, provided there is no further erosion of agricultural land, the existing area would be fully covered by soil conservation only by the end of the century. In addition to this, there are about 28.2 lakh acres of Usar land, both alkaline and saline, and over 3 lakh acres of ravine. The area under both the categories is fast increasing and schemes to cover the two categories have yet to be drawn up.

It will be clear from the foregoing that in spite of good progress in the matter of allotment of funds for soil conservation, the area actually covered as compared with the areas to be covered is almost negligible. The problem of soil conservation is in fact much more complicated than what has been suggested above, because top soil takes about 100 years or so to be formed, while loss due to erosion or injudicious use or ignorant human action is rapid. The problem, therefore, calls for much greater attention than has so far been paid to it.

There can be no better summing up than to use the following words of Mahatma Gandhi in this connection :

"Erosion is essentially the system of maladjustment between human society and its environments. Climate alone is never its cause; man's ignorance, but more than that man's greed. Health is a matter not only of right food but food that is grown on healthy soil. Erosion is not an isolated phenomenon; it is like cancer, a localised symptom of a generalised pathological condition. Once erosion gets under way, it spreads destruction in a geometrical progression. All the productive activity of the earth is confined to the thin living top layer of the soil which may vary from a few inches to a few feet in depth. Beneath it is a planet as lifeless as a moon. It takes nature more than a thousand years for one inch of soil formation, but the erosion takes comparatively very small time."

Buttons for Railways

NORTH-Eastern Railway is introducing, over one of its sections, a modern technique of rail operation —Centralised Traffic Control (CTC).

It is an electrically-operated system in which train movements are directed through remote control of switches and signals from a single point. By seeing the track in miniature on a central control panel, and pushing buttons and turning levers, the operator directs the movements of trains over distances of several hundred miles. Controls are so devised and interlocked that it is impossible to initiate conflicting train movements.

CTC will be in operation over 180 kilometres of the meter-gauge track on the Gorakhpur-Chupra section. It is being installed with help from the U.S. Agency for International Development (A.I.D.)

Under the old system trains were controlled by station masters positioned along the right of way every few kilometres and an engine-driver could not proceed past any checkpoint unless a station master had given him the "highball"—quite literally a ball of lead placed physically in his hand. Under this system no two trains could be in the same five kilometre block at the same time.

In contrast, the CTC system, with directions given to the engine-driver through electrical signals at every block and intervening siding, permits trains safely to come within half a kilometre of each other.

The introduction of CTC helps to increase line capacity on single line.

SONE BARRAGE Will Irrigate 4 Lakh Hectares

THE barrage on the Sone river at Indrapuri, Bihar, also providing a vital road bridge, has been commissioned. The barrage will increase the irrigation potential of the existing canal system by about one lakh hectares to 4 lakh hectares, and the bridge will cut the distance between Delhi and Calcutta on the Grand Trunk Road by 200 kilometres. The barrage will also provide power to the extent of 14 MW during the rainy season and 7 MW in the rest of the year.

The barrage is 1385 metres in length, said to be the longest in India, with 60 spillway bays and 9 under-sluice bays on the two sides, each bay having 18 metres of waterway. The work was completed in three years.

The barrage is the second in Bihar, the first being the Kosi barrage. It will benefit the lands in the districts of Shahabad, Gaya and Patna.

The bridge, which was opened to traffic along with the barrage, is over three kilometres long. It runs parallel to an Eastern Railway bridge and replaces a sunken causeway on the three-kilometre wide sandy bed of the river.

The causeway had been built by Sher Shah in the middle of the sixteenth century and repaired by the British in 1870. This causeway had been the only link between the areas across the river which has a catchment of 68,000 square kilometres.

The bridge will be connected with the Grand Trunk Road through canal service roads on either bank. It will now facilitate the transport of pyrites from Amjhor (the only pyrite mines in the country and only 8 kilometres from the barrage) to the centres of manufacturing sulphur and sulphuric acid.

The barrage and the bridge have been designed and built entirely by Indian engineers.



Madras Refinery Pact Signed

India has signed a contract with National Iranian Oil Company and Amoco, a subsidiary of American International Oil Company, for setting up the proposed refinery at Madras and supplying crude oil to it.

The refinery will be a joint venture in which 74 per cent of the capital will be owned by the Government of India and 13 per cent each by NIOC and AIOC.

The refinery will have initially an annual capacity of 2.5 million tonnes of crude oil. Besides conventional oil products, it will produce two lakh tonnes of lube stocks every year.

The refinery is expected to begin production in 1968. It will cost Rs. 24 crore (50 million dollars) of which 60 per cent will be in foreign exchange.

Bhopal Factory to Expand

The Heavy Electrical factory at Bhopal will be expanded to manufacture annually 160 traction transformers (for 25 kv. freight locomotives). The capacity of manufacturing capacitors will be increased to 162,000 KVAr from 108,000 KVAr. The two schemes will cost Rs 48.38 lakh.

Proposals are under consideration for expanding the plant to increase the manufacturing capacity of power transformers to 6 million KVA and of traction motors and associated equipment to 1600.

AID TO KENYA

India will help Kenya in setting up a large paper mill with a daily output of 200 tonnes at a cost of 7 million pounds (Rs 9.5 crore) and some other big and small industries like wool processing, fruit canning, vegetable oil, cement and sugar.

India has also offered Kenya a credit of Rs 2.5 crore for buying railway equipment.

The trade between the two countries will be valued at about Rs 13 crore each way, under the new trade agreement signed on November 22.

India recently signed four agreements with Uganda for expanding the trade and industrial and technological co-operation between the two countries. She will help to set up a big sugar factory in Uganda.

Soviet Submarines

India will buy submarines and other naval craft from the Soviet Union under a contract signed between the two countries recently. A team of Soviet experts will soon visit India to assist the Indian Navy in preparing a project report for setting up a naval dockyard at Visakhapatnam.

SNIPPETS

The Minerals and Metals Trading Corporation transacted direct trade valued at Rs 67.79 crore in 1964-65, an increase of 67 per cent over the trade in the previous year... Government has withdrawn protection to five industries manufacturing power and distribution transformers, non-ferrous metals, sheet glass, automobile sparking plugs, and electric motors...Uttar Pradesh has offered 400 hectares (1,000 acres) of land to the Centre for setting up seed farms. The State has also decided to put additional 40 lakh hectares of land under Rabi crops this year... India will import 53,500 tonnes of rice from Thailand and 3,700 tonnes of rice from the U.A.R. under agreements signed recently...West Germany has offered India a loan of 343.6 million Deutsche marks (Rs 40.8 crore) to be used for financing projects with German collaboration.

INTENSIVE AREA DEVELOPMENT

(*Continued from Page 7*)

in the intensive area should also be reviewed so as to bring about the necessary changes.

There is scope for developing labour and construction co-operatives and for strengthening those which have come into existence. The various agencies of Government operating in the intensive areas should ensure continuity of work for the labour co-operatives which may be set up.

A field in which comparatively small progress has been made is the extension of improved implements and technology. In an intensive area, within a given period of years the majority of cultivators should come to possess and use the primary implements whose value is proven and whose adoption can be recommended with confidence. This calls for a systematic agricultural implements plan for the area, involving demonstrations, arrangements for supply and production of implements, cerdit, training and organisation of artisans.

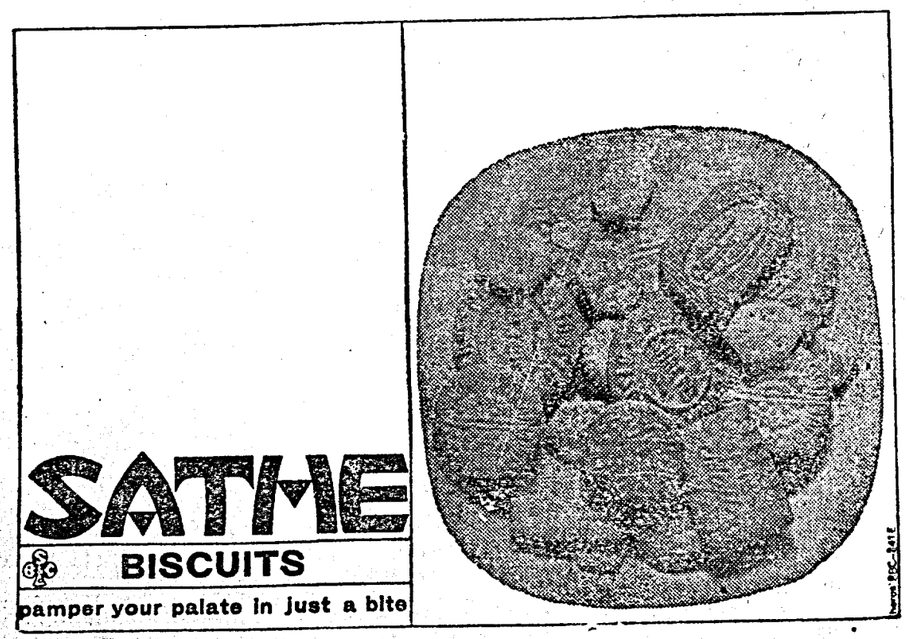
In many areas, there are considerable possibilities of developing small scale irrigation through extension of electricity to small towns and villages. A rural electrification plan has, therefore, a vital role in intensive development of an area. The economics of rural electrification can be improved through systematic planning of transmission lines and co-ordinated action. One could even look ahead to local distribution being undertaken by Panchayati Raj institutions and specially constituted co-operatives.

Rural electrification will also make it possible to establish small industrial nuclei at market centres and at large villages within the intensive area.

In every area there will be possibilities also of physical resource development in the larger sense, for instance, through extension of irrigation or flood control measures or electrification.

Progressively, all such projects which may be feasible will be taken up and integrated into the development plans of the selected areas. Such projects are already an important feature of the Five Year Plans. Technical development, resource development, development of large and small industries and the developmental processes among the people at the local area level are interconnected activities, each reinforcing and strengthening the other. In this setting, it is of the utmost importance that an outlook of innovation and improvisation is stimulated not merely among a few who may happen to be progressive farmers or members of co-operative and Panchayati Raj institutions, but among the mass of the people in the villages.

Work in the intensive area is of a continuing nature. At each stage, we have to review our experience and prepare for the next stage. This has to take place in each village and in each block. Conditions have to be created in which each individual feels he has a task to render as well as a just share in the benefits of the efforts being made.



YOJANA'S OLDEST CONTRIBUTOR THINKS



Officers Can't Help Villages

N. G. CHAPEKAR

I ONCE used to argue fervently that high Government officials should permanently reside in villages, especially those of the cadre of the I.C.S. I fondly cherished a conviction that their presence would exercise a healthy influence on the administrative machinery and check the unbridled pranks of officials lower down. (Mahatma Jyotiba Phule, 1828-90, had expressed similar views. He wanted that Englishmen or Scotsmen compulsorily settled in our villages should yearly report to Government.)

But I now realise I had hugged an illusion. Officials have no aptitude for village life and the administrative machinery at all levels, specially at village level, is most unresponsive to village needs.

In pre-British days, a village was almost self-governed. Though occasionally subject to epidemics, famines or raids, though intersected by castes and outcastes, there was a kind of harmony and unanimity in rural life. There was evident regard and respect for one another. In short, the people cherished a corporate life.

The village as it subsists today, particularly one in the neighbourhood of an industrial city, presents an entirely different picture. It is dismembered and disintegrated. One can see disharmony and indifference prevailing everywhere. Self-interest dominates and regulates every activity of a villager's life. He has no time to think of others. Formerly he was self-sufficient in a manner of speaking. Now he has been deprived of his land which provided him with food. He has no milch cattle to give him milk. Well water is replaced by tap water. In this and in many other ways, the villager has become a toy in the hands of changes wrought by civilisation.

When the smallest thing goes wrong, the villager feels helpless. In this he has become like the townsman. Besides, modern civilisation is expensive. Every new device is to be paid for. That adds to the villager's pecuniary worries. Sources of expenditure amplify daily. Those of income, however, generally lag behind. The impact of civilisation is such that what was a luxury a few days ago soon becomes an indispensable necessity. Thus money-earning becomes the sole aim of his life. This is a major cause of his afflictions.

Another cause of his troubles is social. The bonds of caste in which he had been hitherto securely entrenched are now fast loosening, causing a vacuum in his sense of loyalty. He therefore leads an isolated life—not yet being linked up to his colleagues outside his village. This state of things brings about a mental depression.

Government has created opportunities for employment for all sections of the people, both literate and illiterate, and people are taking advantage of these opportunities. This has resulted in an increased standard of living. The complaint that the poor are getting poorer has no foundation in fact. I have been living in a village continuously for 40 years since my retirement. My own observation, coupled with other information, discloses unmistakable evidence of the rise in the standard of living, especially in the case of those belonging to the forest tribes, like the Thakurs and the Katkaris. Sugar has displaced *gur* in their tea. The kind of cloth which sells at Rs 10 a yard finds ready customers among these people. Most of the well-to-do individuals among them go to Bombay and make their purchases there. The children are decently clad. New items of food are finding their place in the dietary system of the lower classes. Men in *dhotis* form a negligible minority. Most young men, even those who are not white-collar workers, use wrist-watches. Bicycles and scooters are freely used by agriculturists. Railway traffic has increased almost a hundredfold. More than 15 trains run daily between Kalyan and Karjat—a distance less than 30 miles.

All this signifies expansion of business activity. Family budgets show a tremendous increase. The Finance Minister has first to calculate the expenditure and then try to meet it by tapping all available resources. The family budget adopts a reverse procedure. Here the expenditure has to be adjusted to the income—which is generally constant. But nowadays there are many items in the family budget which are fixed and obligatory on the debit side. We have, therefore, to find ways and means to make ends meet.

Luckily—I say that with all responsibility—our society is still divided caste-wise. Every caste has its own occupation. The craftsmen have raised the prices of their products so as to keep pace with the general rise in prices. The traders or shopkeepers are not affected. Even the unskilled labourer has increased his wages as he is much in demand. It is only men with fixed income who are hard pressed. Here too a major portion of the working-class population is in the employment of private concerns. The Government has armed them with the weapon of strikes. So they can get their real or feigned grievances redressed.

Then there are the large number of clerk-type officials in the service of the Government. They have

(*Continued on Page 28*)

You Can Fight By Saving

R. G. KHEDEKAR

Not all can be jawans fighting on the front, not all can donate blood; nor can all donate gold. Everyone can, however, save small sums and lend them to Government. As the Prime Minister has said, if every Indian saves 3 paise a day, we shall be able to mobilise annually the large sum of Rs 500 crore.

The small savings movement has to play a significant role in the present emergency. Defence and development go hand in hand, and collections made from small savings will strengthen our economic base. Slogans such as "You too are a jawan on the economic front", "Small savings are the life-line to the nation's defence", "A National Defence Certificate is like a bullet—it doesn't miss its mark", have been used to arouse people's enthusiasm. The people, too, have begun to realise this. In many places they have come forward to collect funds to produce more Gnat aircraft.

In an industrial establishment in Nagpur, the call for savings was given this way: "Let this factory pay the salary of ten jawans. How much will you save regularly to make this possible?" The response was spontaneous. Though neither the management nor the workers knew what a jawan's salary was, a sum of Rs 1,210 was collected in an hour in the form of monthly savings of Rs 5. This kind of thing can be done at block, *tehsil* and district levels.

The people have only a vague idea of how the Government finds money for our Plan projects. Some are under the impression that our Plans depend mostly on foreign aid. They do not know that out of a total outlay of Rs 12,807 crore in the public sector in the first 14 years of planning only Rs 3,011 crore or less than 25 per cent came as external assistance. The remaining 75 per cent was raised from the resources available in the country. Some others think that all the outlay is found through taxation. Even this is wrong. A great part of the resources has come from internal borrowing and small savings.

In fact, of the total outlay in the public sector for the First Plan 11 per cent (or Rs 242 crore) came from small savings by the people. Small savings in the Second Plan amounted to Rs 401.77 crore. In the first four years of the Third Plan, small savings netted Rs 419.03 crore. Up to March 3, 1965, small savings thus brought in Rs 1,396.48 crore or 10.9 per cent of the total outlay of Rs 12,811 crore in the public sector. This impressive figure represents the contribution of the common man to the Plan effort.

The present emergency requires larger effort in small savings. For instance, we have less than 1.5 crore accounts in the post-office savings banks and other deposit schemes. As much as 82 per cent of our savings, however, accrue in the household sector (17 per cent in the rural sector). With concentrated effort, this can be doubled in the next few months. Teams of social workers and students can carry the Prime Minister's appeal for savings to every home, office, factory and establishment.

Villagers have benefited from the Plan in more ways than one and are conscious of the role they have to play in defence and development. There are 48,000 post office savings banks today, more than 35,000 of them at block and panchayat headquarters. We must do more to tap additional rural resources. Zila Parishads and panchayats have an excellent opportunity to participate in the defence effort by enabling such resources to be mobilised. They must bring home to the villagers the Prime Minister's appeal.

Every locality in every village, town and city can form a citizens' defence savings committee and elect five volunteers. They can go round and enrol men, women and children in a 'Paisa Savings' campaign. Let them carry with them savings cards for children and application forms for opening new post office savings banks or cumulative time deposit accounts with regular monthly savings from Rs 5 onwards per family. The emergency has provided all of us an excellent opportunity to work for the small savings movement and thus make us contribute our mite to the cause of defence of our country.

Officers Can't Help Villages

(*Continued from Page 27*)

ample opportunities to augment their income. Corruption is rampant. It is not the Government that rules. It is clerkdom that wields the sceptre. Decentralisation operates in such a way that every petty officer is a master unto himself. There is none to superyise and check his work. I am often tempted to declare openly that if I want to live, I shall offer bribes at the risk of courting punishment. It is only the pensioners that are the real victims of the ever-rising price level. All this is due to maladministration.

Administrative ineptitude, callousness, indifference and total absence of any sense of duty are the predominant attributes of the present-day Government servant. He is impervious to outside criticism. He assumes airs to hide his official ignorance. He is devoid of the ambition that his office should be beyond the pale of reproach. The idea that he is the servant of the public entrusted to his care is alien to his mind. This is a true picture of the Government servants as we have them at present.

I am not using hyperbolic language. The object of this somewhat carping criticism is to enable the reader to imagine for himself the amount of injustice the villagers have to suffer on account of administrative incompetence. In such a situation, the only course open to them is to appease the gods who are to rule over their destiny. Those who cannot do it must leave the village for good.

YOU ASK WE TELL YOU US

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

BANANA FIBRE MACHINE

Mr G.N. Oza, Bulandshahar (U.P.)

In the latest issue (November 7) of *Yojana* I read an interesting note about a machine for extracting banana fibre. Could I know some more details about the machine—how it works, how much it costs and where it is available?

Answer : The machine is handy and easy to operate. It is fitted with pneumatic wheels and can be attached to a tractor or similar vehicle. It is powered by an air-cooled, four-cylinder diesel engine. Even an unskilled person can operate it and its maintenance is easy and cheap. It can extract 70 kilograms of dry fibre every hour.

The machine is designed by a West German firm. It costs about Rs 84,000.

So far the machine is not available in India but a Bombay firm intends to set up a factory with imported machines to extract banana fibre and manufacture various products from it.

Cotton and Jute

Mr Ashok Kumar Verma, New Delhi.

1. How many persons are employed in the following industries : (1) cotton textiles, (2) jute, (3) iron and steel ?

2. What is the number of cotton textile mills working and what are their spindleage and total production?

3. How much cotton do we require in a year?

4. How much cotton and jute do we import every year? Do we export any quantity of cotton and jute? Who are our suppliers and buyers?

Answers : 1. The employment figures in the three industries were as follows in 1962:

Cotton mills—8.23 lakh (8.31 lakh in 1964)
Jute mills—2.50 lakh
Iron and steel—1.66 lakh

2. In 1964, there were 514 spinning and weaving mills working in the country. They together had 146.61 lakh spindles, and produced 59,25,81,000 kilogrammes (4,65,35,-09,000 metres) of cloth and 96,48,-19,000 kilogrammes of yarn.

3. In 1964, we consumed 62.37 lakh bags of raw cotton of which 6.38 lakh bales were imported.

4. In 1964, we imported 7.87 lakh bales, valued at Rs 56.10 crore, of raw cotton. Import of raw jute amounted to 1.43 lakh bales during the year July 1963 to June 1964. Our exports of cotton were 2.81 lakh bales, valued at Rs 11.44 crore in 1964.

We buy cotton from the U.S.A., U.A.R., Kenya, Sudan, Tanganyika, Mozambique, Uganda, Peru, Yugoslavia and Pakistan, and we export it to Australia, Japan, Hong Kong, U.S.A., U.A.R., U.K., France, West Germany, Belgium, Switzerland, Netherlands, Norway, Hungary and Italy.

We import jute from Nepal, Pakistan and Thailand, and export to Japan, Soviet Union, U.S.A., U.K., Sweden and Hungary.

The information contained in these answers is collected from the *Indian Textile Bulletin* (April 1965), *Indian Labour Statistics* 1964 and the *Statistical Abstract*. The figures given are for latest available years.

Narmada Project

Mr P.D. Mehta, Navsari (Gujarat)

What are the recommendations of the Khosla Committee on the development of the Narmada basin?

Answer : The Khosla Committee has drawn a Master Plan for the development of irrigation, power, fisheries, navigation and tourism in the Narmada basin. The committee was set up in September last year and it submitted its report last month.

The first phase of the plan includes the construction of the Punasa and the Bargi projects in Madhya Pradesh, and the Navgam project in Gujarat. The Tawa and the Barna projects in Madhya Pradesh should also be expedited, the Committee says.

In the second and subsequent phases, all the dams in Madhya Pradesh, namely Barwaha, Burhner and Kolar, will be completed along with any other project the State Government might like to take up for power generation and irrigation. Preference will be given to the Barwaha project for power and irrigation.

The Committee has come to the conclusion that the Narmada can supply enough water to meet all the irrigation requirements of Madhya Pradesh, Gujarat and, to some extent, Rajasthan. Irrigation should therefore be provided for the border areas of the Rann of Kutch in Gujarat and the Barmer and Jalore areas in the desert areas of Rajasthan, as these areas have no other irrigation source except the Narmada. For this purpose a canal is to be built from Navgam.

According to the Committee, the Navgam site is the best location for a terminal dam and reservoir up to a level of 170 metres. A power house with an installed capacity of 1,000 MW can be built in the river bed, with another power house of 240 MW capacity on the canal.

The Navgam dam, power-house and appurtenant works is to be the joint responsibility of Madhya Pradesh, Gujarat and Maharashtra. The three are to share the cost of the power portion of the dam in the proportion of benefits they will derive.

The Committee has also suggested that the development of irrigation and power on the Mahi and Sabarmati rivers should form an integral part of the Narmada development plan. The area of 6.57 lakh acres under the command of the Mahi in Gujarat should be transferred for irrigation to the Navgam canal and the corresponding amount of the Mahi waters should be utilised for irrigating more areas in Rajasthan.

ENAMEL WORK OF JAIPUR

YOJANA

NINTH YEAR 25

December 19, 1965

25 PAISE

KUSUM MEHTA

JAIPUR is famous for its enamel work.

Banaras was the cradle of this art which was borrowed from there by Jaipur. A few years after the foundation of the city, in the eighteenth century enamel settled in Jaipur. It is in the last eighty years that the enamel work of Jaipur acquired its name surpassing the reputation of the mother city.

There are three forms of enamelling followed. In the first, the enamel is simply applied to the metal as paint is applied to canvas. In the second, transluscent enamels are laid over the design, or hammered (repoussed) out of the metal. Both these are comparatively modern methods. The third method of enamelling by incrustation is ancient and is known in two varieties. In the first, called 'cloisonne', the pattern is raised on the surface of the metal by means of strips of metal or wire welded. In the second, called champieve, the pattern is dug out of the metal itself.

In both varieties, the pattern is filled with the enamel. In all forms of true enamelling the colouring glaze has to be fused on to the metal.

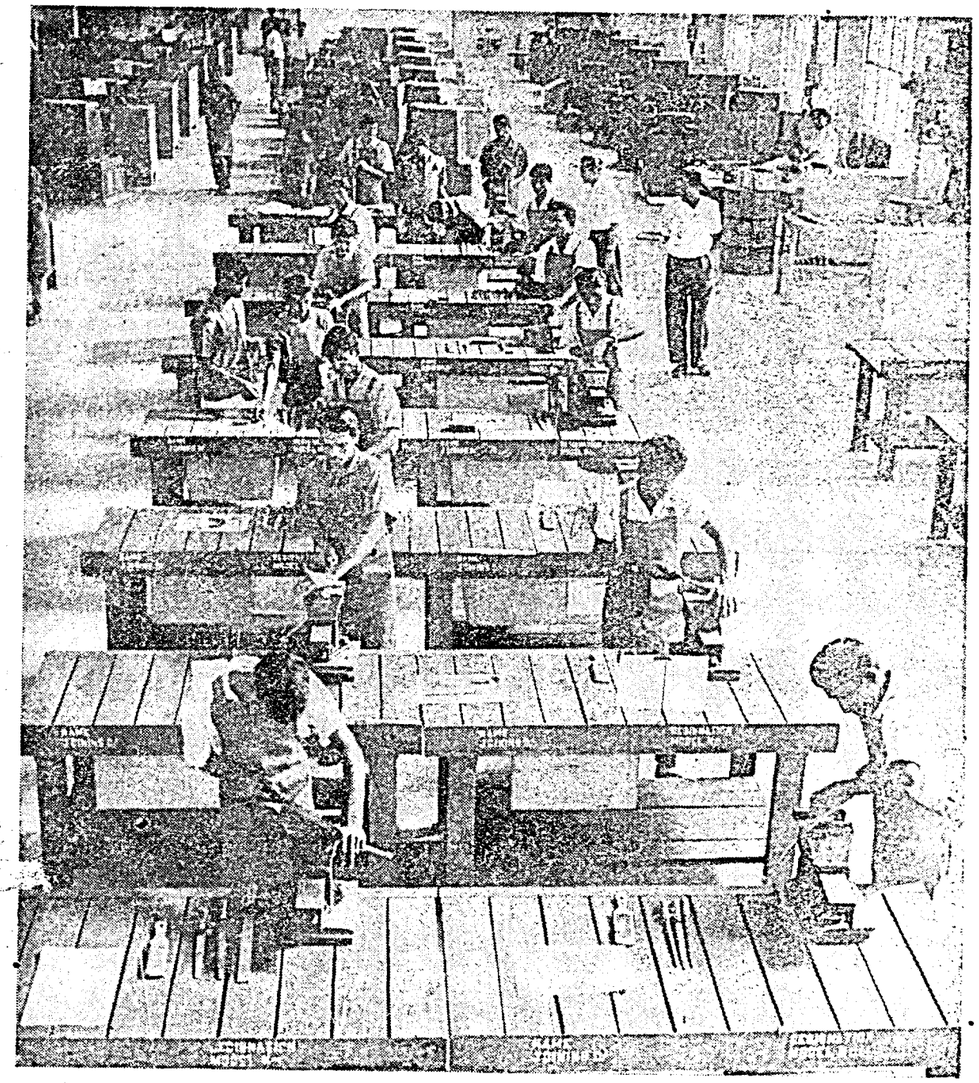
There is a fourth form of enamelling practised by the Japanese. They paint in the pattern, as in the first form, and then outline it with strips of copper or gold laid on, so as to resemble the cloisonne. Jaipur enamelling is champieve. On the back of a golden ornament, the representation of an object is drawn with a stylus and the lines marked are well polished by another stylus, until they acquire a perfect gloss and make the figures visible. Enamel dust is put into the lines and cavities thus formed, and the ornament is placed on a piece of tale over lighted charcoal in a red hot furnace of triangular shape leaving two openings, one above and the other in front, and being lined with tin.



Proportionate heat is applied to it, until dust melts and is diffused equally through the cavities and lines. During this time close attention is necessary, for the slightest neglect will spoil the whole work. The artist, therefore, keeps his eyes fixed upon it until the enamel melts and is diffused as required after which he immediately takes it out. The piece is then burnished with a whetstone that resembles blue copper in colour. This process is repeated until the work receives a perfect polish.

The art rapidly improved duri the reign of Maharaja Madho Sin

Jaipur is also equally famous f engraved brassware or brilliant pi mentation and characteristic *motif*



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KHUSHWANT SINGH :
Kipling

V. P. CHOPRA :
Innovations in Mineral Industry

The World's Dolls

BALESHWAR NATH :
Progress in Irrigation

HMT's New Plant—Yojana Feature

HYDERABAD HMT IS READY

SELF-RELIANCE IN COMMUNICATIONS

ARTILLERY IN MODERN WARFARE

Printed at the Caxton Press Private Ltd., New Delhi, and Published by the Director, The Publications Division, Delhi-6.
Chief Editor : H. Y. Sharada Prasad

ABOUT YOJANA

Yojana seeks to carry the message of the plan to all sections of the people and to promote a more earnest discussion of problems of social and economic development.

It is issued every other Sunday in two separate editions, English and Hindi.

The Advisory Board of the journal consists of the Minister of Information and Broadcasting, Minister of Community Development and Co-operation, Minister for Agriculture, Mr T. N. Singh, Mr Shriman Narayan, Mr Akshaykumar Jain, the Secretary, Ministry of Information and Broadcasting, and the Secretary, Planning Commission.

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Cover : Craftsmen trainees in the Fitting Section of HMT-V, Hyderabad. Picture by T.S. Nagarajan. (See also Page 5).

Letters

Nationalise Food Trade

THE prices of food-grains are soaring higher and higher beyond the capacity of people with low incomes. This is due to the hoarding and smuggling of food-grains by shrewd businessmen.

The long-run solution of the problem lies in stimulating production through improved farming practices and adoption of the policy of nationalisation.

And what should be the short-run measures?

First, rationing should be introduced fully all over the country. Open market in food should be declared illegal. Ration shops should be run directly by the Government.

The stock-holders should be made to release stocks to the ration shops at a reasonable price to be fixed after discussion between the Government and businessmen. The Government should sell the rationed food-grains to the lower-income bracket at a price lower than its purchase price. The loss could be compensated by charging higher price to the higher-income bracket. This policy will help to reduce the effects of the wide disparities of income.

The enforcement branch of the Government should be strengthened so as to prevent any private sale and smuggling of food-grains.

The partial nationalisation of food-grains, as proposed in West Bengal, will only add fuel to the smuggling trade.

The present administrative system will also have to be got rid of corruption.

Calcutta T. K. BHATTACHARYA

UNUSED CAPACITY

A recent issue of *Yojana* (September 12) reported that eight new companies had been granted licences this year for setting up factories to manufacture scooters. The same report also said that the existing units had produced 38,000 scooters and motor-cycles against the licensed capacity of 70,750 in 1964-65. What is the point in issuing new licences when actual production is far less than the licensed capacity of existing units ?

The only plausible reason can be that new units will increase the production capacity in the country. But because the production is lower than the installed capacity, the cost of production will go up. I think reducing the cost is more important than increasing the capacity which may again not be utilised. This amounts to locking up the money in unproductive investment when it is badly needed for urgent production.

Calcutta A. G. ATHAWALE

BLOCK DUTIES

I was happy to read the article of Mr Bibhas Chatterjee published in your issue of September 12.

I agree with Mr Chatterjee that the problems of agriculturists are mainly socio-economic and deserve immediate attention from the block personnel.

If block staff take this article seriously, there will be no food crisis in the present context or in future.

Alur (Mysore) N. SEETHARAMAPPA

HOLIDAYS

I agree with your comment that there should be fewer holidays—at the risk of dropping many religious festivals from the holiday list. As you say, now that we have successfully come through the test of secularism, the artificial props of proving our secularism through declaration of holiday should be given up. I suggest that we may have only the following national holidays :

Republic Day
Independence Day
Gandhi Jayanti
Dussehra
Diwali
Prophet Muhammad's Birthday
Guru Nanak Day
Christmas

This makes it eight. Three more regional or optional holidays might also be declared—like Holi in North India, Onam in Kerala, Ganesh or Gokul Ashtami in Bombay, Pongal in Madras, etc.

Such reform will save us seven working days.

Bombay G. THOMAS

YOJANA

Vol. IX No. 25 Fortnightly Journal Published on behalf of the Planning Commission Agrahayana 28, 1887

NEXT YEAR AND THE FOURTH PLAN

IF Pakistan had not attempted to enforce its designs against us we should be now busy preparing ourselves for the giant tasks of the Fourth Plan. But war, and the politics of war, introduced numerous factors of uncertainty, and altered some of the assumptions on which earlier discussions on the Fourth Plan had been based. People even began asking whether there would be a Fourth Plan at all.

Mr Asoka Mehtá has clarified the position by declaring that despite the doubts and fears in regard to foreign aid and domestic production prospects, the Fourth Plan and the Fourth Plan strategy are very much there. The decision to concentrate attention at the moment on the Annual Plan for 1966-67 does not mean jettisoning the Fourth Plan.

As Mr Mehta explained in an address at Ahmedabad, many of the elements relating to priorities and policies underlying the current discussions on the Annual Plan for 1966-67 are precisely those which were woven into the framework of the Fourth Plan as presented to the National Development Council.

It is important to remember that in the first of each Plan period, the major part of the Plan outlay is always on continuing schemes. That these have been given first consideration in the deliberations on the Annual Plan this year does not by itself amount to taking 1966-67 out of the Five Year Plan period.

Also, it is not as if suddenly we have taken up defence schemes in place of those which would otherwise have figured in the first year's outlay. The preliminary work on the Fourth Plan has all along taken into account the five-year Defence Plan launched in 1964. The immediate impact of the emergency is more on the pace and pattern of implementation of these schemes.

The adjustments in the Annual Plan for 1966-67 derive essentially from the additional provision of certain strategic materials for use in the defence sector; in most cases, the re-allocations required are of a marginal kind. The principal impact is in the field of foreign exchange.

Again, the foreign exchange crisis derives not so much from new defence requirements as from the threat of interruption of foreign aid. This uncertainty made it necessary for the Annual Plan to be framed in such a manner that the available foreign exchange would be adequate for executing the key programmes. The attempt in the Annual Plan has been to substitute domestic resources for external resources.

Even prior to the emergency, the Fourth Plan strategy envisaged a quick advance in agriculture and of export earnings and a step-up in internal resource substitution.

The stress on self-reliance after all means producing more food, more metals, fuel and chemicals, and more skilled personnel. These indeed were the things that the developmental strategy of the Fourth Plan, as of the earlier Plans, aimed at. In this respect, there is no basic conflict between defence and development. It is only the welfare sector that the emergency may lead us to go slow and prune Plan outlays.

It has been the essence of planning that within the five-year period, there would be year-to-year adjustments to meet special conditions and circumstances. The special circumstances now are food and agriculture, balance of payments, and resource mobilisation. The policies adopted for the coming year have to be such as will lay the basis for greater growth and self-reliance in the Fourth Plan period.

Indeed we are moving in the right direction in respect of all these. What is taking place currently is a re-phasing of certain programmes and outlays. This has been forced upon us by the post-emergency economic situation.

If in the absence of adequate resource mobilisation we decide to cut certain outlays, care will have to be taken that the programmes held up for the time being are taken up a little later with all the greater vigour so that we make up for the lost time so far as their sectoral development goes over the whole Fourth Plan period.

All in all, the larger our own effort at mobilisation of resources the greater will be the chances of the rest of the world coming round to assist our development programme.

Research has resulted in providing the country with many modern services such as telex and subscriber trunk dialling and a massive network of long distance carrier systems.

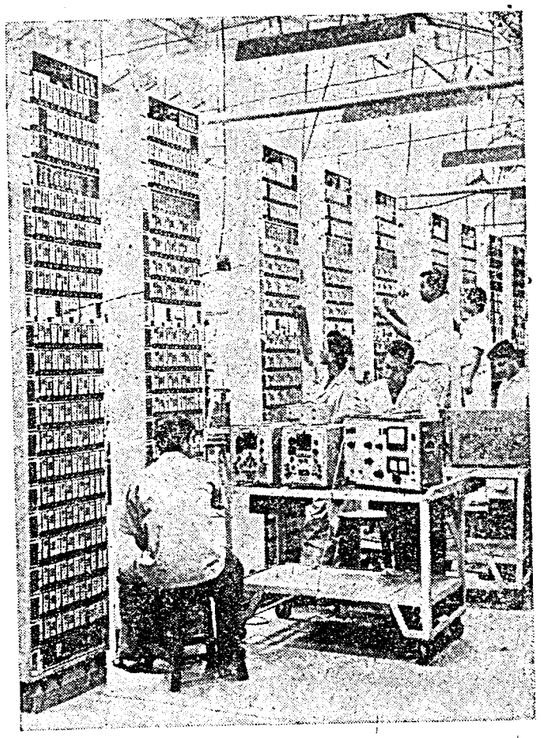
SELF-RELIANCE IN COMMUNICATIONS

By L. C. JAIN
Chairman, Posts and Telegraphs Board

THE concept of self-reliance, as spelt out by the Planning Commission, is a step forward from the ideal of self-sufficiency. The main objective of self-sufficiency is to raise our production to a level where our internal requirements can be met. This is naturally tied to the availability of foreign exchange, of scarce materials and our resources. To improvise, to adapt, to substitute and to conserve—these form the four basic pillars to self-reliance. When applied to industry and technology this will mean, like Mahatma Gandhi's Swadeshi movement, that production techniques should be so improvised, adapted and substituted as to suit our resources, tools and requirements.

In the modern world, production in almost all spheres is connected with technological advance. Even in the field of agriculture, modern technology in the shape of fertilisers and mechanical implements helps in raising production. Science plays a vital role in the development, expansion and maintenance of present-day communications. The entire telecommunications network like the telephones, the telegraph and even the mails, draws heavily on scientific developments for speed, efficiency and reliability. Telecommunication technology has been undergoing rapid changes recently.

To meet the requirement of keeping abreast of world developments, the Telecommunication Research Centre of the Posts and Telegraphs Department was set up in 1956 and over the past decade it has done very useful work. Recently the Government of India established a Committee under the chairmanship of Dr. S. Bhagavantam, Scientific Adviser to the Ministry of Defence, to review the working of this Centre. Another distinguished scientist, Dr. S. Husain Zaheer, who is Director-General of the Council of Scientific and Industrial Research, was one of the members of the Committee. The Committee has commented on the Department's efforts to achieve self-sufficiency and self-reliance in meeting its requirements locally. It says: "The achievements of the Telecommunication Research Centre, together with the activities of the Planning Branch and of the Indian Telephone Industries Limited, have resulted in providing the country many new and modern services such as telex and subscriber trunk dialling. It has also provided for massive expansion of the long-distance networks with modern carrier systems of different types. As a result, the number of carrier channels added in any one year from out of the production in this country is much larger than the total number of such circuits in 1961.



Testing of frequency generating and channelling bays in the Indian Telephone Industries. They are basic building blocks for providing large number of circuits over coaxial and microwave systems.

"There has been a considerable advancement in the knowledge now available to the department, and the Telecommunication Research Centre has played an important and vital role in spearheading modern forms of communication such as microwave, new switching systems, etc. There has been a considerable amount of savings of foreign exchange and this has, in turn, permitted the expansion of the P. & T. which would otherwise have not been possible."

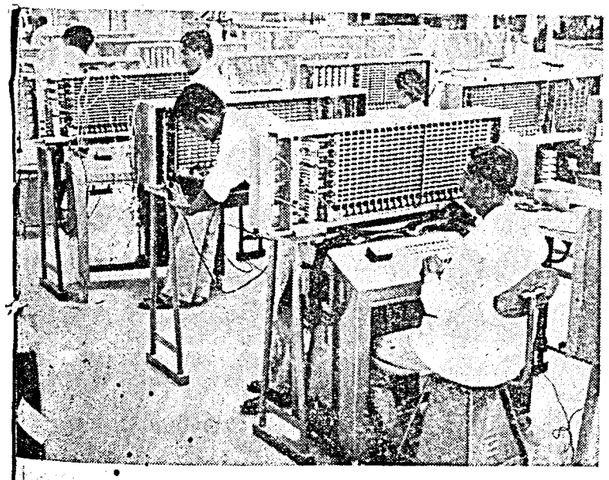
The Committee has said that the Telecommunication Research Centre has bent its energies to preparing original designs. This has shown that it is possible with proper directions to design and manufacture complex equipment with indigenous know-how rapidly and on a competitive basis. Its programme is ambitious and this helps India to keep abreast of world developments.

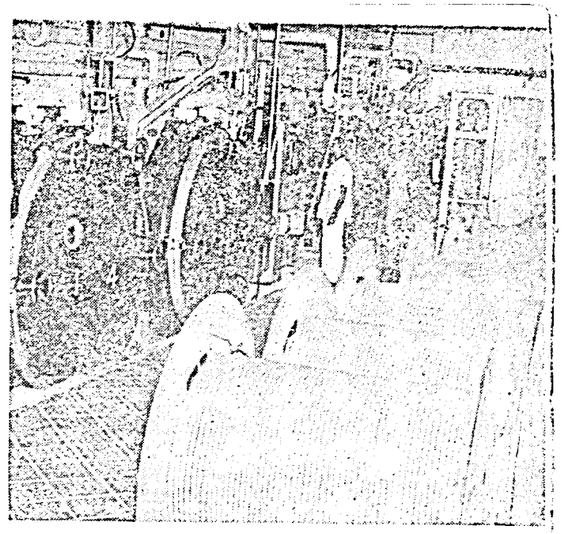
Equipment Manufacture

Original designs and models prepared at this Centre have been tried out in mass production. Indigenously-manufactured equipment, like carrier systems for open wires, cable and radio channelling systems, coaxial systems, microwave systems, special equipment for railway electrification, equipment for defence and thousands of high precision electronic measuring instruments have been produced at the Indian Telephone Industries, Bangalore. The Factory is now producing 960 channel equipment and 300 telephone channel equipment for working on coaxial cables and microwave systems. The Factory has also produced specially designed, transistorised and rugged equipment for the defence services, including speech duplex telegraph equipment, three-channel voice frequency telegraph equipment and four-channel carrier telephone equipment.

Recently the Factory has started a new project for the manufacture of an entirely new type of switching equipment, known as Pentaconta crossbar equipment, which is the most advanced type of automatic exchange equipment and offers major facilities in terms of speed and operation, reliability, maintenance and introduction of subscriber-to-subscriber trunk dialling. About 27,300 exchange lines of this equipment will be produced during the current year. In 1964-65, I.T.I. sales amounted to Rs 10.32 crore. Equipment worth about Rs 7.42 lakh was exported to some Asian and African countries.

A section of the crossbar unit of the Indian Telephone Industries. The modern switching system enables a nation-wide subscriber-to-subscriber trunk dialling





A section of the Hindustan Cables Factory at Roopnarainpur

Similar progress has been made in the development of the Hindustan Teleprinters Limited to meet our teleprinter and telex requirements. The factory was set up in 1962. Before it could complete the first stage of manufacturing 1,100 teleprinters annually, expansion plans were taken in hand to raise its capacity to about 8,500 teleprinters per year. At present the factory is manufacturing about 2,500 teleprinters annually. The manufacture of teleprinters calls for complex scientific processes. India is one of the few countries of the world which have undertaken manufacture of this sophisticated equipment.

The Hindustan Cables Factory at Roopnarainpur has also made rapid strides. It has raised production capacity from about 1,920 kilometres of cables per annum to about 3,200 kilometres per year. Further expansion of the production capacity to about 8,000 kilometres annually is under consideration. It is estimated that during the next five years this factory will produce goods worth about Rs 41.75 crore. Government is examining a proposal to set up a new unit with a capacity of about 8,000 kilometres of cables a year.

One of the fascinating aspects of the Department's endeavours to enlarge its activities in the field of communications has been that, all along the line, work has been done mostly by Indian engineers and technologists. The first microwave link, which has been designed to provide speedy and reliable communications between Assam and the rest of the country, has been planned and installed by the engineers of the Department. This link went into operation, between Calcutta and Asansol, in the first week of December 1965.

The principle of self-reliance has extended to our efforts for providing reliable communication links between India and the rest of the world. The Overseas Communications Service, which was nationalised in

January 1947, has raised its direct telecommunication circuits from 6 to 69 providing communication facilities with almost all the countries of the world. Most of this development has been brought about by Indian engineers.

India has now entered the field of global communication satellite system by joining as a member of the international consortium of nations responsible for the establishment of this system. The country has also decided to establish a ground station by 1967 for working with the communication satellites which are likely to go into operation by that time.

Modern scientific devices are now being used extensively for the speedy conveyance of mails. The post office has come a long way from the medieval times when written epistles were carried by runners. Today modern means of communication like automobiles, railways, steamships and aircraft are used for the purpose. In India mail is conveyed by air to 51 towns and cities. Railways and automobiles are used extensively for the work. In big towns mail motor services have been provided for carrying postal articles from one delivery zone to the other.

A number of labour-saving devices have been introduced on a limited scale. Some of these machines like franking machines for registered articles, the postal stationery vending machines and the bundle-tying machines in railway mail sorting offices have helped to speed up disposal of mails. In bigger post offices conveyor belts have been provided for transportation of bags. A new machine, which has been designed and manufactured in India, will be installed in New Delhi for washing postal bags.

The process of improvisation and adaptation has to be continuous to enable the Department to achieve a higher degree of initiative and autonomy of action. This work is undertaken at various levels in the Department, in our research organisation at the Centre, the planning branch, and research cells in our factories. We have a proposal for expanding our production of telephone and telegraph poles by utilising Indian-made machinery for different processes. Because of foreign exchange difficulties, the Department is now faced with shortage of registered envelopes. This problem has been discussed in the P. & T. Board and it has been decided to experiment with the hand-made paper for this purpose. The free play of initiative and the encouragement that is provided to our technicians are bound to help the Department to go forward on the road of self-reliance and self-sufficiency.

Self-Sufficiency Programme for Food

A PLAN for self-sufficiency in food was announced in Parliament by the Minister for Food and Agriculture on December 6. According to the plan, 35 million acres of land having assured water supply will be brought under intensive agriculture to produce 25 million tonnes of foodgrains every year. The plan aims at an integrated development with equal emphasis on seed farms, increase in fertiliser production, modernisation of irrigation works, adequate measures for plant protection, provision of credit facilities to farmers, institution of crop insurance and massive scientific research.

U.S. AID

THE United States of America has decided to give India immediately 1.5 million tons of wheat 'to help meet the immediate food crisis' in India. She has also offered a loan of 50 million dollars (Rs 23.8 crore) for purchasing fertilisers to complement the Indian agricultural effort.

The loan is to be matched with equal amount by India, so that India buys fertilisers valued at 100 million dollars.



Oil from Gujarat

THE Indian Oil Corporation made a net profit of Rs 75.64 lakh in 1964-65. The sales increased to 1.72 million kilolitres from 1.17 million kilolitres in 1963-64. IOC had 1353 petrol pumps by the end of March 1965, an increase of 558 in a year.

The Oil and Natural Gas Commission has stepped up its production of crude oil from Gujarat oilfields to 5,500 tonnes a day this month. The production was 3,300 tonnes a day before the commissioning of the Koyali refinery in September last.

Gujarat fields can produce 2 million tonnes of crude every year.

DESIGNING OUR OWN JET ENGINE

THE Hindustan Aeronautics Limited, Bangalore, has been designing its own engine for jet aircraft. At present the Bangalore factory manufactures the British engine, Orpheus, for the Gnat and the Marut (HF-24) types of jet aircraft made in India.

The engine being developed at the factory is called HJE-2500 (Hindustan Jet Engine, with thrust power 2500). This step is being taken to make the country self-reliant in aircraft-making.

The Electronics and Radar Development Establishment at Bangalore has designed a lead-acid battery suitable for use at high altitudes and in extremely low temperatures.

The Department of Defence Supply is setting up sample rooms in Delhi, Bombay and Calcutta to display spares of tanks and vehicles, tele-communication equipment, armament and non-explosive stores used with ammunition. Private manufacturers can take advantage of the rooms in obtaining orders for defence requirements.



HMT—V IS READY

FOR EACH MACHINE A NEW DESIGN

Report by Rosscote Krishna Pillai Pictures by T. S. Nagarajan

YOUNG technicians working at complex machines with a confident air. Young engineer-trainees chipping and chiselling cast iron and steel. Young supervisors and foremen overseeing the work in hangars. Young managers bustling in and out. A young Joint General Manager running the whole show.

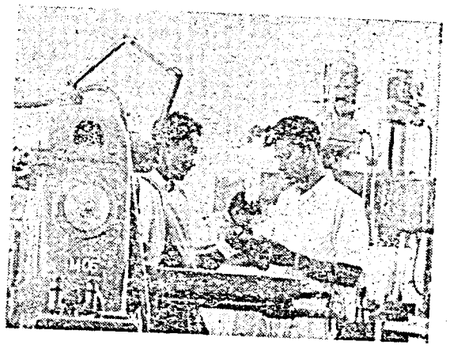
The accent in H.M.T. Hyderabad, the fifth of the Hindustan Machine Tool family, is on youth and on team work. The average age of the technical personnel here is only 26.

Kukatpalli, the suburb of Hyderabad, where the new HMT factory will be inaugurated on December 27, is a bustling modern industrial complex that has newly come up. Among the other industries here are the Synthetic Drugs Factory, the Praga Tools foundry and a number of private enterprises.

It was hard for me to believe that this place was once regarded as a sleepy, barren hollow. When I went there in the first week of this month, there was intense activity. H.M.T. itself hummed with an eleventh-hour bustle, with the inauguration only a few days away. Trucks loaded with crates of heavy machines, stones and bricks came in as though on a huge conveyor belt. Mortar and cement travelled on the heads of people who were dressed in bright colours. With all this to-ing and fro-ing, the H.M.T. factory site was neat and clean—which spoke a volume for the efficiency of its managers.

Right when you enter the H.M.T. enclave, you see the Training Centre, the backbone of the efficiency of every H.M.T. factory. In large hangars,

Accent on Youth



Supervisor G.V. Narasimhamurthy guides Balraj, a craftsman-trainee, at HMT-V

Top: J.N. Subba Row, a craftsman-trainee working on an HMT horizontal milling machine at HMT-V

in Hyderabad Plant

the massive overhead cranes painted yellow were lowering heavy steel machines. Among the large number of machine tools placed in position in the two hangars were lathes, turrets, planes, plano-millers, drilling machines, boring machines, grinding machines, all in H.M.T. green, with the word "Hindustan" written large on them. There were also other huge machines imported from France, Czechoslovakia, East and West Germany, Poland, Switzerland and the United States. On the floor and in the claws of machines were iron castings in various shapes and sizes like tables, columns and machine bases.

RIGOROUS TRAINING PROGRAMME

Mr B. Ramachandra, Joint General Manager of H.M.T. and Chief of this factory, explained to me the importance of the Training Centre: "To run a factory of more than 250 machines, we require a large number of skilled workmen and also supervisory staff. It is not possible to pick them off the shelf in the market. So, in December 1963, months before even the first sod was turned, we started recruiting trainees. We did not have any building of our own at that time, and we hired a place. Our Training Centre can train 300 people at a time—140 machinists and 160 bench-fitters."

"What kind of people did you recruit?" I asked.

"We have three types of trainees—craftsmen trainees, artisan trainees, and technical trainees", Mr Ramachandra said. "The craftsmen trainees are recruited from people who pass out from the I.T.I. polytechnics. Artisan trainees are from engineering diploma holders. And the technical trainees are from engineering graduates. These people are first given six months' initial training in our Training Centre."

"I suppose they are trained at different levels according to their academic qualifications?"

"No, no. They are all pooled together and treated alike. They are given the same training. They learn the jobs together. The graduate rubs shoulders with the I.T.I. certificate-holder who is only a matriculate. Thereby each gets to know the other very well. In fact, later in the plant, the craftsman trainee who becomes a charge-hand has to work under the foreman and it will be better if they learn to work smoothly and have a feeling of kinship right at the beginning."

"What are the trades in which they are trained?"

"All the basic trades: fitting, turning, milling, boring, grinding and drilling. During the six months' training we watch them for their aptitudes, their skills and their keenness, and then reclassify them into different trades. Thereafter they are given in-plant training for 18 months. In the initial stages, they were sent to Bangalore. We have now 500 people who have been put through this 18-month drill and can take charge of the machines."

"Are you satisfied with the human material you get?"

"Yes. We conduct very extensive psychological tests while choosing them. We try to find out how a candidate tackles individual problems. Of course we hold the usual practical and theoretical tests also, but we don't make a fetish of the theoretical examination, specially in the case of graduates, because, you know, they can pick up that knowledge at any time from our technical library. We watch the candidate at the interview after putting him at ease. He must be clear in his thinking. He must be able to analyse problems. Some who had taken ranks in their examination have been rejected. We give priority to those who can interpret the drawings."

HMT-V, Hyderabad

Outlay on unit	Rs 7.75 crore
Annual production (by 1969-70)	Rs 5 crore
Staff strength (by 1969-70)	3,000
Production by 1972-73 (second phase)	Rs 10 crore

Other HMT Factories

HMT-I Bangalore	1955
HMT-II Bangalore	1961
HMT-III Pinjore (Punjab)	1963
HMT-IV Kalamassery (Kerala)	1964
HMT Watch Factory	1963

"Drawings?"

"Yes, design drawings, because this H.M.T. at Hyderabad is going to concentrate on making Special Purpose Machines."

"What are they?"

"They are machines designed to make special components of various machines, like the cylinder block or the gears of an automobile, the handle-bar body of a scooter, the universal joint of a truck, the bicycle crank, the sewing machine body, parts of a refrigerator, and so on."

"So you will not make lathes and milling machines here?" I asked.

"No. Such machines, called general purpose machines, are made at factories at Bangalore and at Kalamassery in Kerala."

LARGE ORDERS FOR SPECIAL MACHINES

"Is this the first time that special purpose machines are made in India?

"No, our Bangalore factory has designed two S.P.M.s (Special Purpose Machines) and five semi-S.P.M.s so far. But since the demand for S.P.M.s is growing every day, especially from the automobile industry, we have decided to have the H.M.T. here make mostly S.P.M. Semi-standard machines for making motor car gears will also be manufactured here."

"Have you already received any orders?"

"Orders are flowing in from various firms, for instance from Telco, Hindustan Motors, ordnance factories and so on, and our production shops are fully engaged. Though it was planned to have the second shift only from April 1966, we have now decided to introduce it forthwith. By March 1966 our installed capacity is expected to be fully utilised."

There was a glow of satisfaction on Mr Ramachandra's face as he said this.

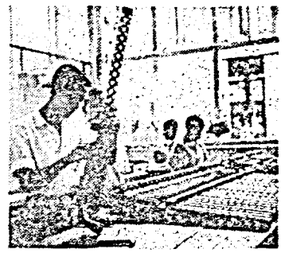
"How many do you expect to produce every year?" I asked.

"It is difficult to say, because every S.P.M. takes about 8 months from the stage of design till it rolls out from the factory. This year we expect to produce S.P.M.s worth Rs 40

(*Continued on Page 25*)

Even if a country is prepared to pay, it cannot often obtain the latest and the best in armoury from abroad. There is no alternative to developing one's own designs and production facilities. Defence-oriented research is of critical importance and a weapons policy has to be planned over a long number of years. It should also be remembered that intrinsic strength of the armed forces of a country depends not only on armament but on the worth of its citizens.

ARTILLERY IN MODERN TIMES



Brig. T. N. R. NAYAR, National Defence College

"Those who do not remember the past are condemned to re-live it."

—SANTAYANA



An anti-aircraft gun ready to fire. Picture at the top shows a machine gun being assembled at the Ishapore rifle factory.

GUNPOWDER came to be known some two thousand years ago. In spite of this it was used for warfare in any quantity only from about the fifteenth century. The time lag was unavoidable as its use was dependent upon a number of factors. The chemistry and technology had first to be understood. The economics of intensive warfare could be supported only by the surplus wealth produced as a consequence of the Industrial Revolution. Before these conditions materialised, neither could accurate guns be made in adequate numbers, nor gunners trained and permanently maintained by states. Finally, to wage total war with far-reaching aims, national states had to emerge. Only such states with high concentration of political and economic power in the Centre could mobilise sufficient socio-economic sanctions for maintaining large standing armies. It was France, under Napoleon, which escalated the aims, intensity and dimensions of warfare. Artillery was the key to many of Napoleon's victories. He was the arch-priest who demonstrated the effects of artillery fire power and the methods of moving guns both strategically and tactically.

Very important technical improvements in artillery were made by the British during the Crimean War (1853-56). Breech-loading guns with rifled barrels were used with great effect at Sevastapol. Gradually the muzzle loaders disappeared. They finally became obsolete in first-class Western armies after the Franco-Prussian War, in which at the Battle of Sedan the Prussian iron rifled guns outclassed the brass smooth barrel French artillery.

During World War I, artillery earned the reputation 'king of the battle-field'. Both sides resorted to intense

artillery battles. This was inevitable as defence had become extremely strong because of the invention of machine guns and barbed wire, and as the opposing armies had to deliver frontal attacks due to absence of flanks in the Western Front. Movement in the battle-field depended on artillery preparations and some of the heaviest concentrations of conventional artillery fire the world will ever see were fired. As an example the British artillery concentration in the Third Battle of Ypres may be quoted. Some 4.3 million shells weighing 107,000 tons were hurled during 19 days of preliminary bombardment. The weight of fire was equal to about five Hiroshima-type atom bombs, though the results achieved were far less satisfactory to the attacker.

Prior to World War II, significant changes had taken place in the concept of war. Tanks had made their appearance and air force had come of age. The Germans developed their armed forces to wage a war of movement in which tanks would be supported by mobile artillery and aircraft. Though the British were the first to think of such tactics, they failed to develop it. Instead, they succumbed to the "Maginot Line mentality" and suffered severe initial defeats.

During this period motor traction became general. Air transportable artillery was produced. More effective fuses and shells were also developed. Air burst fuses improved the lethality of high explosive shells considerably. The gunners started flying aeroplanes for observing and controlling artillery fire. Revolutionary changes occurred in anti-tank and anti-aircraft artillery. The invention of the predictor and, later, radar improved the efficiency of anti-aircraft artillery, making it a precision job.

There had been notable increase in the artillery complement of army field formations. Divisional, Corps, Army and GHQ artillery formations came into being as organic entities. Gunnery became increasingly technical as the range of guns increased, and more reliance came to be placed on predicted shooting. The dependence on accurate maps, air photography and up-to-date meteorological data increased. As the war progressed, the superiority of the gunners became more evident. Montgomery fired about a million shells during the Battle of Alamein. Alexander fired similar concentrations in Italy. These efforts were possible as by that time about 30 million shells were produced and made available in the battle theatres. The Russian dependence on artillery was even greater.

Employment of Artillery

Fire is everything in battle. It is primarily the job of the gunners to produce this fire for the army; of course, the air force ably assists where the air situation permits. In attack, artillery fire takes the form of preparatory bombardment and covering fire—the aim being to destroy or soften down enemy defences and enable our forces to close up sufficiently to deliver assault. In defence, the aim is to prevent the enemy tanks and infantry from approaching our defensive positions. The silencing of enemy guns by skillful counter-bombardment at critical times has turned the scales of many battles. By resorting to predicted fire and exploiting flexibility gunners achieve surprise in battle. Foresight is needed to achieve mobility in operations, often a battle-winning factor.

The functions of anti-tank artillery were the destruction of enemy tanks and strong points. Since World War II, anti-tank artillery as such has given place to rocket launchers and armoured tank destroyers. The requirements of anti-tank artillery perhaps in the form of missiles may reappear in future. Concentrations of heavy and medium artillery fire are still useful to break up tank assaults. The heavy anti-aircraft artillery in vogue during World War II has become obsolete and its role has been taken over by missiles. The light air defence artillery, for employment against low-flying aircraft, is still in service. Much sophistication has taken place in this. Fully automatic guns controlled by self-tracking radars are already in use, while low-level guided missiles are under development in many countries. In the light of increased offensive capability of aircraft, the co-ordination between radar, fighters and guns is becoming increasingly involved.

Mobile field artillery radars have been brought into service. These are capable of detecting enemy movement and mortars. Sound-ranging equipment can detect both guns and mortars. Ranging on to enemy artillery is possible without actually observing the fall of shots, by means of comparative ranging. Further enhancement in the capability of instantaneous and effective counter-bombardment will profoundly affect the current organisations of artillery regiments and materially influence tactics.

The intricate problem of deciding the characteristics of future artillery weapons has always been due to conflicting claims of range, weight of shell and mobility. It is self-evident that no gun can emerge as a universal gun. The factors governing the right types of artillery for para, mountain, armoured and infantry formations are very different. Specialisation is inevitable in the interests of efficiency. Often this has caused difficulties to authorities concerned with production and logistics.

Research, Development and Logistics

Armament trade is big business. Even if a country is prepared to pay, it cannot, more often than not, obtain the latest and the best in the armoury. Big powers and industrial concerns have enormous vested interests. Especially for a country like India, which is following a policy of non-alignment in pursuit of peace, there is little option except to develop her own designs and production facilities. In advanced Western countries it takes anything above six years for a new gun to be developed and issued to troops. It may take us a little longer, atleast until we have more experience. As time goes on, the cost of equipment has been increasing at a fast rate, owing to the increased content of sophisticated parts. The total investment will involve the cost of production, new issues, replacement, reserves held for expansion, and, what is more, the unseen mass of ammunition kept at various places along the pipe-line. Thus, it is clear that a change in weapon policy is a major decision. In the context of continuous technological progress that is being made, change in weapon is inevitable. It is the hall-mark of a great commander who has the vision and courage to take the decision at the right time.

Every country makes detailed plans for a notional war. Such plans are not rigid, but are capable of suitable modifications in the light of changes. However, a reasonably correct assessment of the basic war plan

is essential. Historic experience is that it is difficult to change the shape of the plan in an emergency, though the emphasis in its components could be altered substantially. This limitation is specially applicable to the production of guns and connected equipment, which involves the participation of industry and stock-piling of strategic materials. The weapon policy decision taken years earlier is put to acid test at the crisis of war. Production and logistics are dependent on the basic war plans. Which will be the main theatre: mountains or plains? Will it be a short or a long war? Will there be an overseas complement? To what extent are airborne forces likely to be used? Detailed answers to similar questions are essential to formulate artillery production policies and the establishment of suitable bases and agencies for logistics. The present need to enforce a constant high state of readiness adds to the cost.

No False Economies

In the long run, the intrinsic strength of the armed forces of any country is dependent upon the worth of its citizens. There should be no false economy in nation-building activities like education and health. Over-insurance for current problems at the cost of the well-being of the future citizens is fraught with danger.

It is comparatively easy to concentrate resources and show spectacular results in selected sectors. This desire is at times compelling with regard to defence equipment. But this will not solve the real problem, which is keeping the equipment modern and efficient in the wake of fast-changing technology and scientific improvements. Defence-oriented research is of critical importance. In matters connected with artillery, specialisation is unavoidable. The principles and technology of rocketry, electronics, high explosives, guidance systems, servo-mechanisms and a number of other subjects are ever changing. Technologically advanced countries are producing more efficient weapon systems at regular intervals. If we do not organise research pragmatically giving more dynamism, we will be left behind in the race, and our weapon systems will become dangerously outclassed. Artillery officers being in the teeth-arm have a special responsibility in this direction. Their user experience combined with intimate association with various advanced scientific and technical problems enables artillery officers to give balanced advice. At the same time, for continuity and basic work, top-grade scientists with sufficient monetary and other resources are essential. Co-operation between the scientists and the users at all levels is necessary.

Future Trends

Our artillery has to provide support in both high altitudes and plains. No one weapon system can fully satisfy the users. The efforts for standardising equipment must, however, be constantly made, as there is great scope for it. Fire-control equipment, signal equipment, optical instruments, fuses and so on particularly favour standardisation. There is need for an incendiary shell to flush out enemy armour and infantry from certain types of ground. Reliance on the air force alone for this kind of operation is incorrect.

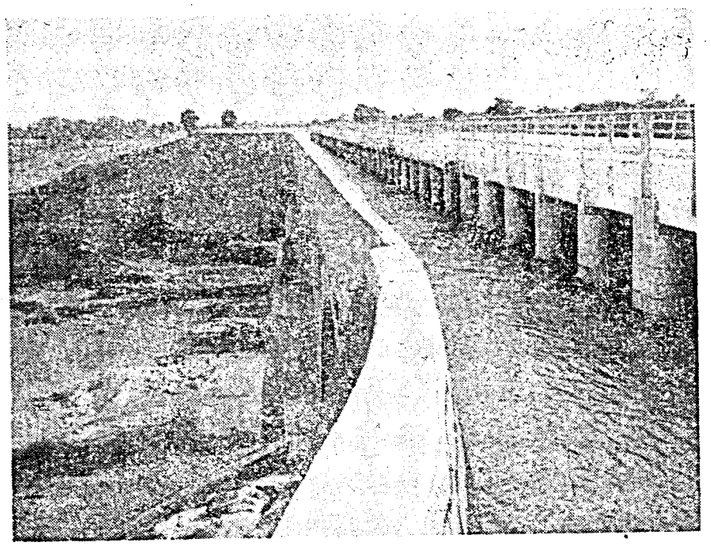
Missiles have a great future. They must be brought into use, both for ground action and air defence role. Their possibilities are enormous. Theoretically, they can replace the gun, though in practice this is unlikely to happen in the foreseeable future. Missiles come in various sizes, with different ranges and war-heads. There are the free flight ones and the guided ones. Owing to the advances made in associated fields much sophistication is taking place in missiles and no army may neglect their study without imperilling security. The initial outlay on the missile firing range, instrumentation, overheads and so on are inescapable expenses.

We should develop miniaturisation and enforce standardisation of common user components. For achieving interchangeability of nuts and bolts and so on between weapons and machines, much research and preparation are necessary. Reduction of weight is essential. The number of assemblies and components in equipment should be kept to the minimum to lighten maintenance and reduce the pressure on administrative echelons.

The advances made in electronics have not yet been fully exploited for the "eyes and ears" of the artillery. Generally, observation post officers continue to remain blind for a third of the day. They are unaware of what is happening behind the hill in their front. The selection of the type of ammunition (including fuse) and the degree of punishment to be given leaves much to the judgement of the officer. There is scope for greater technical evaluation. This can be achieved by the use of appropriate "gadgets". Infra-red binoculars, mobile radars and aerial photography need study. While one should not become a slave of gadgets, it is to the advantage of the gunner to exploit and press into service useful technological devices. By intelligent use of equipment an entire fire unit like a divisional artillery must be able to respond in a matter of seconds. Is it beyond our ingenuity to automatically hook up signal communications and the working of technical data, so that the response of guns will be immediate? With such artillery preponderance over the battle-field, the other arms will be able to deliver crushing blows on the enemy. The use of correct gadgets will prove to be economical, as efficiency will increase and reduction will become possible in war establishments. Wastage of ammunition can be reduced considerably by intelligent use of equipment.

Time to Mobilise Ideas

Conventional artillery is still the 'king of the battle-field'. Modernisation is a continuous process. If any lapse occurs, the artillery may become inefficient, by comparison. Battle casualties are primarily caused by gunners. We can reduce our casualties by having efficient artillery. We already saw where the requirement is felt and as to how efficiency could be increased. To obtain good results in reasonable time, close co-operation between the users and the scientists and technicians is necessary. India has demonstrated her capability to produce guns already. The mountain gun we have indigenously developed is probably the best in the world. There is no lack of talent, raw materials or industrial capability. What is needed is the mobilisation of correct ideas and translating them to realities in reasonable time.



Water resources harnessed and unharnessed : a canal of the Kakrapar project and the Purna river beneath it

IRRIGATION

By
Baleshwar Nath

Member, Irrigation Team, Committee on Plan Projects, Planning Commission

National Interest Should Prevail Over State Interest

OF 300 million cubic miles of water that envelop the earth, 97.2 per cent is contained in the seas and oceans. Another 2.15 per cent is locked up permanently in the shape of glaciers and polar ice-caps. Thus, only about 0.65 per cent of the world's water resources can be reckoned as fresh or usable; this sustains all the fauna and flora other than in the seas.

Had it been evenly distributed over time and territory, this would be ample to meet the needs of mankind. But it is not so. In our country, for example, all natural precipitation of water is limited to the four months of the monsoon season, June to September, except in small areas of the south-east peninsula and the western Himalayas, which get rain in winter months also. The rest of the year is practically dry. Rainfall in India in fact is marked for its unequal distribution and variation from year to year in its quantity, incidence and duration. In fact, no country has a greater degree of variety of meteorological conditions than India. Droughts and floods are common annual occurrences.

The yearly rainfall in India varies from 12.7 centimetres (5 inches) in the arid parts of Rajasthan to 1270 cms. (500 inches) in Cherrapunji in Assam hills. The annual average, however, is about 114.3 cms. (45 inches). But at many places in the country, less than half the annual average rainfall is not uncommon.

These variations affect Indian agriculture. Specially where the precipitation is low, cultivation without irrigation becomes impossible. Irrigation thus is an inescapable need for sustained and successful farming in India. This was recognised as long ago as the time of the Vedas. The Cholas and the Mughals built great irrigation works and canals. Maintenance of tanks and wells has been throughout recognised as a duty of the community and the State. Spectacular advance in the development of irrigation was made in India during the British period.

At the time of Independence, India had a yearly irrigated acreage of about 50 million. Since then roughly another 12 million acres have been added. Figures for irrigation available for the year 1961-62 were:

		(Million acres)
1.	Canals:	
	(i) Government	23.077
	(ii) Private	2.827
	Total	25.904
2.	Tanks	11.218
3.	Wells	18.037
4.	Other sources	5.989
	Net area irrigated	61.148
	Gross area irrigated	70.079

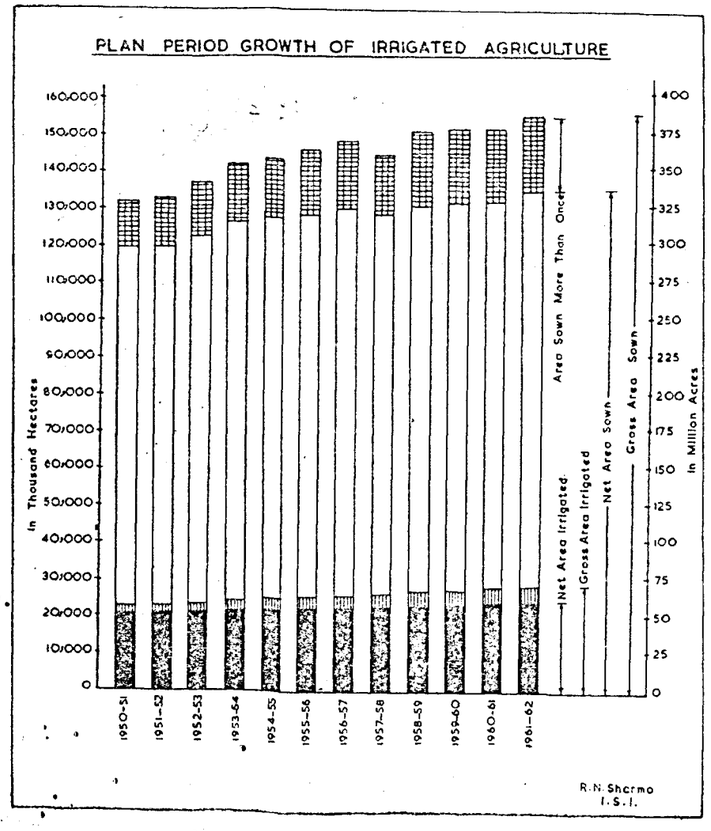
Even in the present stage of development, India stands highest in the countries of the world with regard to irrigated acreage with the possible exception of China. But utilisation of available water resources is even now not high. There is scope for further development.

Out of 1,350 million acre feet of water available from surface resources, only 76 million acre feet was being utilised for irrigation until 1951. That was hardly 5.6 per cent of the total annual flow of the rivers. Through the First, Second and Third Plans, use of another 40 million acre feet has been sought for irrigation. This raises the over-all utilisation to 7.6 per cent.

In the post-war years and more particularly after Independence and under the three Plans, a number of large irrigation projects have been taken up, many of them forming part of a vast complex of multi-purpose river valley schemes. Projects with an outlay of more than Rs 30 crore each are shown in the table below. They are at varying stages of progress.

Name of the scheme and the State	*Total cost (Irrigation portion)* Rs lakh	*Gross area in '000 acres*
1. Bhakra-Nangal (Punjab & Rajasthan)	10,189	3,604
2. Chambal (Rajasthan & M.P.)	5,485	1,400
3. Damodar Valley (West Bengal)	3,468	1,273
4. Gandak (Bihar & U.P.)	4,945	3,138
5. Hirakud including Mahanadi Delta (Orissa)	9,334	2,158
6. Mahi (Gujarat & Rajasthan)	4,178	751
7. Nagarjunasagar (Andhra Pradesh)	9,112	2,060
8. Rajasthan Canal (Rajasthan)	6,647	1,684
9. Ramganga (U.P.)	3,455	1,705
10. Tungabhadra (Andhra Pradesh & Mysore)	5,753	1,030
11. Narmada (Gujarat)	4,309	963
12. Beas (Punjab & Rajasthan)	11,743	2,630

(Extracted from the Third Five Year Plan, Annexe 4 & 5, Pages 413-14).





A pumping set being installed on a well in Samadri area of Rajasthan under the scheme for utilising subsoil water in the depression area of the Luni river

Under the Five Year Plans, the total outlay on irrigation under major and medium schemes as shown in the Fourth Plan Memorandum (October 1964) are :

First Plan	Rs 300 crore
Second Plan	Rs 370 crore
Third Plan	Rs 550 crore

Besides, under minor irrigation, outlays have been :

First Plan	Rs 46.53 crore
Second Plan	Rs 140.00 crore
Third Plan	Rs 305.73 crore

The total area of Indian Union is about 813 million acres. Of this only 334 million acres are farmed annually. Roughly about 50 million acres of land is sown more than once. Total cropped area in the country according to the land statistics of 1960-61 is about 385 million acres.

Over a fifth of this area under crops is served by irrigation of one kind or the other, falling under three categories : (i) diversion weirs and canals, (ii) irrigation tanks and reservoirs, (iii) tubewells and surface percolation wells.

Each of these categories roughly contributes equally towards the total irrigation of the country.

The net irrigated acreage at the beginning of the First Plan (1950-51) stood at 51.5 million acres. Including the area irrigated more than once, the gross area irrigated was about 55.8 million acres. In the decade between 1950-51 and 1960-61, th-

is during the First and Second Plans, the net irrigated area rose to 60.998 million acres and the gross irrigated acreage to 69.2 million acres.

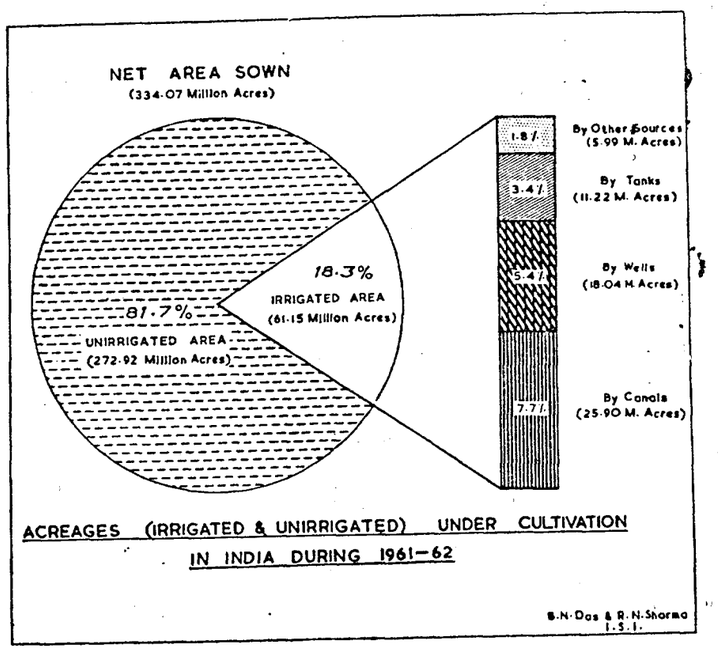
During the decade there had been a growth of about 0.95 million acres per year in the net irrigated acreage and 1.34 million acres per year in the gross irrigated acreage. Judging from the targets set for increasing agricultural production this record needs to be improved considerably.

Irrigation development in India in the past had mostly taken place as a measure of drought relief. Famines fathered the idea of artificial irrigation. Irrigation work was built, designed and operated mostly on a defensive pattern.

With the population swelling rapidly, irrigation has now to have a new purpose—increased agricultural production.

In the changed context all planning for irrigation should work backward from agriculture into irrigation and not from irrigation into agriculture, as in the past. Irrigation projects in the British period were mostly revenue-oriented. Little attention was paid towards maximising production from available irrigation sources. This had to make way for a production outlook.

There is considerable scope for further development of irrigation potential. These possibilities are indicated in the statement given below, as prepared by the Irrigation and Power Division of the Planning Commission in March, 1964 :



It will be seen that there is a sizable balance of irrigation potential for new schemes still to be created in some of the States. Per capita production in some of the States like Madhya Pradesh works out high specially because population intensity is low. But since these States are also surplus States in the matter of food-grains, they are not too keen to develop irrigation further. Future potential of such States remains unexploited despite the natural conditions within the State favouring increased production.

Name of State	*Approximate ultimate potential*	*Irrigation from pre-Plan schemes*	*Ultimate potential of schemes in three Plans.*	*Balance potential for new schemes*
		(Figures in thousand acres)		
Andhra Pradesh	16,000	3,832	3,836	8,454
Assam	2,400	150	170	2,071
Bihar	10,600	1,346	7,480	1,774
Gujarat	5,300	74	3,283	1,858
Jammu & Kashmir	233	97	136	Nil
Kerala	1,243	362	881	Nil
Madhya Pradesh	13,900	1,168	2,620	10,103
Madras	3,649	2,609	1,040	Nil
Maharashtra	5,800	638	1,509	3,736
Mysore	4,400	704	2,560	1,136
Orissa	6,000	1,041	2,912	2,047
Punjab	9,804	3,789	6,137	Nil
Rajasthan	7,800	741	3,687	3,240
Uttar Pradesh	18,800	4,550	4,802	9,444
West Bengal	5,700	1,006	2,721	1,973
Total:	**111,629**	**22,111**	**43,792**	**45,836**

Ground Water Resources

Besides surface water resources, there is considerable scope, more particularly in alluvial tracts, for developing ground water resources for irrigation. This development is taking place. Whereas there were 2,400 State tubewells in 1950-51, there are now about 10,000 State tubewells, with Uttar Pradesh leading.

But a systematic survey and assessment of ground water resources has not yet been made. Shallow percolation wells have been in operation in many parts of the country for centuries, but their range of operation is limited. Their number may be well over 50 lakh. For the intensive type of agriculture now being sought, they need to be improved considerably. An extension programme for wells and tubewells has to be taken up, depending upon the availability of groundwater and the feasibility of its exploitation.

(To be continued in the next issue)

A Co-op. Builds a Barrage

—and has new device to collect dues

FARMERS in a number of villages around Sangrul in Maharashtra decided to overcome the problem of scarcity of water for their farms and formed a co-operative society in 1950. It is perhaps the first co-operative venture of its kind in the country.

The Society wanted to build a barrage over the river Kumbhi. Persistent efforts and determination of the villagers yielded fruit and the barrage was constructed after obtaining a special permission of the Government for building the barrage.

During the first rainy season the barrage gave way. However, without losing heart, the Society reconstructed the barrage within a year. It has been irrigating the sugarcane area of 900 acres around the village for the last ten years.

The co-operative barrage is six metres high and 63 metres long. It has 29 pillars and 30 doors. The construction cost, Rs 3 lakh, came through the share capital raised by members, a loan of Rs 50,000 from a co-operative bank, a loan and subsidy of Rs 30,000 and Rs 8,000, respectively, from the Co-operative Department, and a grant of Rs 38,000 from the Local Board. Deposits also were accepted from the members. The water of the Kumbhi river is thus made available to the members who install pumping sets on its banks. Every member pays Rs 12.50 per acre as irrigation charges. A non-member farmer has to pay Rs 50 per acre.

No member ever had any overdues, because the management has adopted an attractive scheme to collect the water revenue. A rebate of 25 paise per rupee is given to those who pay the revenue before May 31, and those who do not pay in time are fined 12 paise per rupee besides the interest at 8 per cent. As a result the Society has been making profits from which it has raised an education fund, a reserve fund, a building fund and a welfare fund. The Society has also a 'barrage fund' for the maintenance and possible breach or damage.

Courtesy—The Bombay Co-operator

QUOTATION BOX

In the elections to a certain Panchayat, 11 of 14 men elected were known dacoits.

—From an article by Mr T. J. S. George

Everything we are doing is designed to prevent a nuclear explosion. We do not want Trombay to explode.

—Dr H. J. Bhabha

India can explode a bomb, and, contrary to popular impression, the cost would not importantly impair her economic development—not a fraction of the amount by which her progress is impaired by archaic administration.

—Prof. Leland Hazard in "The Atlantic Monthly"

In Japan the influence of a person does not depend on the public speeches he makes.

—Prof V.K.R.V. Rao

To work for peace is not cowardice.

—Mr Jayaprakash Narayan

Unless their (the bureaucrats') self-reliance is broken, there's little hope.

—Mr Romesh Thapar

The Plan Is Dead, Long Live Planning.

—Editorial in "The Economic Weekly"

They (I.A.C. employees) want nothing less than "the fine blue serge" they used to be given in the past. What I.A.C. is willing to give is only "rough serge" which, the staff say, is "nothing better than coloured jute cloth".

—Report in "The Statesman"

A call for an all-out effort in all directions, keeping in view all the time the requirements of defence and preparing the people for a disciplined response to civil defence activities, was made by Dr Sushila Nayar, Union Health Minister, presiding over the two-day session of the fifth conference of Municipal Corporations.

—From a P. I. B. release

I dislike going to places where I do not get gold.

—Mr Lal Bahadur Shastri

Hindus and Sikhs are one and same
In link ties, relations and aims,
Burning Ghat is one and the same
Then fighting amongst is a matter of shame.

—Mr Naunihal Singh Layal, "Tradesman Poet" of Delhi

The Vatican Ecumenical Council has decided that Roman Catholic couples have the right to decide the number of their children. But "spouses themselves, and no one else, must make this judgment before God".

—News report

Even a judge retires at the age of 60. Why then should politicians dominate throughout their life? There should be a rule that one cannot contest election after the age of 60.

—Acharya Vinoba Bhave

Rear Admiral B. A. Samson, Flag Officer Commanding of Indian Navy, welcoming the naval attaches of the Indonesian, Thai and U.S. embassies on board I.N.S. 'Brahmaputra' (which was claimed to have been 'sunk' by Pakistan) said, "Here you are on board a sunken vessel. Now you know it has not become a submarine."

—A report in "The Times of India"

Mr G. L. Nanda, the Union Home Minister, said that suggestions by the Swatantra Party leader, Mr C. Rajagopalachari, and others that India being a very big country should give away Kashmir to Pakistan amounted to saying that "a fat man can easily cut off his nose and give it to somebody else as the nose is a very small part of the body."

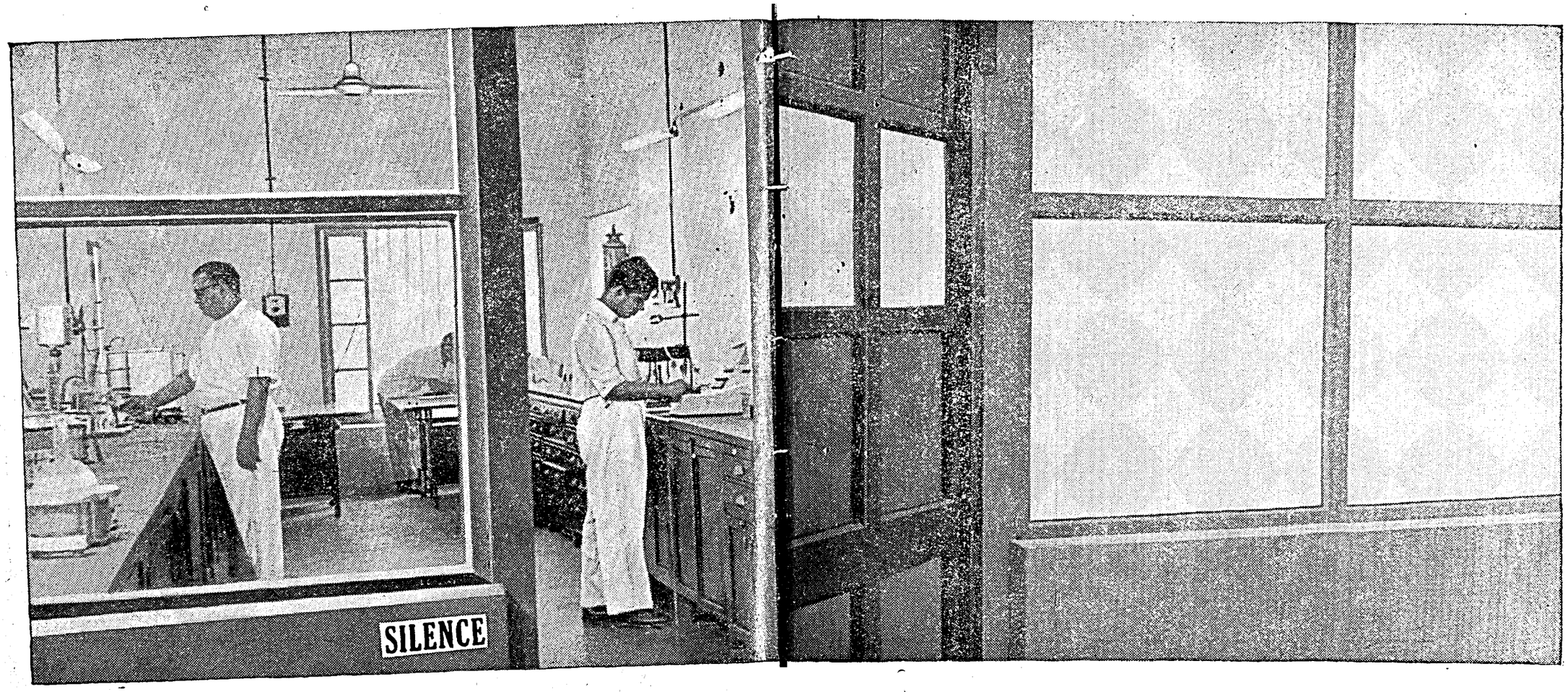
—A report in "The Hindu"

If I do not solve the food problem of Maharashtra within two years, I should be hanged.

—Mr V. P. Naik, Chief Minister of Maharashtra

The needed protein allowance for a man of 154 lb. who is moderately active is 70 grams per day. I at sixty-eight and being only 86 lb. in weight, take much more, and the result can be observed in my writing.

—Mr Nirad C. Chaudhuri



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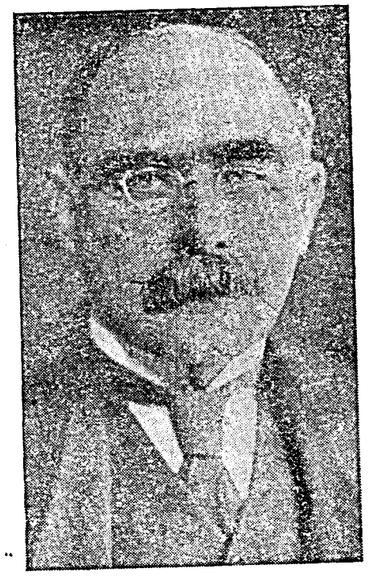
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AN INDIAN AUTHOR
THINKS OF HIM
IN THE CENTENARY YEAR

Reincarnating Shri Kipling

By Khushwant Singh



Rudyard Kipling who was born this month a hundred years ago

IT is said that when Rudyard Kipling's mother was in travail her Hindu servant hurried to the temple and sacrificed a goat to goddess Amba so that the birth of the child was less painful. In this manner was Kipling born in Bombay on December 30, 1865. Of the seventy years that the goddess prescribed for his sojourn in the world, Kipling spent only seven in India. But India obsessed Kipling's mind. It produced the best and the worst in him as a short-story writer, novelist and poet. And although he did much to denigrate Indians, his exit from the world was attended by what Kipling would have considered the poorer farewell for a *pucca sahib*. When his coffin draped in Union Jack arrived at London's Golders Green crematorium, admirers of the Indian communist Shapurji Saklatvala, who had just consigned their leader to the gas chamber, burst into full-throated singing of the Red Flag.

Between Kipling and India there was a love-hate relationship. India gave Kipling his philosophy of life, his canvas and his paint-box. India also produced his caste complexes, his jingoist imperialism and his white racism. In his turn Kipling gave India some of its most beautiful descriptive prose and poetry, many of its most memorable animal characters as well as most of its contemptible human beings.

Although Kipling, like most other sahibs of his time, found it easier to get on with the martial types—Pathans, Punjabi Mussulmans and Sikhs—and professed abhorrence for the wily Hindu, he was more influenced by Hinduism than by Christianity, Islam or Sikhism. Hinduism answered to his experience of life. He had a very lonely and unhappy childhood. At the age of seven he and his sister were left in the keeping of a retired naval officer and his tyrannous wife who lived in Southsea. These five years left a lasting impression on him. Loneliness of the human soul became the dominant theme of his writing. The only way to overcome loneliness, said Kipling, was to engage in constant activity. His heroes were soldiers, sailors, engineers, empire-builders—men of action who performed their duties without consideration of gain or loss, the *Karmayogi* of the *Gita*.

Kipling was a born hero-worshipper. His heroes were men like Cecil Rhodes, Theodore Roosevelt and General Booth of the Salvation Army. Kipling also believed in the caste-system. The *pucca sahib* was his Brahmin and Kshatriya. It was his destiny to conquer and rule. The brown and the black races were the Vaishya and Sudras meant to obey, toil and serve. Those who did not observe the caste rules, whether white or black were untouchables. Thus Pagett M.P., who mocked the empire-builder, deserved to be put in stocks just as much as the upstart Bengali Babu, Hurree Chunder Mookherjee, who had the audacity to want to arm himself.

What comes as a great and pleasant surprise after all this nauseating racism and waving of the Union Jack is Kipling's sensitivity; Kipling as the painter of landscapes; Kipling the superb ballad-maker, the majesty

of whose lines leaves an indelible mark on one's memory; and above all Kipling the paradigm of modesty and humility. (He refused all honours except the literary and academic.) In Kipling the lofty and the base, the aesthetically pure and the bawdily coarse mingled as rarely found in a man of letters. As a critic remarked, with Mr Kipling the descent is from the stars to the puddles.

Kipling has been dead over 30 years. Is it possible to purge his memory of the dross and reincarnate him as the greatest poet-novelist of India? Perhaps.

THE POET

It is Kipling the poet who deserves re-assessment. He has too long been known for pieces which find their way into anthologies—*Recessional*, *If*, *White Man's Burden* and the like. Consider some of his simpler poems with the Indian landscape, *e.g.* the Scene of Simla:

I had seen, as dawn was breaking
  that I staggered to my rest,
Tara Devi softly shaking
  From Cart Road to the crest.

These lines were written with a hangover. Then he drunkenness lifted, and

Dim and saffron, robed and splendid
  Broke the solemn, pitying day
And I knew my pains were ended,
  And I turned and tried to pray;
But my speech was shattered wholly.
  And I wept as children weep,
Till the dawn-wind, softly, slowly,
  Brought to burning eyelids sleep.

Simla quickened Kipling's imagination more than ny other city of India—

So long as 'neath the Kalka hills
  The tonga-horn shall ring,
So long as down the Solon dip
  The hard-held ponies swing,
So long as Tara Devi sees
  The lights of Simla town,
So long as Pleasure calls us up,
  Or Duty drives us down,
    If you love me as I love you
    What pair so happy as we two?

* * *

So long as Aces take the King,
  Or backers take the bet,
So long as debt leads men to wed,
  Or marriage leads to debt,
So long as little luncheons, Love,
  And scandal hold their vogue,
While there is sport at Annandale
  Or whisky at Jutogh
    If you love me as I love you
    What knife can cut our love in two?

* * * *

By all that lights our daily life
  Or works our lifelong woe,
From Boileaugunge to Simla Downs
  And those grim glades below,
Where, heedless of the flying hoof
  And clamour overhead,
Sleep, with the grey langur for guard,
  Our very scornful Dead,
    If you love me as I love you
    All Earth is servant to us two!

In the first verse of *Christmas in India*, Kipling captured a memorable scene—

Dim dawn behind the tamarisks—
    the sky is saffron-yellow—
As the women in the village grind the corn,
And the parrots seek the river-side,
    each calling to his fellow
That the Day, the staring Eastern Day, is born.

Many writers have tried to depict the summer's heat, but none as successfully as Kipling. He described it in many letters written from Lahore and superbly in a poem entitled *June*—

No Hope, no change! The clouds have shut us in,
And through the cloud the sullen Sun strikes down
  Full on the bosom of the tortured Town,
Till Night falls heavy as remembered sin
That will not suffer sleep or thought of ease.
  And, hour on hour, the dry-eyed Moon in spite
  Glares through the haze and mocks with watery light
The torment of the uncomplaining trees.
Far off, the Thunder bellows her despair
To echoing Earth, thrice parched. The lightnings fly
In vain. No help the heaped-up clouds afford,
But wearier weight of burdened, burning air.
What truce with Dawn? Look, from the aching sky,
Day stalks, a tyrant with a flaming sword!

Above all what should entitle Kipling to a more charitable re-assessment in India is his modesty—a commodity singularly rare among Indian writers themselves—

If there be good in that I wrought
Thy Hand compelled it, Master, Thine—
Where I have failed to meet Thy Thought
I know, through Thee, the blame was mine...

The depth and dream of my desire,
The bitter paths wherein I stray—
Thou knowest Who hast made the Fire,
Thou knowest Who hast made the Clay.

This sentiment echoes through Kipling's autobiography, *Something of Myself*: "I expect that every man has to work out his creed according to his own wave-length, and the hope is that the Great Receiving Station is tuned to take *all* wave-lengths."

Books

Energy Requirements of Western India

Demand for Energy in Western India. N.C.A.E.R. 221 Pages. Rs 18.

THE report is the third in the series of regional studies taken up by the National Council of Applied Economic Research. The western region comprises the States of Maharashtra, Gujarat, Madhya Pradesh and the Union Territory of Goa, Daman and Diu. It is interesting to note that in forecasting future demands not only the trends in the historical growth but also factors like trends in population growth, the optimum growth that can be sustained in the area, substitution of one form of energy for another, etc., have appropriately been considered. While this methodology appears to be good, it has also to fit into the pattern of over-all planning for the country, an aspect that does not seem to have been given due weight in the report. Industrial and economic developments are usually envisaged in the context of all-India considerations of the availability of resources, overall trends in the Indian economy, etc., in the macro-economic approach and not with reference to a single region or sector as such. Hence it would have been more appropriate if the Council had started with the study of the aggregate trends in the Indian economy as a whole and later attempted the regional break-up with all the relevant considerations that have gone into the present study to corroborate the results.

According to the findings of the report, the total energy requirements in the western region will roughly double itself from 305 billion kwh in 1960-61 to 578 billion kwh in 1975-76. Introduction of 'human energy' is a new feature in the report but its exact implication or evaluation of demand and production figures in relation to other energy sectors is not brought out clearly.

The report as a whole has attempted a detailed study of the energy problem and a coal-based economy has been recommended for the region with necessary emphasis on electricity and caution in regard to oil demands. The findings will prove useful for any comparative analysis of similar studies.

T.R.

Lining of Channels

Lining of Earthen Irrigation Channels. H. L Sally. Asia Publishing House. 119 Pages. Rs 15.

A. T. R. Raju

WITH the increase in population and of development activities, the need for economic use of water is increasing. Out of the various water requirements of man, that for agriculture is probably the largest in terms of quantity. Most of the agricultural lands that are being irrigated now are using surface irrigation, even though some other methods, like sub-surface irrigation, are also in vogue in some places. In surface irrigation, using distributing system consisting of main canals, branch canals, field channels, etc., it has been assessed that about 40-45 per cent of the water entering the distributing system is being lost into earth by percolation before reaching the field. Water is so important in the present context that losses of this magnitude can no longer be afforded. This needs a solution. Lining of the distributary system appears to be a solution.

Significant progress has indeed been made in this direction. There is a considerable body of literature on the lining of canals. But most of this literature is scattered over various individual technical papers. Consolidated references on the subject are very few, with the result that one has to search through bulky literature for his requirements on the subject. Mr Sally's book is therefore timely. The author has attempted 'modestly' to deal with various aspects of the subject. It includes introductory information on the value of conservation of water, details of design and construction of various types of lining, description of the materials used and the relative advantages and disadvantages. The treatment is simple and clear. Even a fresh hand in the subject can follow it easily. The author's vast experience in this specialised job is apparent in the manner he has presented the subject.

It would have been better if the author had used the accepted terminology. "Dry density" and "compaction" would have been better words to use than "dry bulk density" and "consolidation". Usually the unit of dry density is also mentioned along with it. There appears to be an oversight in the first sentence of the last paragraph on page 70. The word "reduced" should really be "increased".

In technical books, figures and diagrams convey much more than the legend, and make for clearer understanding. The value of the book would have increased if the author had incorporated more diagrams.

Some factors such as weed problem could also have been elaborated.

Mention of sources of data used in the book and the addition of a bibliography would have helped those interested in a more advanced study on the subject.

It is a useful volume for the civil engineer.

DEVELOPMENT COMPARED

An International Comparison of Economic Development: Department of Economics, Madras Christian College. 55 pages.

THIS booklet is a collection of papers presented by students at a college seminar. It makes interesting reading as it shows the way in which some of our university students view the economic issues facing the country, and it provides some idea of the results that have been achieved by the recent effort to provide a more systematic grounding in the discipline of economic reasoning.

There are in all six papers and an introduction. Each of the papers makes a comparative study of India and another selected country in one aspect of economic development. The paper on planning compares the Russian and Indian experience and points to the importance of transport and agriculture. Another paper examines the factors behind technological growth in the U.S.A. in order to draw lessons for India and advocates concentration on applied rather than pure research. A comparison of social services in India and Britain emphasises the role of the human factor in growth. An assessment of agricultural performance in India and China contrasts the fundamental differences in approach between the two. In the section on small-scale industries the similarities and contrasts betweeen Japan and India are brought out while the final paper examines the factors behind the price stability in West Germany and the inflationary trends in the Indian economy.

The papers are on the whole well-written and present a painstaking collection of facts. Yet the theme is wide-ranging and each paper has to cover considerable ground with the result that the young economists are unable to get their teeth into any of the issues that they discuss. It seems, however, to be a good idea to stimulate students to think with the incentive of putting their names in print, for we have here a set of interesting essays.

P. E. DANIEL

Side Track

Indian Guns

HOW many who thrill at the progress we have now been making in armament manufacture know that at one time we were the world leaders in the making of guns? In the early days of guns in Europe, they killed the wielders more than they killed the enemy. Being made from cast iron they were liable to explode, and the barrel was never completely filled because of this fear. The result was that their effectiveness was limited to a small range.

India, however, made guns from steel. A recent book *Firearms* by Howard Ricketts (Weidenfeld and Nicolson) has described the process adopted in India in the seventeenth and eighteenth centuries. After mentioning the fact that Damascus, famous for steel tempering, really obtained the steel from India, the book says: "While in Europe gun barrels were cast from one piece of iron, in the East bits of used iron were formed into ribbons the thickness of a man's finger, which were then twisted together. A further band was wound round this core and welded, after which it was again twisted and beaten into a cylindrical form and then bored. This method of knitting the metal produced a barrel which not only was unsurpassed in durability but also proved to be the most powerful influence on the construction of barrels in Europe during the eighteenth and nineteenth centuries. This technique was perfected gradually in India, and it was not until the eighteenth century that gunsmiths were able to prove the finished article by filling the entire barrel with gunpowder that it would not burst. Until then few guns would have survived a proof of a quarter of that amount."

From There

MR Romesh Thapar, the political commentator, finds it highly amusing that scholarships have been instituted for Indians to study the practice of non-violence in the U.S.A.

A painter friend of ours was saying some time ago that a few Indian students, working for their Ph.D. in American universities in the field of modern Indian paintings, have come home on a visit to make their acquaintance with modern Indian painting.



IGNORAMAN

Wants to Know

When we say
the States
must implement
the Food Plan,
do we mean
Our States or
the United States!

Controlled Anger

VEGETABLE prices seem to have shot up suddenly in Madras. *The Hindu* had a report on the development, which had the following passage :

> One disgusted consumer picked up a row with a vegetable vendor in Mylapore market and shouted : "The long arm of the Defence of India Rules has kept under check the prices of several other essential articles but it seems to have no hold on vegetables !"

It is good to know that there still are people who speak like that.

Collector's Item

THIS story of two lions was told us by an Israeli editor.

Two lions escaped from a zoo, but came back a few days later. Each asked the other why. The first lion said he had wandered off into the Negev desert and, not having found anything to eat, gave himself up. The second lion said he went to a government office and hid under the staircase. Each day he ate up a man. He could have gone on, since no one seemed to be missed, until one day he ate the boy who served tea in the office, as a result of which he was chased away.

He is gay and dashing, always first with the latest in everything. He's so different from me, which makes it all the more difficult for people to believe that Anil is my brother.

When he got married, I forced Anil to take an Anticipated Endowment Assurance Policy. He did so reluctantly. "It's only because you're my brother," he told me. "I would have refused any other Life Insurance agent."

For some time, Anil paid his premiums regularly. But soon he found himself short of money. There was some new furniture to buy, or some interesting place to visit or extra entertaining to do. Anil began to spend the premium money instead of paying it in.

I had a long talk with him. "When you let your Policy lapse," I told him, "you lose practically everything. You've paid premiums for 2 years so you will not lose all the money you have paid. It will just be locked-up until the time your policy would have matured. What good is this to you? What's worse, you lose the substantial security your policy guarantees your family throughout the period, no matter what happens."

Anil refused to understand.

But his wife did. She promised that she would save a little from her household expenses each day and pay the premiums. The policy was reinstated.

About 3 years later, Anil got a wonderful opportunity. He was given a technical scholarship abroad, but he had to pay for his passage there and back.

Anil had no savings. He would have found it difficult to get so much money. But I remembered that the first instalment of his Anticipated Endowment Policy was due very soon. This would be more than enough for the present expenses.

Anil was so pleased to get the money. And from that day, I had no more trouble with his premiums.

ASP/LIC/Z-34

THE SEARCH FOR SELF-RELIANCE

in Iron Ore and Copper Industries

V.P. CHOPRA
The National Mineral Development Corporation

THE content of self-reliance differs, in extent and nature, from one industry to another. The determining factors are the level of development already reached, the pattern of demand for the industry's products at present and in the future, and the anticipated technological developments. However, in whatever manner and in whichever sphere of development self-reliance is obtained, it relieves the country's foreign exchange resources from the pressure that may otherwise arise from dependence on foreign countries.

Specific observations on self-reliance emerge from an analysis of some selected industries. A stock-taking of the progress and future plans for development of some of the strategic mining industries such as iron ore and copper is attempted, in what follows, to highlight the degree of self-reliance that has already been attained and that is likely to be achieved in the future.

Between 1950 and 1964 there has been a phenomenal growth in the iron ore industry, so much so that production has increased almost threefold to reach the level of about 15 million tonnes in 1964. Such increases were made possible by supply as well as demand factors. On the demand side, these are partly explained by increases recorded in exports since 1957 and partly by increased domestic consumption since 1958 when the expansion of the steel industry began. On the supply side, partial or total mechanisation of mines resulting in capital-intensive and labour-saving devices in the industry was instrumental in raising the production to a level that could not have been reached by manual working of the mines.

Development of big iron ore deposits at Naomandi, Barsua, Dalli Rajhara and Kiriburu through mechanisation gave our technical personnel a wealth of experience and know-how with regard to operation of complicated plant. Such experience has been helpful not only in operating the mines but also in getting the design performance of different equipment on the basis of which we can draw our own specifications. The association of Indian engineers with the construction operations has developed in them the confidence that they will be able to handle the construction work independently of outside aid. We in this Corporation have designed and prepared the project reports for one of the biggest mechanised mines in Asia, namely the Bailadila Deposit No. 14, without foreign collaboration or assistance. The construction job is also exclusively in the hands of experienced Indian engineers.

Having gained confidence in one mine, the Corporation has now presented three more project reports, wholly designed and with complete specification data, for the expansion of the Kiriburu mine, and development of a new mine at Meghahatuburu (for supply to the Bokaro Steel Plant) and another mine at Bailadila Deposit No. 5. All three are amongst the biggest mines in the world.

Extensive and complicated alterations have had to be made in the Kiriburu plant, so as to meet the requirements of Bokaro; still the Corporation has been able to make recommendations with confidence.

ANOTHER aspect of mining in which foreign collaboration (and aid) was sought in the past is the preparation of feasibility studies. The Corporation has taken the initiative and is now compiling a number of feasibility studies based on which the Fourth Plan targets of iron ore production for domestic consumption and exports could be framed. Some of the important feasibility studies are: production of two million tonnes of high grade iron ore in the Barajamda area; production of seven million tonnes of lump iron ore from Bellary-Hospet; production of three million tonnes of iron ore from Malangtoli Block in Orissa; and two iron ore deposits at Kotebare in Shimoga district and Kuduremukh in Chickmagalur district in the Mysore State.

The Corporation has also undertaken to help other units in the industry in building up their mines and saving foreign exchange. It has recently compiled the project report for the reorganisation of Kemmangundi iron ore mine belonging to the Mysore Iron and Steel Works. The work has been done by Indian engineers.

The Corporation's technical personnel have acquired experience of machinery and equipment the hard way. Mechanisation has to solve many problems in the initial stages. For example, when the Kiriburu iron ore mine was commissioned in 1964, we had a lot of initial troubles not only in regard to operating the plant to its capacity but also in regard to the lump-fine ratio, the operations of the railway line, and the working of the Visakhapatnam Port. These difficulties have been systematically tackled and the problem today is not of the same magnitude as in the

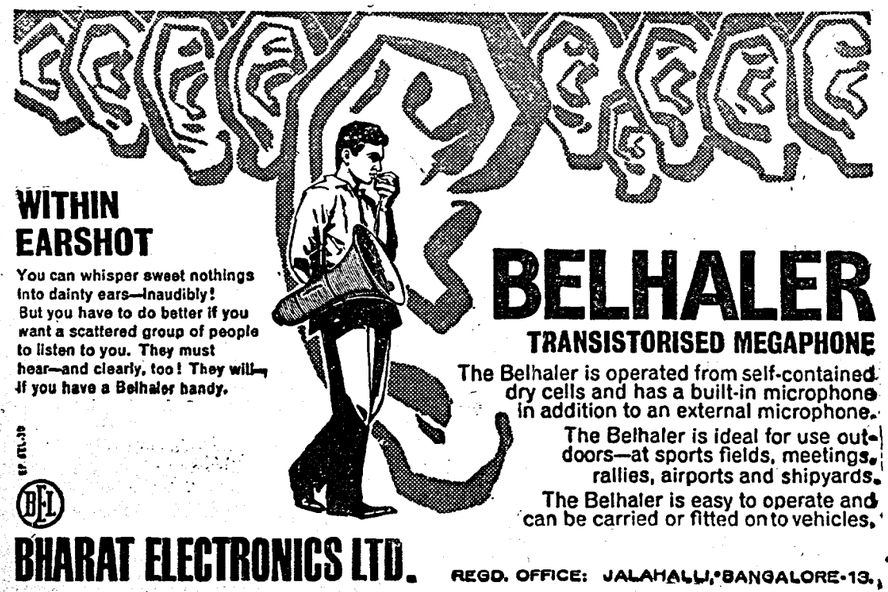
beginning. One by one different weaknesses are being reviewed and the production targets are likely to be achieved in the coming few months.

THE progress of copper ore industry has been much slower than that of iron ore industry in the last 15 years. Only one mine at Mosabani, owned by the Indian Copper Corporation, has been in production. Consequently, the output of copper metal has remained more or less static—9,600 tonnes per annum during the last five years. This level of production meets only 10 to 12 per cent of the consumption. Foreign exchange of Rs 234 million per year on an average is spent on import of copper, despite the fact that some substitution of aluminium for copper has taken place in some of the copper-using industries. But substitution cannot be the total answer for meeting the increases in demand. The demand for copper is expected to reach a level of 250,000 tonnes by 1970-71, against 70,000 tonnes in 1960-61 and 130,000 tonnes in 1964-65. The gap cannot be bridged unless the development of copper industries in the country is pursued vigorously. Domestic resources of copper ore have to be developed and the collection of old scrap copper must be placed on a systematic footing.

Turning to the development of domestic resources one can safely say at this juncture that resources which were categorised as uneconomical have become economical. That is because the criterion which treats the economic reserves as a function of comparing costs and prices does not hold true on account of the high prices (popularly termed shadow prices) that exist in a situation of shortages. Besides, the by-products reduce the cost of copper production substantially. The most important of the new schemes for production of copper is the Khetri project which is being developed with French assistance to produce 21,000 tonnes of electrolytic copper, besides sulphuric acid and triple superphosphate as by-products. The second project is the Rakha copper project in Bihar, prospecting and drilling of which is in progress for an ultimate potential capacity of 20,000 to 25,000 tonnes of copper annually.

Preliminary work is also being done on other deposits for preparation of feasibility studies. The N.M.D.C. proposes to prepare the project report of the Kolihan copper deposit near Khetri. Preparation of a project report of the Dariba copper deposit near Alwar has also been taken up. The Geological Survey of India is at present doing intensive exploration work on the copper-lead deposit at Agnigundla in Andhra Pradesh; N.M.D.C. will undertake the subsequent work of opening up the deposit.

Use of old scrap copper should figure largely in production of copper in the years to come. Smelters and refineries have to be set up in the country which will use scrap copper as well as imported concentrates. Thus, through higher indigenous production of ore, import of concentrates, increased use of old scrap copper, and substitution of aluminium for copper to the exteht possible in copper-using industries, gross savings of Rs 30 crore a year are possible in the course of the coming decade.



WE MUST REMEMBER THAT CLEAN WATER COSTS MONEY: WE MUST ALSO LEARN NOT TO POLLUTE OUR RIVERS

STOP THIS WASTE OF WATER

N. R. MALKANI

INDIAN lore is full of hymns in praise of water. But the distinction between clean and unclean water is recent. In nature we have an inexhaustible source of water but it has to be made clean for drinking purposes. Clean water is very different from the 'pure' water as understood by those observing the caste system.

Half the business of the Public Health Department consists of supplying adequate quantities of clean, safe, drinking water. "Raw" water is collected in large tanks; sedimentation is allowed to take place after adding a light solution of alum; then there is chlorination to kill the harmful germs; lastly there is filtration for removal of suspended impurities in water. After tests, this "clean" water is distributed by an intricate pipe system to consumers.

Though the supply of such clean drinking water is limited in India, there is a great deal of waste of it. According to the Report of the National Water Supply and Sanitation Committee (1960-62) of the Ministry of Health, out of 1,306 municipal towns there were 245 towns with adequate, 465 towns with partial, and the remaining 596 towns with no piped water supply. This leaves out of account more than 900 panchayat towns and notified area committees. During the Third Plan about 120 new schemes have been undertaken. Thus we are a fairly long way off from supply of clean piped water to all municipal or panchayat towns.

The supply of such water in adequate quantity, say 25 gallons per head per day, appears a distant dream.

It is estimated that an adequate supply of piped water to all urban areas, at the population figures of 1961, will cost not less than Rs 600 crore. As it is, both the population and the costs are rising. Clean water, thus, is limited in quantity. It also costs a great deal to prepare and distribute. If we realised this we would be far more careful about its proper use.

How Much for a Bath?

IN the last decade our people have come to appreciate that "clean" piped water is more important than ritually "pure" water. There is also growing demand for adequate supply of clean water. But there is little corresponding realisation that clean water is very limited in supply and its distribution is expensive and has to be paid for, like electricity or any other service. Living in urban areas we seem to hold on to the old village idea of water being free like air and light. But nature is less generous with regard to water than with regard to air.

Worse still, we needlessly waste so much of clean, costly water. We have the good old habit of having a daily bath and we sit under a tap or shower as if we were sitting in a well or a tank or a river. Generally speaking, an Indian requires two buckets of water—eight gallons or 80 pounds—for an ordinary bath, three for a good bath and four for a lovely cool bath. The irony is that the less physical labour we do, the more water we use. The white-collar worker uses much more water than the manual labourer; and the Bhangi uses the least. Our use of clean water in towns is thoroughly unrelated to social need; it follows status. There is more water and for longer hours in well-to-do houses, and meagre and intercepted supply in poorer areas.

I suggest that our bath must be a reasonable one requiring just one bucket and no more. I for one need just half a bucket and I know some distinguished persons who are satisfied with a quarter and are no whit less clean.

We have another good Indian habit of daily washing our clothes, with or without soap. It is both a cheap and a clean habit. But the quantity of water that we use or waste is a thing to be seen to be believed; roughly a bucket or even two per dhoti. It is more water, little labour and hardly any soap. The purer the caste the greater the lavishness of the bath or wash. Some families keep buckets or containers or drums of water at night and then empty them in the drain next morning to have "fresh" water from the flowing tap. This is the traditional idea of considering "flowing" water as fresh water. But in fact all municipal water is "stale" water, kept for days and weeks in large, closed and static tanks for gradual supply to consumers. There is no fresh water like fresh food, but only clean and unclean water. It is time that we learnt to enjoy a one-bucket bath and to install a system of periodic scientific washing. There is a great deal of

the traditional and medieval in many so-called modern Hindus in regard to the use of water.

Running Taps

As if this were not bad enough, we add some thoughtlessness to our past habits. Taps in most towns run only four to six hours a day. But we want them to work all the time. When we open them and find them dry, we leave them open. In our chagrin we open them to the full. The result is that they flow to the full when no one is there, little realising that leaving them open will only result in waste. Often we leave a bucket under a running tap and go away on other work. The tap runs and runs until we choose to return. In well-to-do houses there will be one or two and even three taps which leak for days and weeks before they are repaired.

The state of public hydrants is much worse because they are public. It is a common sight on public roads, and more specially on railway stations, to find taps opened but never closed until some funny man like me stops to close them. The common man has only learnt to open them and leave them so. Often the hydrant has but one tap and that a half-inch one for a long queue of women water-bearers. There is impatience and anger till some one breaks tap as to have a perpetual flow—or steals it. I am of opinion that a public hydrant must always have two or three taps, with the tap head fixed in masonry.

Perhaps it will take some time for us to change our wasteful habits and become a little more thoughtful, but the installation of water meters in each house might speed the process. It will teach us two necessary lessons —clean water is limited and that service has to be paid for.

Fouling "Holy" Places

Lastly we must remember that if good water is useful, dirty water is not useless. It has its own uses in the economy cycle of nature. Normally sullage water is kitchen water containing organic substances which are useful to plant life, if not to man. In India the dirty water our open drains also contains and even night soil in solu- This is of still greater use for plant growth. But in most towns the drains are half-*pucca* and half-*kutcha*. Either water stagnates and stinks in them, or it runs into a stream or canal.

Our rivers and canals are the most polluted in the world. All our Indian liquid filth is allowed to flow into our "holy" rivers which we think can wash away both our sins and our dirt. There are big gaping drains ahead of most holy bathing *ghats*, including the Dashashwamedha Ghat of Banaras. As if this were not enough we generally use our river canal banks, in fact all our water spots, for urinating and defecating. We think we are the only clean people who use water for wash after defecating. So we are, but we are also the only people who pollute the rivers and river banks, without any sense of shame, and turn them into our public latrines and drains. There are very few towns which know the value of this polluted water and use it for Mother Earth to enrich the harvests.

GINGER EXPORTS

Half the world's ginger comes from India. The spice earned for India Rs. 13.21 million in foreign exchange in 1964-65.

Ginger improves the taste and flavour of food. It also has medicinal properties. "Try ginger" is a common advice in cases of aches, pains and indigestion. From ginger are made ginger oil, ginger essence and ginger oleo-resin which are useful in the making of ginger beer, ginger brandy and ginger wine.

Though ginger is grown all over India, the largest area under the crop is in Kerala. Of the total estimated production of 22,200 tons of ginger (expressed as dry ginger) in 1962-63, a half, or 11.500 tons, were produced in Kerala alone. It is the Kerala ginger, sun-dried, that is marketed in foreign countries.

The other countries that supply ginger are Jamaica, Sierra-Leone, Nigeria and Taiwan.

The Government of India has recently introduced compulsory quality control and pre-shipment inspection. It is hoped that this will go a long way in increasing the demand for Indian ginger in the world market.

Missing a Meal

Seetharaman is a methodical man. He takes particular pride in a blackboard in his verandah on which he writes down instructions and advice to his wife and children. All invitations that arrive are also pinned on the board so that greetings, acceptances or regrets can be sent promptly. Of course Seetharaman picked up the habit in the United States, when he was a student at Columbia.

I went to his house last week. It was late in the evening and I had almost forgotten it was a Monday. But the board reminded me. On it was chalked in Seetharaman's bold and masterful hand: "Monday Today. Miss a Meal."

So I didn't ask him the customary question: "Had your food?" I plunged directly into the point I had gone to consult him about.

The house seemed unusually quiet. Ah, the children must be asleep. But where was Mrs Seetharaman? It was her habit to squat in the sofa and read Tamil journals and join now and then in conversation.

Smell of frying fat indicated she was in the kitchen. I walked over there and greeted her. She began, as though I was asking for an explanation from her: "You see, your friend doesn't get sleep on an empty stomach. We gave some fruit and milk to the children; but he, you know, can't manage with that. So I am making *puris*. After all in our tradition we don't eat rice on Ekadasi but have some wheat preparations, don't we ?"

—S

HAVE YOU RENEWED YOUR

YOJANA SUBSCRIPTION ?

SPECIAL PURPOSE MACHINES FROM NEW HMT

(*Continued from Page 6*)

lakh, next year Rs 2 crore and in 1967-68 Rs 4 crore. By 1968-69 we hope to have an annual production of Rs 5 crore."

"You spoke of designs of S.P.M.s. Is each of them designed separately?"

"Yes, yes. Each S.P.M. is intended only for making a particular component of a particular machine. For instance, the cylinder block of one make of car cannot be made by an S.P.M. making the cylinder block of another brand of car. So an S.P.M. designed for one purpose cannot be used generally for other purposes. That is why we are going to have a large Design Division. It will have 250 design engineers who will do project planning and design of the S.P.M.s. In fact it will be the biggest design division of any factory in India. And that is the reason for laying so much emphasis on skill in drawing in our recruitment of trainees."

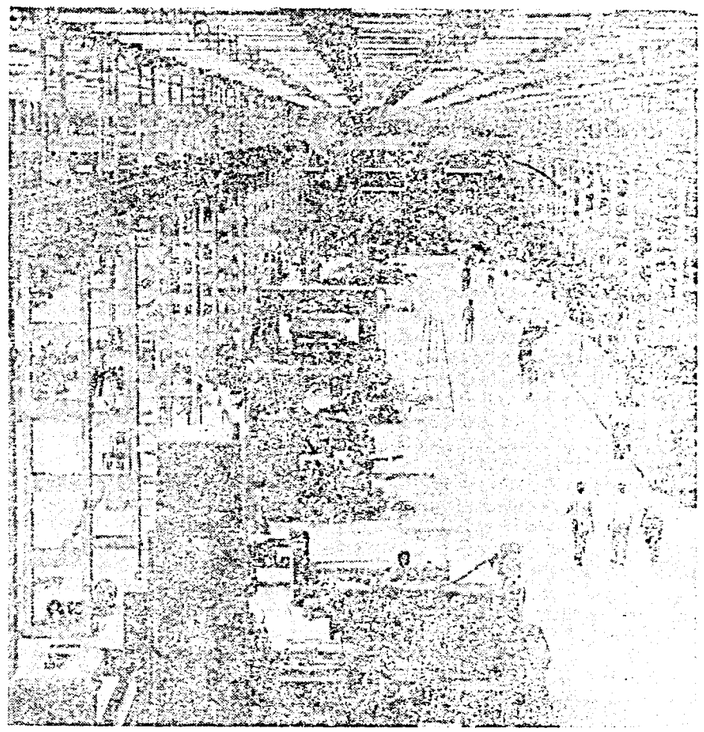
I saw a batch of 30 design engineers at work on boards. Mr K. Venkatanarayanan, manager of the Design Division, has had special training at the Renault factory in France who have collaborated with H.M.T. in the manufacture of S.P.M.s at Bangalore.

ADVANTAGES OF THE S.P.M.

"The customer who wants a special purpose machine meets the design manager and tells him of his requirements," Mr Venkatanarayanan told me. "A preliminary project report is made. When the customer approves of it, every detailed part of the machine is separately designed. An S.P.M. will generally take 1,500 design hours (nearly two months) and we charge the customer for this. Each component is then planned and estimated before it is released to the workshop."

"Why is there such a demand for the S.P.M.?" I asked.

"I'll give you an instance which will make it clear. Take the cylinder box of a motor car. Every year some 50,000 of them will have to be made. If the manufacturer uses standard machines like



The heavy parts hangar of HMT-V

lathes, turrets, etc., he will have to put a batch of them to work. While a general purpose machine will take 120 operations to make a cylinder box, an integrated line of completely automatised S.P.M.s will take *only half a minute*. Besides effort, they also save space. Although an S.P.M. is very costly, ultimately it saves very much in the cost of production."

FIRST MACHINE BY NEXT JULY

"When will the first Hyderabad S.P.M. be ready?"

"By July next year a whole transfer line, that is, an integrated line of S.P.M.s for making a universal joint of a Mercedes-Benz truck, will be ready. And when the design of a car changes, its components are changed and then a new S.P.M. will have to be designed. So an S.P.M. may go out of fashion every 5 or 10 years and that is to our advantage."

Mr Y. Navneetham, another of the nine managers of the factory, took me round the works. I found an infectious enthusiasm in the air. Here were young people who by skill and guts wanted to make up for their lack of experience. There was not one face which wore the look of tardiness.

There was S. Ananta Rao, 21, reclassified after initial training as a turner. He told me that he had worked in a private industry but liked H.M.T. much more for the opportunity to learn precision work as also for its atmosphere of camaraderie.

There was T.A. Narayanaswamy, who owed all his skill to H.M.T. After learning by postal tuition in technology he joined H.M.T. Bangalore in 1956 as an operator on a daily wage of Rs. 1.25. In six years he had

become a charge-hand and three years later a supervisor.

"There are better tools and better methods here than in other factories," said S. Krishnappa, a diploma-holder, who joined H.M.T. as an artisan trainee in 1957 and has risen to be a supervisor. "We take care of our boys. We give them maximum benefits and get from them maximum returns."

"And look at me," said Mr Ramachandra, the Joint General Manager, when I met him again after the tour of the plant. "I was one of the first five to join H.M.T. in 1954 at Bangalore as a foreman. When I was recruited, I was working in Switzerland with M/s Oerlikons who collaborated with H.M.T. in the beginning."

"Here all are recruited at the base level," he continued. "Those who show exceptional merit go up pretty soon to be engineers and managers."

"Why did you select Hyderabad for this factory?" I asked him.

"The location of an industry is based on availability of power, transport facilities, water, nearness to customers and availability of skilled personnel. We have all these advantages here. The Andhra Government gave us nearly 850 acres, of which 180 acres are being taken up by the factory. The remainder is set apart for the workers' colony where 400 quarters of various sizes are coming up fast."

Rs 3 CRORE FROM OWN RESOURCES

"Is this factory also being built out of H.M.T.'s own resources?" I asked.

"Not entirely," Mr Ramachandra replied, "Out of the initial investment of Rs 8 crore the Government will give Rs 5 crore. The remainder, Rs 3 crore, will be financed by H.M.T. The Kalamassery Factory in Kerala was financed entirely by H.M.T. However, we hope to finance the second phase of this factory, costing Rs 4 crore, from our own earnings. But that will be four years from now."

"What will be the foreign exchange component?" I asked.

"2.2 crore. It is for importing machinery like horizontal boring machines, jig borers, broaching machines, etc., which cannot be obtained here. Until Ranchi takes up production, we have to import these."

"Are any ancillary industries being developed here?"

"Yes. We have a regular programme of industrial estates which cater for the growth of ancillary industries. In the first phase we will have 30 units out of which 10 will be taken up next year. Private industrialists can erect small plants to supply us regularly screws, nuts, fasteners, jigs, fixtures etc. We will give them buildings, tools, power, raw materials and the technical guidance required. A unit can be started with a capital of Rs 5 lakh. We shall render them all help and thus H.M.T. will be adding to the industrial development of Andhra Pradesh and the country in no small way."

Planning Research

THE fifth meeting of the Committee for Research in Planning and Development was held in the Yojana Bhavan on December 2. Prof. V.K.R.V. Rao, Member (A.E. & I.T.) and Chairman of the Committee, presided. The meeting was attended by the heads of the participating institutions viz., Gokhale Institute of Politics and Economics, Poona, National Council of Applied Economic Research, New Delhi, Indian Statistical Institute, New Delhi, Institute of Economic Growth, Delhi, and the University of Bombay. Progress of research work undertaken at these institutions collaborating with the Planning Commission in the special programme of intensive research in problems of planning and development was reviewed. Economic Advisers from the Union Ministries, Reserve Bank of India and high officials of the Planning Commission were present.

The institutions have completed a number of reports, findings of which will go into the formulation of the Fourth Plan. The reports on the projects still in progress will be speeded up.

Seminars are proposed to be arranged on subjects of common interest where work is in progress at these institutions. The Bombay University will convene a seminar on international trade, NCAER on State and district incomes, and the Indian Statistical Institute on the structure of India's economy. This special programme of research which is geared to the immediate and more urgent needs of the Fourth Plan is financed by a four-year grant from the Ford Foundation. The Commission will soon be deliberating as to how research work undertaken at these institutions could be continued in the Fourth Plan so that the expertise at the institutions is made available to the Planning Commission in their day to day urgent problems.

On January 26, 1966

YOJANA will step into its

TENTH YEAR.

As on previous Republic Days

A Special Number of Yojana

will be brought out.

It will contain exclusive articles and features on the various aspects of the Present Economic Emergency.

Details Next Fortnight.

FROM THE PLANNING COMMISSION

YOUTH FROM ABROAD WORK FOR INDIA

THROUGH living and working together people learn to know one another—that is the underlying idea of Foreign Volunteer Programmes. They are an example of partnership for constructive work and of international cooperation and goodwill.

A number of countries, namely the U.S.A., the Federal Republic of Germany, the Netherlands, Britain, Canada and New Zealand, are sending volunteers to India. The programme is administered by the Directorate of Foreign Volunteer Programmes, Planning Commission. At the State level, Development Commissioners are in charge of the programme. Direction, supervision and control rest with the Joint Secretary, Planning Commission.

The U.S. Peace Corps

The American Peace Corps is the largest volunteer organisation in India with 556 volunteers in the field and 236 under training. The strength is expected to reach 1,000 by the end of 1966. These volunteers are spread over almost all the States and their fields of activity include farm extension, rural health, dairy, poultry, teaching, nursing, small industry, etc. In poultry, through the help of volunteers, over 600 commercial size units with over two lakh chickens have been established, yielding one lakh eggs per week. Ancillary industries producing poultry feed, equipment, etc., are also benefited. More than 100 volunteers are engaged in teaching in High and Higher Secondary Schools in several States.

Volunteers for farm extension are mostly in Punjab, Mysore and Gujarat, and for poultry in several States.

Some examples of individual contributions of volunteers deserve mention. One volunteer nurse at Chandigarh helped in commissioning the first open-heart surgery unit in India. Another volunteer near Roorkee organised a village volunteer force and successfully diverted the flood waters threatening the life and activity of the village.

The Peace Corps volunteers are given facilities, such as exemption from payment of income-tax, relief in customs duties and provision of hostel accommodation. A token gift is also presented as a memento to to each volunteer on completion of his assignment. The State Governments and other agencies receiving volunteers provide simple housing, furnishings and a bicycle to every volunteer. As Peace Corps volunteers operate at middle-level skills, they are entrusted to the charge of a dynamic leader or supervisor. They need not only technical supervision but also financial support. Such support comes from the Centre and the States as also sometimes from USAID, Ford Foundation, CARE, UNICEF and Rockefeller Foundation.

A report on the work of the Peace Corps has just been released by the Planning Commission.

From Other Countries

Though the American Peace Corps is the biggest programme in India, other programmes of different countries are also in operation and deserve mention. The German Volunteer Service in India under a Resident Director, the volunteers being mostly in the fields of agricultural extension, technical education and training; the school health programme of Netherlands Youth Volunteer Corps; Canadian University Service Overseas (CUSO), offering 24 volunteers for 1965-66 programmes, the volunteers being mostly teachers and nurses; the British Graduate Voluntary Service Overseas (GVSO) administered jointly by the British High Commission and the British Council, the volunteers being mostly teachers and nurses; New Zealand Voluntary Service Abroad; the Swallows, a private agency programme jointly sponsored by Sweden and Denmark, its six volunteers engaged in a slum project near Madras—are all associated with production activity.

Ten volunteers from Japan under the Japanese Co-operative Volunteer Scheme have been indented for working in the field of small industry and agricultural extension.

Sweden and Denmark have shown interest in such volunteer programmes and the scope of their participation is being explored.

YOJANA BHAVAN DIARY

MR. B.N. Datar, Adviser, Labour and Employment and Social Planning, Planning Commission, left for Rome on December 6. His services have been lent to the United Nations Food and Agriculture Organisation for two weeks for preparing a report on Demographic Sectors Affecting Food Supplies and Agricultural Development.

Dr. D.N. Saxena, till recently Joint Secretary, Fourth Finance Commission, has been appointed Adviser, Financial Resources, in the Planning Commission from December 8.

National Planning Council's Study Group on Scientific Research met in Yojana Bhavan on December 6 and 7.

A meeting of the Informal Consultative Committee of Members of Parliament for Planning took place on December 9 when the Chairman of the Planning Commission, the Deputy Chairman and the Finance Minister acquainted the members with the situation in regard to planning.

WE YOU ASK US TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

FOOD IMPORT FROM AMERICA

Sumitra Jain, Allahabad :

How much of American foodgrains have we so far received ?

Answer : Under Public Law 480, the United States has given us agricultural commodities worth Rs. 1442.5 crore ($ 3029.2 million). This sum includes the shipping charges.

At prices prevailing when the various agreements were signed, the quantities supplied would work only to : 32.987 million tonnes of wheat, 1.748 million tonnes of rice, 1.067 million tonnes of maize and jowar and 2.363 million bales of cotton. Other commodities covered were : tobacco, soyabean oil, milk powder, cheese and tallow.

These supplies are made as loans, paid in rupees, under nine different agreements between August 29, 1956 and September 30, 1964. A supplementary amendment under the ninth agreement was signed on November 4. (The announcement of December 10 is not included in these figures.)

The shipping charges come to 431.9 million dollars. India has now to pay in dollars one half of the shipping costs of such commodities as are carried in U.S. ships.

Of the rupees received in payment for commodities, nearly Rs. 1,250 crore have come back to India in loans and grants for development programmes.

In addition, the United States gave wheat and cotton valued at 67.67 million dollars (Rs. 32.21 crore) under PL 665.

The total assistance (including PL 480) by the United States amounted to 5112.9 million dollars (Rs. 2434.35 crore) by the end of December 1964. The major heads were: Technical Co-operation—521.7 million dollars (Rs. 248.1 crore); Development Loans Fund and Agency for International Development—1655.2 million dollars (Rs. 788.19 crore); and loans from Eximbank—368.4 million dollars (Rs. 175.4 crore).

HOW MUCH DOES PAKISTAN SPEND ON DEFENCE ?

M. Ramamurthy, Vijayawada

It has been reported that in the coming year Pakistan proposes to spend Rs 115 crore more on defence. You have also referred to this in an editorial in *Yojana*. Could you say what proportion this expenditure bears to that country's revenue?

ANSWER: The following table tells the story:

Pakistan's Revenue and Defence Expenditure

(*in million rupees*)

Year	Revenue	Defence expenditure
1947-48	198.7	154.1
1948-49	667.6	557.6
1949-50	885.4	752.2
1950-51	1273.2	703.0
1951-52	1448.4	907.9
1952-53	1334.3	994.6
1953-54	1110.5	802.3
1954-55	1172.7	713.4
1955-56	1435.8	814.3
1956-57	1298.3	820.0
1957-58	1495.8	742.9
1958-59	2070.2	1044.2
1959-60	1758.4	1005.4
1960-61	1713.7	1012.2
1961-62	2229.0	993.4
1962-63	2099.9	1025.4
1963-64	2240.4	1091.6
1964-65	4268.9	1321.4
1965-66	4735.8	2510.9*

*Includes Rs 115 crore provided in the supplementary budget.

ECONOMIC PLANNING

Mrs. Raj Datt, Delhi

1. What is the difference between 'economic planning' and 'economic programming'?

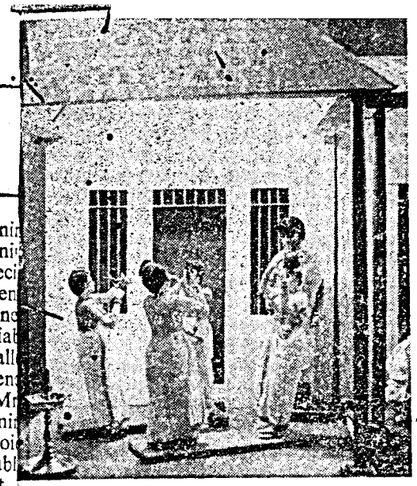
2. Is 'forced saving' the same as 'compulsory saving'?

Answer 1 : Economic planni has a very comprehensive meani and it is difficult to give a preci definition in a few words. In a sen any individual or firm is a planne but in economic parlance it invariabl refers to decision-making and all cating resources by a central agen for the purpose of development. Mr Barbara Wootton defines plannin as a conscious and deliberate choi of economic priority by some publ authority. As regards ends, it possible to plan with any objecti —whether development or war.

The basic object of programmin is to offer a wide perspective economic development of an are so as to establish co-ordinated pro duction targets compatible with th stability of the system. This perspe tive provides a point of referen which in turn enables detailed studi to be made of the sectors and specif projects, and supplies the bas criterion for the establishment financial, monetary, foreign trad wage and other policies. Such pro gramming ensures the success of th plan.

Answer 2 : The expression 'force saving' was first used by the lat Prof. Dennis Robertson in his thes on banking policy and price leve The concept is simple. When price of commodities rise without increase in money incomes (wages), people consume less and are forced to save resources from consumption to in vestment is forced saving. Th concept is generally applicable to inflationary situation.

'Compulsory saving' refers t draft on current income of th individuals by the Government. Th Government compels the incom earner to credit a part of his incom to a savings account which earn interest but remains blocked for specific period. The effect is ant inflationary. Keynes had sugges the 'deferred-pay' or 'compulsor saving plan' to pay for the Secon World War. In India, the Compu sory Deposit Scheme was an exam



'Kolattam' in a Kerala home



Students of Moscow University

An International Dolls Museum has been thrown open in Delhi. It is run by the Children's Book Trust.

By Sharada Prasad

A Great World of Little People

"COME and see our Doll Museum. In ten days it will be thrown open," said Shankar.

I went promptly—and I walked into a new world of enchanters and enchantresses, of little people wearing the most marvellous and colourful costumes, little people from all parts of the world, chubby, cherubic, people-red, coffee-brown, musk-dark, walnut-buff, almond-fawn,—a throng of villagers on their way to a fair in Rumania, a coy bride from the Punjab dressed in red silk and gold lace and complete with vermilion angles and hennaed feet, a group of maidens from Brittany who would have lured the counts of Bourbon France, an Inca couple from Boli-, a Flamenco dancer from ain, girls from the Philippines bining the fire of two worlds, elephant procession in Kerala ed by the most fetching of maidens with worship-things in bronze plat-ters, a Beefeater from London, a Bhil pair from Madhya Pradesh, sheikhs and sirens from Iraq, a uddle of courtiers from Nepal, newy dancers from Thailand, mat-



rons from various parts of the Soviet Union, dolls from Florence clothed in the finest filigree work, skiers on the Alps, milkmaids from Holland, ladies of the Japanese aristocracy for whom the samurai fought duels, a lakeside beauty from Kashmir, veiled women from Egypt, puppets from Rajasthan, gods and goddesses of our story and epic, dolls of cloth, dolls of clay, dolls of dark wood, dolls of white wood, dolls of wool, dolls of *papier mache*...

It was as if the Pied Piper had played his pipe and led us to a joyous land where flowers put forth a fairer hue, where the sparrows are brighter than peacocks and where the honey-bees have lost their sting.

Living Dolls

This is no museum—for museums mean stuffed and cold things. This place is alive. And these are not dolls; they are people, living, laughing, wanting to know, pleased, and pleasing. These people are from all climes and countries. I would have called them a United Nations but here there are no blocs and power conflicts, no vetoes and Bhuttos. It is a better world from which ugliness and evil have been banished.

In gathering these four thousand dolls over twelve patient years Shankar has kept out gnomes and demons and spiteful sprites. The result is a place which Hans Christian Anderson and Lewis Carroll and all those

Reg. No. D—87

who love children would have children live in.

I became a lost little boy again, throwing thirty-five years off my age, when Shankar's voice reached me from far away. He was quite near, in fact. He was holding a Bharata Natyam dancer in his hand. She wore a golden sari with black border and choice old-world jewellery and had just been unpacked. Shankar surveyed her with that affectionate eye with which he must have appraised each one of the four thousand dolls. He knows the story and circumstance of each.

12 Years' Search

The first of this family was a Czechoslovak doll which Shankar acquired a dozen years ago. By then he had started the Children's Art Competition. The Czech doll and a Japanese doll that came to him soon after prompted in him the idea of a dolls' exhibition. He lost no time organising it. The exhibition went round all the major cities of our country. And the dolls then came back to Delhi. The thought of them lying huddled in boxes wrapped in cloth and paper worried him. How about a home for them where they could be daily seen by children?

A street in Bulgaria





A Bharata Natyam dan

Another of Shankar's dreams—books for children—began to take the form of a Book Trust. He thought of a building of its own for the Trust where the Trust could have its press. The building is ready; the first of the books are ready; and the Dolls' Museum is ready—bidding to be one of the capital's attractions. Flanked by homes of newspapers the Book Trust building can easily be recognised as children's own by the colourful mosaics, on the facade, of children's paintings laid out in glazed tile. Besides the dolls' museum children will have yet another Hall of Fortune here—a library stocked with books from all lands.

As for the dolls themselves, there is no bigger collection of them anywhere in the world. Sought out and bought, secured by coaxing and wheedling ambassadors of many lands, these four thousand dol are gifts to the children of Indi Each is a genuine article, authent in costume and detail. They ha been arranged in a way that brin out the look and flavour of t place of origin—be it the balconi of Rajasthan, the skyscrapers New York, or the streams and bridg of Japan. A small army of your women, art students most of ther were busy painting the backdro after a careful study of picture a bums and travel books.

As I watched them at work ar visualised the throngs of childr that would soon be here—I cou hear their shrieks of delight—thought of one job I would n like to have: that of a door-keep here. How could I enforce closi time and send home all those childr who lingered?

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