





SIDE TRACK

A NATION REMEMBERS

THE saga of India's struggle for freedom and the country's emergence from servitude to independence is a record of the services of countless men and women, who fought and died, who suffered and sacrificed, so that the motherland could be reborn in freedom. Most of the soldiers of freedom died in anonymity and are forgotten. History does not even record their names. But, there are some among this vast legion of freedom fighters who, by their undaunted leadership and indomitable courage, have left behind an indelible impress on the turbulent history of those times. One such person was Chittaranjan Das, whose birth centenary falls on November 5. A great patriot, Chittaranjan belonged to that galaxy of leaders from Bengal who were foremost in the nation's battle for liberation. His countrymen affectionately called him *Deshbandhu* (the friend of the Nation), and when he died, they mourned the death of a true friend.

An extraordinary versatile man, C. R. Das was not only a dedicated politician, but also a brilliant lawyer, a noted writer and poet, an outstanding administrator and a man of vision, who became a legend in his own time. The story of his life is the story of the transformation of a very successful advocate with a fabulous income to a *Deshbandhu*, friend of the people.

C. R. Das was born on November 5, 1870 in Calcutta. His father Bhuban Mohan Das was a solicitor at Vikrampur. Chittaranjan was educated at the Presidency College, Calcutta where he became an active member of the student's organisation, started by Surendranath Banerjee.

After graduation he went to England to take the Indian Civil Service Examination. However, chiefly because of his political activities, he was unable to qualify for the examination. In 1893, he returned to Calcutta as a Barrister and enrolled himself at the Calcutta Bar.

For a few years he had to struggle hard for existence, as the already crowded Calcutta Bar offered little scope for new-comers. It was during this time that he wrote 'Malancha' the first of the five volumes of poetry in which he questioned everything from God to social conventions.

The year 1907, however, marked a turning point in C. R. Das's career as a lawyer. With his masterly defence of Aurobindo Ghose (who later became famous as the saint philosopher of Pondicherry) in the Alipore Bomb Case, C. R. Das suddenly shot into fame. Aurobindo Ghose was charged along with others with sedition and conspiracy to overthrow the British Government. A leading barrister of Calcutta who had been engaged to defend the accused, gave up the case as they were unable to pay his fees. Aurobindo's friends approached Das and he with his lavish generosity took up the case. He worked day and night for six months, not only he did not charge any fees but even sold his wife's jewellery to conduct the case. He finally got Sri Aurobindo acquitted. His brilliant defence at the trial established him as one of the foremost lawyers of the day.

In 1913, when he reached almost the zenith of his profession, Das with his unflinching honesty started paying off his father's debts to which he had no obligation.

When Mahatma Gandhi gave up his call for non-cooperation in 1919, Das readily renounced his practice which at that time brought him a monthly income of half a lakh rupees. Soon he became the most active and dynamic member of the Congress. Politics was not an unfamiliar field to him. In 1904 he had formed *Swadeshi Mandal*, a revolutionary organisation, in his house and in 1906 he had become a member of the Congress. However, Das was dragged into active politics only in 1917 when he was elected President of the Bengal Provincial Conference. He was elected twice as the President of



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the Indian National Congress, first at the Ahmedabad Session (1921) while he was still in Jail and the second time at the Gaya Session in 1922. He gave a new turn to Indian political activity by devising the council entry formula. He was the first one to advocate the importance of parliamentary democracy and constitutional Government. With Motilal Nehru he founded the Swarajya Party, which became a powerful opposition in the Bengal Legislature Council, inflicting repeated defeats upon the Government.

C. R. Das had realised quite clearly in his political career that amity between Hindus and Muslims was an essential condition for India's freedom. The famous Hindu-Muslim pact was a landmark of his political sagacity.

Hard work and no rest told upon *Deshbandhu's* health and he passed away on June 16, 1925 in the prime of his life. His service and sacrifice were matchless. Rabindranath Tagore echoed the same sentiment when he said "Man truly reveals himself through his gift and the best gift that Chittaranjan has left for his countrymen is not any particular political or social programme, but the creative force of a great aspiration that has taken a deathless form in the sacrifice which his life represented".

YOJANA

Fortnightly Journal published in
English, Hindi, Assamese, Bengali
and Tamil on behalf of the
Planning Commission

Vol. XIV No. 21

November 1, 1970
Kartika 10, 1892

**Yojana seeks to carry the
message of the plan, but it is
not restricted to expressing
the official point of view.**

Chief Editor
Saradindu Sanyal

Editor
Manmohan Dev Raturi

Assistant Editors
Hameeduddin Mahmood
H. R. Pandotra

Sub-Editor
Jasbir Batra

Staff Correspondent
Pratima Ghosh

Correspondent, Calcutta
S. C. Basu

Correspondent, Madras
S. V. Raghavan

Correspondent, Shillong
Dhirendra Nath Chakravarty

Correspondent, Trivandrum
Rosscoe Krishna Pillai

Correspondent, Bombay
Avinash R. Godbole

Photographic Officer
T. S. Nagarajan

Editorial Office : Yojana Bhavan,
Parliament Street, New Delhi-1
Tel : 383455, 381026, 387910
Telegraphic address : YOJANA,
New Delhi.

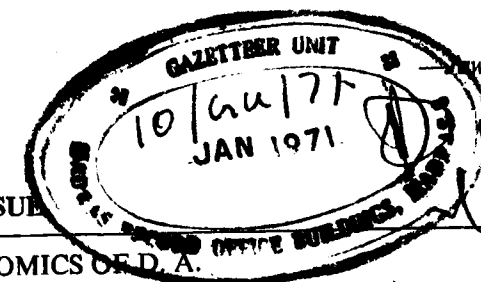
Business Office : Business Manager,
Publications Division, Patila
House, New Delhi-1

Inland Subscription : Annual: Rs 7.50.
Two years: Rs 13. Three years:
Rs 18. Single copy: 40 paise.

Foreign Subscription : One year: 15sh
or 2.50 U. S. dollars. Two years:
26 sh or 4.00 U. S. dollars. Three
years: 36 sh or 5.00 U. S. dollars
Single copy: 10d. or 15 U. S. cents.

LEST WE FORGET

It is science alone that can solve the problems of hunger and poverty, of insanitation and illiteracy, of superstition and deadening custom and tradition, of vast resources running to waste, of a rich country inhabited by starving people.



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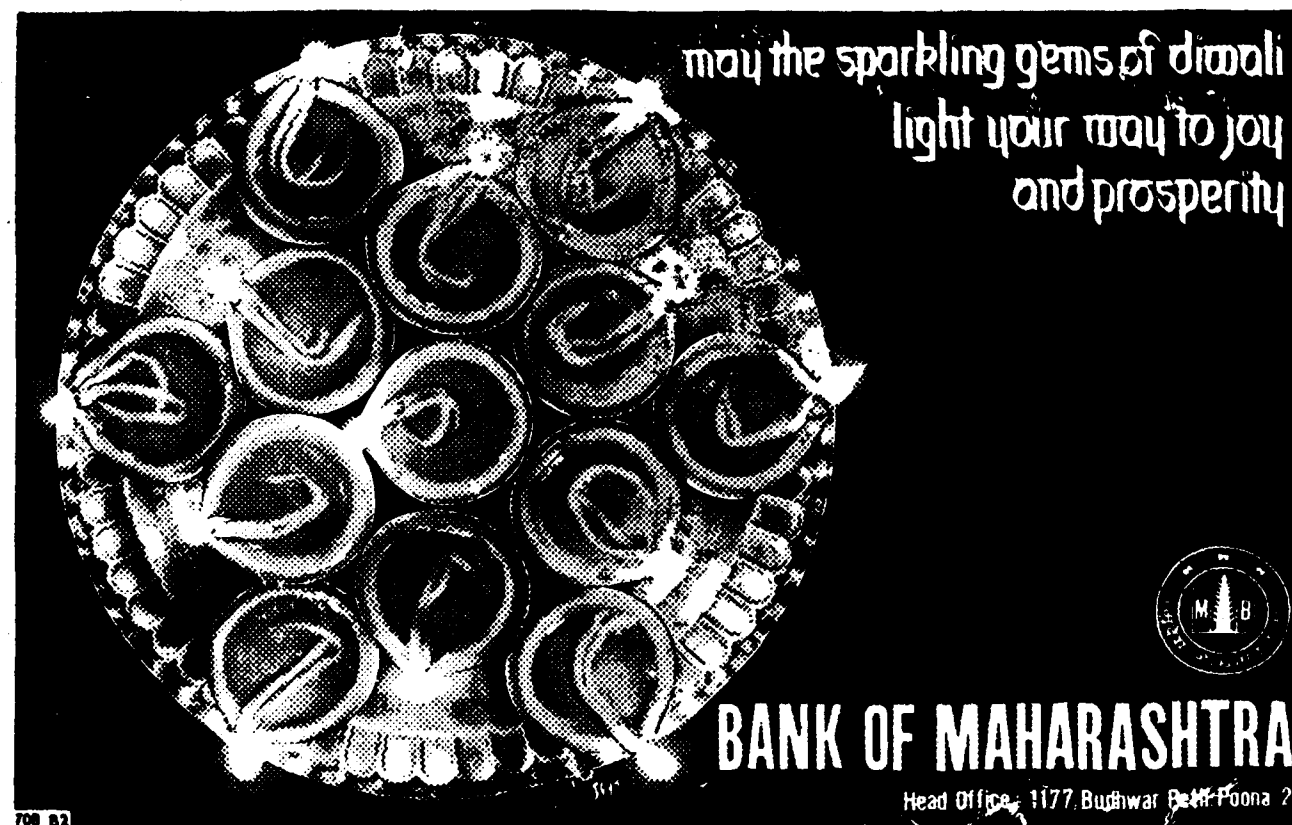
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It is a well-known fact, which has been reiterated time and again, that in the modern world, the rich countries are getting richer while the poor countries are getting poorer. By devoting one per cent of their gross national product to the economic development of the poorer countries, the rich countries will, of course, be making a small contribution towards the reduction of these inequalities. However, the experts are convinced that for many years to come, the rich countries will continue to get richer and the poor poorer. While at the international level this may be an unavoidable fact of life, everything should be done to avoid this situation at the national level. I have known of some countries where economic development is the result of initiatives taken by an elite group and the benefits of economic development also go to that group. In other words, the rich citizens get richer, and the poor poorer. This is a dangerous situation. Even if the urge for development may spring from an elite group, it is necessary to involve the entire nation in the economic development effort and also to spread the benefits of economic development to all people in terms of improved standards of living all round.

Then there is the problem of regional cooperation. I have personally been involved for many years in getting the four riparian countries of the Mekong Basin

to cooperate in the investigation of the potentials of the great river and also in its development. At the national level, very often we have resources which can be developed only by a cooperative effort amongst the provinces concerned. This is particularly true of inter-State rivers in India. I hope that the Government of India will have no difficulty in persuading the States concerned to cooperate in the development of such resources since these rivers are part of the total resources of the country, and should not be regarded as the resources of one State or another.

My last point concerns the question of international responsibility for economic development. It is generally agreed among experts that economic development is primarily the responsibility of the developing country. However, the recent acceptance of a global strategy for the Second Development Decade is a clear indication that the concept of international responsibility has come to stay. I believe that this is a most welcome development, representing a change of attitude for which the United Nations has been largely responsible. I also believe that, in the long run, it will become abundantly clear that the most important rationale for such cooperation is the concept that global prosperity is indivisible, just as it is at the national level.



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INDIA'S LEADING ROLE IN WORLD METEOROLOGY

P. KOTESWARAM

INTERNATIONAL cooperation in meteorology is 117 years old. Representatives of a number of maritime countries met in Brussels in 1853 in an effort to collaborate in an international programme for meteorological observations by ships at sea. The system devised by this Conference was later extended to the entire surface of the earth and to higher levels of the atmosphere. After a number of preparatory conferences, the first International Meteorological Congress met in Vienna in September 1873. In five years a charter was finalised and the International Meteorological Organisation (IMO) was founded in 1878. India was one of its founder-members.

With the advent of air travel early in the present century, there was greater need for closer and more effective collaboration in forecasting and disseminating information about the weather, while the simultaneous development of universal radio telecommunication made such dissemination technically possible. The IMO through its Conference of Directors of participating Meteorological Services of the world, built up a system of Regional Commissions, Technical Commissions and special working groups, many of which exist to this day.

The Conference of Directors of the Meteorological Services constituting IMO met at Warsaw in 1947 and adopted a World Meteorological Convention, establishing a new organisation to be affiliated to the United Nations and founded on a formal agreement between the governments. The Convention came into force on March 23, 1950 after ratification by a large number of States and in 1951 the new World Meteorological Organisation (WMO) started functioning.

In December 1951, the General Assembly approved the agreement between the UN and the WMO by

which the latter was recognised as a Specialised Agency of the former. India became a founder-Member of the WMO and the Director-General of Observatories was designated as her Permanent Representative. The WMO now has 133 Members (States and Territories). East Germany, North Korea and North Vietnam are not represented while China is represented by Taiwan.

The World Meteorological Congress, which meets once in four years, is the supreme organ of the Organisation. The implementation of its decisions rests with a 24-Member Executive Committee which meets annually. The activities of WMO are carried through six Regional Associations, comprised of member-governments in the respective regions. India is a member of Region II (Asia).

There are in addition eight Technical Commissions made up of experts nominated by the members. These Commissions exist separately for agricultural meteorology, aeronautical meteorology, atmospheric sciences, hydro-meteorology, maritime meteorology, synoptic meteorology, climatology, and for instruments and methods of observations. The WMO Secretariat at Geneva coordinates and assists the work of these bodies.

Weather Research

In response to a UN Resolution on the peaceful uses of atmosphere, the Fourth Congress of WMO decided (i) to launch a scheme for observation of weather on a global scale, using the latest instrumental techniques including meteorological satellites, (ii) to exchange the observations between nations by fastest available telecommunication, and (iii) to process the data with the help of electronic computers. This ambitious project is known as the World Weather Watch (WWW). The Fifth Congress in

1967 gave concrete shape to this resolution and decided to launch the WWW programme in 1968.

The Fifth Congress also initiated a Global Atmospheric Research Programme (GARP), a joint undertaking of the WMO and the International Council of Scientific Unions (NCSU). Its goal is the study of the physical processes in the troposphere and stratosphere which are essential for our understanding of the transient behaviour of the atmosphere as manifested in the large-scale fluctuations which control changes of weather. This would lead to greater accuracy in weather forecasting over periods extending to several weeks.

As a founder-member of IMO and its successor WMO, India has played a leading role in the activities of both these organisations. The Director-General of Observatories has been attending the IMO meetings since 1878. The last meeting of the IMO Regional Commission II for the Far East was held in New Delhi in 1948 with India as President. At the First Congress of the WMO in 1951, held jointly with the last Conference of Directors of IMO, India was elected President of the Regional Association for Asia, and continued to hold this position for a second term till 1959. The Director-General of Observatories has been a member of the Executive Committee of WMO from the very beginning, excepting for a short break. India is also represented in all the Technical Commissions. The Presidentship of two of the important Commissions, namely those for the Synoptic Meteorology and the Instruments and Methods of Observation, were till recently held by her. Indian Experts have also been serving as rapporteurs and consultants on important assignments; at present 35 scientists are members of various scientific and technical bodies of WMO.

India also played host to the First Session of the Regional Association II (Asia) of the WMO in 1955, the second Session of the WMO Commission for Synoptic Meteorology in 1958, and the Third Session of the WMO Commission for Instruments and Methods of Observation in 1962. In addition, two Regional Working Group meetings, a WMO Informal Planning Meeting and a joint WMO/IUGG Symposium, were held in India.

WMO instituted in 1956 an award called the "International Meteorological Organisation Prize", for eminent work in scientific and meteorological fields. The prize was awarded in 1961 to Dr K. R. Ramanathan, Professor in Physical Research Laboratory, Ahmedabad, and a former Deputy Director-General of the India Meteorological Department.

Link With World

The India Meteorological Department established in 1963 two research institutions for tropical meteorology—the Institute of Tropical Meteorology (ITM) at Poona and the International Meteorological Centre (IMC) at Bombay. The IMC was wound up in 1965 after the completion of the International Indian Ocean Expedition for which purpose it had been set up; but the work is being continued on a wider scale by the India Meteorological Department at its Indian Ocean and Southern Hemisphere Analysis Centre at Poona. The ITM continues its fundamental and applied research and is one of the few institutions in the world dedicated to the development of tropical meteorology.

A Northern Hemisphere Exchange Centre of the WMO was set up at New Delhi in 1960, as one of the five centres for exchange of meteorological data on a hemispherical scale, the others being at New York, Frankfurt, Moscow and Tokyo. New Delhi was connected with Moscow and Tokyo by point-to-point radio teletype circuits. Subsequently an inter-hemispherical RTT link was introduced between New Delhi and Melbourne in 1966 as part of the global exchange of data recommended by the WMO.

Under the WWW plan, three world Meteorological Centres (WMC) have been set up at Moscow, Mel-

bourne and Washington to collect and exchange global data and processed products on high-speed telecommunication channels. These centres, equipped with electronic computers, will utilise satellite and other forms of available data, and analyses and prognoses will be machine-processed. There will also be a number of Regional Meteorological Centres (RMCs) for preparing and supplying meteorological analyses and prognoses over limited areas. The telecommunication functions will be performed by Centres known as Regional Telecommunications Hubs (RTH) equipped with high-speed radio and facsimile channels.

An RMC and an RTH will be set up in New Delhi on the Main Trunk Circuit (MTC) between Moscow and Melbourne, forming a sort of an international weather axis. The New Delhi-Melbourne link will be operating through an Indian Ocean Satellite early in 1971. Arrangements have also been made for obtaining necessary telecommunication equipment under the Voluntary Assistance Programme of WMO.

The Global Atmospheric Research Project (GARP) is complementary to WWW. India is represented on the Joint Organising Committee (JOC) as well as on the Committee for Special Studies. India also took part in the joint WMO-ICSU Planning Conference at Brussels in March 1970 and drew specific attention to the need for the study of the Indian monsoons, particularly in view of the economic benefits of the monsoons to India and neighbouring countries. The GARP is an ambitious project and plans to utilise specialised equipment ranging from ocean weather ships and instrumented aircraft to geostationary satellites. Special attention will be given to the tropics in the initial experiments, and large-scale circulations will be studied at a later stage. The Indian National Committee for GARP, constituted in 1969, has drawn up a research programme.

Under the various WMO Technical Assistance schemes, 24 experts of the India Meteorological Department have so far been deputed as experts at the WMO Secretariat and in 14 developing countries. WMO has arranged for the training of 23 Indian meteorologists in advanced countries and India has trained 32 candidates from eight developing countries.

INDIA MODERNISES MAPPING SERVICES

The Centre for Survey, Training and Map Production in Hyderabad, set up by Survey of India with UNDP assistance, is introducing up-to-date methods and techniques in the specialised area of pre-investment surveys. Located on a 80.8 hectare plot, the Centre has two units—a Pilot Map Production Plant and a Survey Training Institute. Both the units are equipped with photogrammetric, geodetic, cartographic and surveying equipment for production and training purposes.

The expanded training programme this winter, provides courses in photogrammetric supervisors and operators to meet the increasing demand for such personnel by the Survey of India which is gradually changing over to photogrammetry mapping processes. Other programmes deal with data processing and computer programming; advanced geodesy to cover the geodetic aspects of satellite communications, management training, the compilation and operation of a map and data library, and the repair and maintenance of scientific instruments.

The UNDP has so far allocated 51.7 million dollars for this project against Government of India's contribution of over two million dollars.

NEW DEAL FOR WEST BENGAL INDUSTRIES

Small industries in the private sector are likely to get some specific benefits in West Bengal, under a proposed three-year incentive scheme.

The incentives, in the form of professional purchase of products by the Government, fiscal relief for new units at approved locations, loan capital, land for siting of new industrial units or for expansion of existing units and feasibility report will be available to the small units, with a capital investment of not more than Rs one crore. Industries with an investment of Rs 10 lakh or more have to fulfil certain conditions to benefit from the scheme.

Closed industrial units in the State too are entitled to this concession provided they reopen during the year.

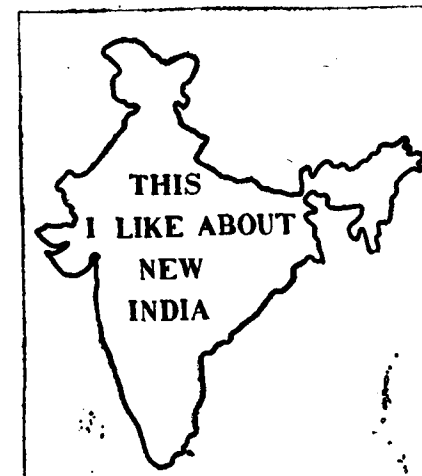
P. VIJAYALAKSHMI Non-Traditional Exports

What I like most in the present context is that India is turning more and more non-traditional on the export front. Non-traditional items like engineering goods, chemical and pharmaceutical goods, plastics etc. are now being exported.

India's exports of engineering goods increased tremendously during the period 1960-61 to 1969-70 from Rs 11 crore to Rs 160 crore. Likewise, exports of plastics and linoleums increased from Rs 76 lakh to over Rs 8 crore. A significant feature is that our export markets include developing as well as developed countries. The performance of the Indian engineering industry is highly commendable as it has made a great impact on the western markets with its high quality goods at highly competitive prices. Among the developing countries India is the only country which has developed her non-traditional industries to this extent and this is really a matter of pride for our country to have attained such a position.

PRADYOT CHATTERJEE Moments of Glory

New India, while still in her cradle, demonstrated its newness by orderly mass participation in the first General Elections, dealing a superb rebuff to the much-vented Churchillian indictment of lack of political consciousness in India. The second moment of glory came with the accession of the Princely States into India, bringing thereby once again into reality the image of One India stretching from the Indian Ocean to the Himalayas—an image that lay deeply inscribed in the heart of every Indian. But the crowning glory came with the unique demonstration of oneness in the face of the Indo-Pakistan war. Discordant notes had for once to play



the second fiddle. New India hit back with such agility and prowess that no one having any attachment to the Indian soil could refrain from taking a pride in it.

In present-day India, there have been many changes in various fields of activity. In the rural areas the situation has changed for the better. Farming, once thought of in terms of drudgery and despair, has become profitable beyond imagination. The green revolution has changed the picture.

S. RAMAKRISHNA Spectacular Growth of Public Sector

The growth of the public sector in India has been spectacular. The total investment in the mining and manufacturing industries by the Central Government, for instance, stood at about Rs 3,400 crore at the beginning of the Fourth Plan.

The public sector has grown in terms of the number of units as well as the range of their products. The public sector undertakings are meeting the requirements of defence, agriculture and industry. Also, these undertakings are serving not only the consumers in the domestic market but their products are also being exported. India is now self-sufficient in some commodities and the imports of certain others have been considerably reduced.

In spite of this significant achievement, some criticism has been levelled against the public sector because of the losses it has incurred. In this context we should look at the role that these undertakings are expected to play in the national economy like public service, non-profit earning, and entering into fields where the private sector is unable to invest funds because of high costs and long gestation periods involved.

P. N. CHOPRA

Social Transformation

Indian society today presents many encouraging features. The most remarkable of them is that certain progressive trends have become built-in factors of our social life. Take for instance the factor of "rising expectations". There is a welcome craze for higher education—technical, scientific and literary. Young people today have vast facilities for developing their talents. Education of women is also expanding, leading to better family consciousness. The social matrix is taking a more rational shape.

Next we come to the factor of fast urbanisation. Rural people have developed greater liking for standardised consumer goods like soap, shoes, watches, bicycles, electric fans, radios and household wares. One really feels amused when a rickshaw-puller or a pedlar is found with a transistor hanging by his side. There is a general awareness about time and the surrounding conditions. There is a drive for having better houses and clean neighbourhoods. Towns are expanding by adding well planned colonies.

Take the case of Punjab where the rural area is undergoing remarkable transformation. Well educated youngmen there have given up salaried jobs and proudly taken up farming. They are armed with latest agricultural implements and have become a model for others.

THE ECONOMICS OF D.A.

OCTOGENARIANS and centenarians in this country are often heard musing nostalgically over the days when everything was cheap and money had its real worth. Their account of how much of how many things they could in those good old days purchase in one rupee sometimes sounds exaggerated, even incredible, though it indeed had been a fact. Their third generation, living in a world many times more populous than their own, is singularly unfortunate in that things are no more cheap nor does money have its real worth. The sophisticates clothe the phenomenon in impressive terminology by saying that the price spiral is lowering the purchasing power of the consumer. Either way, it simply means that the common man is in for hardship. People prone to sentimentality can seek refuge in Goldsmith's plaintive soliloquy :

'Ill fares the land to hastening ills a prey
Where wealth accumulates men decay.'

But a Government, particularly the one sustained by the support of the popular vote, has to, and more often does, react to these economic pressures. It undertakes to relieve these pressures by taking steps to counteract the rise in prices. The statistical approach adopted to do this implies a tenuous link between an ever-increasing cost of living index and a corresponding upward scaling of the dearness neutralisation. The neutralisation effort, apparently always trailing behind the price spiral, sets in a wild goose chase. This renders the statistical approach to the dearness phenomenon totally sterile and ineffective. It comes a self-defeating mechanism in that, though emerging as an effect of the price rise, it stagnates into being the cause of it, and a vicious circle builds up and hits the fixed income groups like a tornado. Each dearness neutralisation is accompanied by an artificial spurt in prices of the more essential consumer goods. Instead of purchasing more things for the same money you purchase the same things for more money.

It is indeed ironic that D.A. neutralisation, instead of protecting the consumer, actually breaks consumer resistance, which more often has proved to be the common man's simplest and most effective defence against artificial price rise. Consumer resistance can be the only organised response to price rise effected by market forces which are better organised to enforce them. The Capital once witnessed a brilliant flash of consumer resistance in the mid-sixties when the citizens of Delhi resolved not to purchase the high-priced 'Diwali' sweets. This had a salutary effect on confectioners and other traders. What happened once, can happen again. But it can only happen when circumstances make consumer resistance an absolute necessity. Such an occurrence is obviously obviated with frequent D.A. neutralisation, which gives a shot in the arm to the market forces keen on maintaining an artificial price level.

There is yet another aspect of this : while the neutralisation is earned by unions of government or private employees, a large section of society does not get any corresponding relief though they too are forced to pay high and ever-soaring prices. The Government having equal responsibility towards all sections of society must see to it that its benevolence towards one does not spell hardship for the other.

An imaginative analysis of the obvious, hidden and interlinking factors behind the dearness phenomenon will certainly help sort out the deep ramifications of the basic evil, besides exposing the fallacy of the statistical approach. By measuring the cost of living index with the yardstick of a base year and then sizing it up by window-dressing the dearness phenomenon through quantitative neutralisation, we can neither ensure a better life, nor can we rectify the economic malaise. The life of a family is something more than the sum total of its daily needs : its social and cultural hunger often claims more of a man's purse than the bare needs of bread and butter. The urge for better housing, better schooling and better opportunities of relaxation are the areas of socio-economy which call for a qualitative and not quantitative approach. D.A. neutralisation being strictly a quantitative measure can never be perspicacious in its impact. This is not to suggest that the hardpressed sections of society, especially the fixed income groups, should not have a graduated system of economic relief. On the other hand, it would be a measure of creative economic thinking to provide a built-in defence in the wage structure against the malcontent caused by the price spiral. Once the factors behind this artificial development have been isolated, the social security apparatus should be geared to a protective posture as distinctive from the consumptive trend. The multiplicity of curricula, the wide ranging differences in schooling standards, the compulsion of paying high rents and the increasing costs of transportation and relaxation are the overheads that claim solid chunks of money from the purses of fixed income groups in metropolitan areas. The frequent D.A. relief to these groups, accompanied by bursts of price rise rekindle the desire to spend and not the propensity to save. Hence, each such relief means, as a famous Bengali saying goes, "putting *phoe* into fire"—the more you sprinkle the greater would be the fire.

Instead of feeding the all-consuming fire of dearness with lumps of D.A. neutralisations, it would be worthwhile to provide the fixed income groups, especially the lower income brackets, with subsidised transport, housing and food supplies and full coverage of educational expenditure. This would save the government a great deal of revenue now being diverted in providing D.A. reliefs. It may also be the one effective way to fight dearness and inflation at a single stroke.

Problems of Economic Development

C. V. NARASIMHAN

IT has been my privilege to work on problems of economic development practically all through my working life as a civil servant. I recall that when I was first posted to the Secretariat of the Provincial Government of Madras in 1942, my designation was Under-Secretary, Development. Today, after twenty-eight years during which I have served in a wide variety of jobs, I am still—in a sense—Under-Secretary, Development, since I have the rank of Under-Secretary-General in the United Nations, and one of my primary concerns is development.

During these twenty-eight years, I have worked at the level of the Provincial Government on economic development projects, and in the Government of India in a central coordinating office, engaged in planning and the utilisation of external resources for economic development; I have served as Executive Secretary of a Regional Economic Commission of the United Nations; more recently I have rejoined the United Nations Development Programme. If there is one lesson I have learned during these years it is this : the problem of economic development is an extremely complex one; it has many facets which have a counterpart at every level—provincial, national, regional and global.

In this article, I would like to make a brief reference to some of these facets. First amongst these is the importance of making progress not only in economic but also in social development. This is now recognised by most national governments which pay attention not only to the setting up of large industries or power projects or communication networks, but equally to the education, training and health of individuals. The same realisation is now increasingly in evidence at the regional and global levels. It is now a cliché that man is the means, as well as the end, of economic development. The Economic and Social Council, a principal organ under the Charter of the United Nations, has thus fulfilled both of its objectives, economic and social.

APPLICATION OF RESOURCES

In the application of resources, every national Government has to ask itself whether the resources should be applied where it will yield the best returns or whether they should be spread over wider areas in order to have more balanced economic development. Increasingly, this question is being answered in favour of the latter alternative. This is particularly true in regard

This exclusive article by Mr C. V. Narasimhan, *Chef-de-Cabinet* of the UN Secretariat, was received too late for inclusion in the Special Number of *Yojana*, published on the occasion of the 25th anniversary of the world organisation.

to the expenditure on the development of human resources, where there is no immediate return but where clearly quantifiable results can be perceived over a period of time. At the global level, there is the analogous problem of the least developed of the developing countries. In line with the concept of balanced economic and social development, it is essential that special attention be paid to the task of developing these least developed areas. This is required not only in terms of equity, but also in terms of long-term interest.

This interest arises from the well-known fact that there is a close relation between economic progress and political stability. In fact, they interact to a large extent. Lack of political stability inhibits economic development; lack of economic development contributes to political instability. This is equally true at the national level as at the global level. In a speech made some four years ago, Mr Robert McNamara, who was at the time the Defence Secretary of the United States and is now the President of the World Bank, pointed out that violent political changes had occurred in most of the countries which may be called the poorest of the poor. In the advanced countries, there were few instances of violent political changes, and such political changes as might be labelled violent were as few as 4 or 5 per cent. He ended by stating that in the modern world, security is development, and development is security. This thesis applies equally within a national complex. If parts of a country are poor because of lack of resources, overpopulation or whatever the cause might be, they do not attract investment. If there is no investment, however, chronic problems such as unemployment and unrest arise in such areas, leading to further instability, making investment and development in turn even more difficult. Obviously, such pockets of poverty in a developing country require special attention not only in the interest of overall economic development, but also of overall political stability.

It is no longer questioned that within a country, sacrifices have to be made by the people in order that investment in the future may be possible. This is one of the basic problems of mobilising domestic resources for economic development. The national Government, of course, has means, such as taxation and floating of Government loans, to attract domestic savings. As for loans, to some extent, the World Bank provides them at the international level. However, when it comes to taxation, there is more difficulty in having this concept accepted at the international level. The recent acceptance by the United Nations of a global strategy, including the concept that advanced countries should make available one per cent of their gross national product for the economic development of the less developed countries is an indication that advanced countries are now prepared to go along with the concept of such taxation at the global level.

LONG-TERM EXPORT STRATEGY NEEDED FOR RAPID GROWTH

PITAMBAR PANT

TWENTY years ago when India started planning for development there was widespread poverty practically among all classes of people. During the preceding fifty years the economy had been virtually stagnant, with the national income rising at a negligible rate of one per cent per year. Infra-structural, institutional, and educational facilities were inadequate; the death rate and infant mortality were very high. Productivity of land, the stock of capital and the rate of investment and savings were very low, and there was general shortage of all skills—managerial, technical and entrepreneurial. The basic weakness of the industrial structure lay in the absence of capital goods industries. The process of planning was started to pave the way for a rapid growth of the economy.

Statistics reveal that the *per capita* monthly consumption of the richest 10 per cent of India's population is no more than Rs 100. Under the circumstances, the distribution of income after taxing the top 10 per cent and cutting down their consumption to half will lead to a nominal *per capita* monthly increase of Rs 5 in the income of others. Therefore the real solution to the problem of widespread poverty lies not in income redistribution but in speedy development, aimed at raising the productivity in different sectors of the economy.

If we look at Indian conditions from a larger perspective, we find that 50 per cent of the world population has an average annual income of less than 100 US dollars and India alone contributes nearly one-third of the population of this poor half of the

world. The other half includes countries like the USA with an average *per capita* income of 4,000 dollars and Japan with about 1,300 to 1,400 dollars. All these affluent countries have one common feature—they have been able to achieve, over a long period of several decades, a steady and continuous *per capita* annual rate of growth of 2 to 3 per cent. This shows in comparison that India will have to strive hard to achieve a self-sustained rate of growth leading to a significant transformation in living standards.

We are trying precisely to do this through our Five Year Plans. In the Second and Third Plans a three-and-a-half per cent rate of growth of *per capita* income was sought to be achieved. The Fourth Plan also aims at the same rate of growth. Allowing for an increase in population, this means a rate of growth of national income of about five and a half to six per cent during this period. The long-term projections are based on the expectation of a higher rate of growth of income and lower rate of population growth so that the *per capita* income increases to bring about a growth rate of 4.5 to 5 per cent by 1980-81. This rate of growth, if actually realised, will mean nearly a four-fold increase in income per head by the end of this century. In another 30 years India could reach the present level of development in Japan or most of Europe.

At present the investment rate in India is about 12 per cent, which is proposed to be raised to 17 or 18 per cent by 1980-81, the capital-output ratio as mentioned in the Fourth Plan is about 2 to 2.4 and the population growth is around 2.4 per cent which is expected to decline to 1.7 per cent by 1980-81. These figures show that currently the economy is

expected to grow at the rate of 5 to 6 per cent, which may be accelerated to as much as 7 per cent by the end of the decade. In raising the investment rate, domestic effort involved will be larger since part of the investment resources are now derived from foreign aid. But in 1980-81 net aid is expected to be reduced to nil. One redeeming feature is that in a large country like India foreign trade represents a relatively small proportion of national income. At present, imports constitute about 5½ per cent while exports are a little more than 4½ per cent of the national income. Exports and imports are expected to be around 5 per cent of the increased national income in 1973. Obviously, as the country's economy expands, nearly everything will have to be produced internally. Therefore, apart from the marginal adjustments which will be made possible through foreign trade, the entire structure of domestic production has to be such that it is related to the growing requirements of the economy for domestic use. This is a circumstance which facilitates the planners' task of deciding what ought to be done to promote growth or anticipate in time the future requirements of specific goods and services in their various uses.

Plan Strategy

Agricultural production has special significance in the case of India, as a very large part of average household consumption consists of agricultural and agriculture-based commodities. To make up for foodgrains deficiency even of 50 grammes per day per head would involve imports of the order of 10 million tonnes per year, costing more than 900 million dollars which constitutes almost half of our total export earnings. Therefore care has to be taken so that the production structure is broadly in conformity with the demand structure. As such

we must have a strategy of balanced development with agriculture and industry walking in step.

Planned development also involves calculation of the aggregate demand during a particular period. This involves an analysis of the pattern of final demand of goods which comprises of government consumption, private consumption, exports, fixed investment and change in stocks. Government consumption for defence, administration etc. and various other activities, such as education, health, scientific research are separately projected. As for estimates of household consumption, the basis is provided by several studies which are constantly being done in rural and urban areas through the National Sample Survey. Our strategy of planning also gives due consideration to consumer choice.

Similarly we can roughly evolve the pattern of investment and once the volume and nature of investment are known, we can work out the kind of machinery and other inputs which would be needed. The 'inter-industry requirements' too have to be very closely looked at. An important factor is to anticipate the evolving requirements of the future. The Plan enables us to identify bottlenecks, and incorporates a long-term strategy of avoiding them. One major bottleneck is the chronic shortage of foreign exchange. Our domestic production capacity cannot meet all these requirements of a growing economy.

More Exports

Our Plan strategy rightly stresses that we should welcome foreign aid in the early stages of development. This is because our capital goods industry was weak and there were other deficiencies to be overcome. But we should try to make up for these deficiencies by building the infra-structure of power and transport, by establishing a strong and integrated sector of machine-building basic industries such as steel, fuel and fertilisers, by raising the domestic savings and investment rate, and by pushing up exports.

Thus an important element of this long-term strategy of a self-reliant growth is speedy expansion of exports. Strategies of this kind require sustained and consistent efforts extending over many years, and for that a perspective Plan covering a period of 10 to 15 years is required. This is what

we have been trying to do in our Plans—albeit imperfectly. There is no doubt that through our planning we have succeeded in pulling the country out of the old rut and stagnation. We have doubled our national income in real terms in twenty years. We have reached a stage now when we have a much stronger base of machine-building and a far more diversified and balanced industrial structure. Our reliance on imports has been reduced considerably, specially in the last four years. In 1967 we were importing 2,800 million dollars worth of goods against total exports of 1,600 million dollars only, leaving a net gap of 1,200 million dollars. In addition, substantial debt charges were to be paid. If this 1,200 million dollars were not available as net aid, production could be seriously hampered, specially in a situation of economic recession. This year imports are less by about 600 to 700 million dollars, total imports being around 2,150 million dollars. The exports have favourably gone up to about 1,850 million dollars, thus reducing the trade gap from 1,200 to 300 odd million dollars. The Fourth Plan aims at reducing this gap to about 100 million dollars.

Long-term Strategy

These figures indicating the change in our foreign trade position in the mid-sixties and now, show the measure of success of the long-term strategy of planning. Again, in 1965, our imports were about the same as they are expected to be in 1973, but the Indian economy in 1973 will be at a much higher level. It is thus clear that the programme of import substitution is now maturing to a point where quite substantial results are already visible. If, similarly, we succeed in our strategy of increasing exports at 7 per cent per year, as proposed in the Fourth Plan, the balance of trade in 1978 would not only be balanced, but the interest charges on the foreign debt would also be paid. This is the strategy of our long-term balance of payments, which continues to dominate the entire strategy of planned development.

TAMIL NADU TRANSPORT WORK SHOP

Report by Our Madras Correspondent

The Central Workshop of Tamil Nadu State Transport Department has won all the four National Safety Awards for 1969. In the last five years, it has won several national awards for accident-free operation. Its record of safety, since the inception of the workshop in 1948, is all the more remarkable as it employs a large number of physically handicapped personnel, including two blind men. For this, a certificate has been awarded to the unit by the Central Government.

The workshop employs over 1,000 workers, of whom 700 are engaged in body-building of transports and the rest on engine overhaul and accident repairs. It is situated on a 11-hectare plot in Chromepet, about 20 kms from Madras. It turns out over 40 complete buses per month, for which the different parts are made in the factory, while the engine and chassis are purchased. The workshop also reconditions engines and does repair and maintenance work.

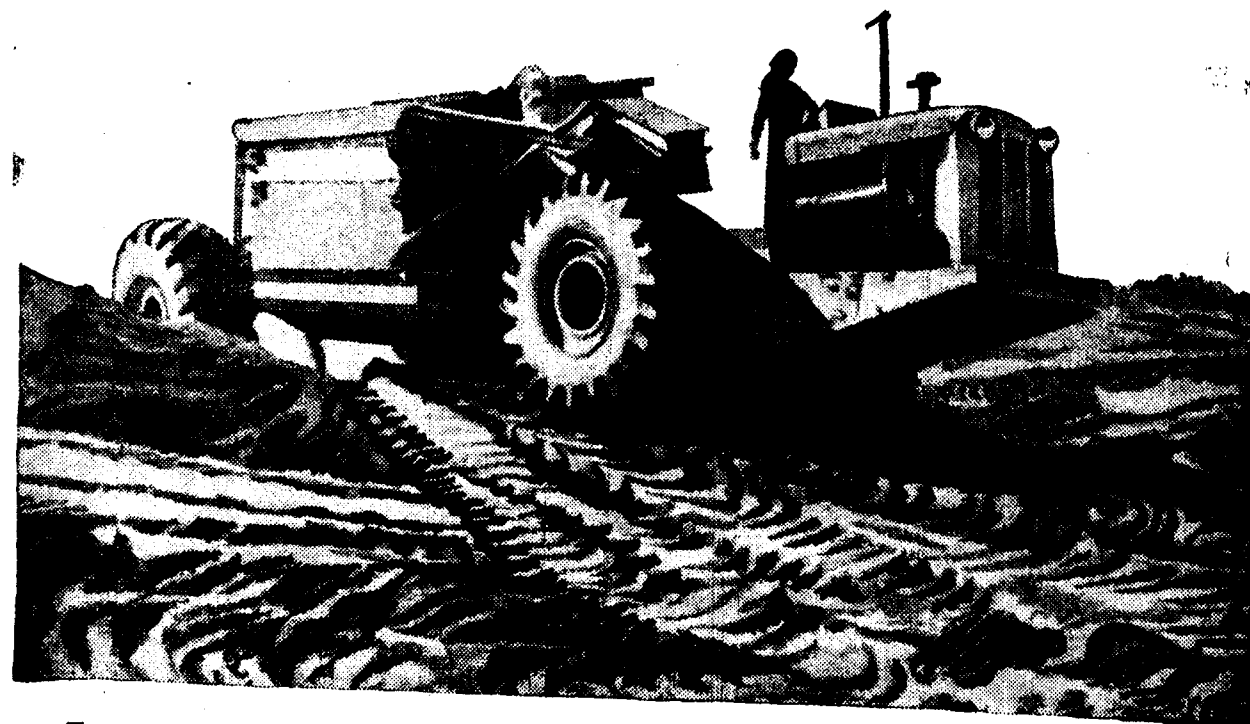
Stated to be one of the biggest bus-body building units in Asia and the largest in India, the unit caters to the needs of various Central and State Government Departments, including the Police, Public Health, Fire Services, Forest, Agriculture and Government colleges.

SCHEME FOR CALCUTTA CHILDREN

Under a Scheme for children in the *bustee* areas in Calcutta, over 600 children of 1-3 year age group are getting free nutritious food, consisting of cornflour, soyabean, milk and bread, from six distribution centres. A sum of Rs. 22 lakh has been sanctioned for the purpose in 1970-71.

Edited version of a talk given at the administrative Staff College of India, Hyderabad in July this year.

The new XL Tread Compound gives even longer life to Dunlop Off-The-Road Tyres



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ESSENTIAL ELEMENTS OF GANDHI'S GREATNESS

HIREN MUKERJEE

THIS is a book* which should rouse great expectations. Few, if any, in India today are more "knowledgeable" about Gandhi than Acharya Kripalani whose association with the great man began as early as 1915. Few, indeed, in Gandhi's entourage had the Acharya's kind of sophistication, a certain aloof pride which only the phenomenon (which Gandhi could invoke) of mass political resurgence could submerge, a penchant for non-conformity which the Gandhi magic alone could overcome, and a strain also of cynicism which, with Gandhi gone, has become so pronounced that one senses in his case the pathos of exceptional talent turned sour and stale and sad. This is being said entirely without irreverence and with a lively appreciation of the intelligence and the wit which, in the ninth decade of the Acharya's life—may he be spared to us much longer!—still shine through all that he writes and says.

The general editor of the series entitled "Builders of India", in which this volume is included, is Mr. R. R. Diwakar, himself an authority on Gandhiana, and he writes in an introduction that the biographies "are not intended either to be comprehensive studies or to replace the more elaborate" compilations. Mr. Kripalani's book, though covering 500 pages of interesting material, satisfies the editor's specifications; it is not a "comprehensive" study, a five-page section, for instance, disposing of a subject so intriguing as "Gandhiji and Marx", and another six pages disposing of a somewhat snappy, scratching-the-surface query: "Was Gandhiji Modern?" There is no dearth, however, of thought-provoking observations in these as well as other chapters like the one on "Economic Thought". From his own angle, necessarily and on the basis of his long and close

*GANDHI: HIS LIFE AND THOUGHT by J. B. Kripalani. Publications Division, Government of India, Pages. 197 Rs 80.

observation of Gandhi's ways, the Acharya has tried to bring out the essential elements of the greatness of a man who roused a whole people as never before and gave a new direction to Indian history.

Acharya Kripalani was a young lecturer when Gandhi, as it were, happened to him; he saw that paradox of a politician at work in Champaran and felt somehow that he must hitch his wagon to that unlikely star. Happily, he retained a certain individuality; perhaps, with a kind of intellectual irony he amused himself on his surrender to the Gandhi mystique. Thus, there is something captivating and also acidulous in personal references when he writes: "..... I had never cultivated the habit of referring my private difficulties to (Gandhi). I had learnt that as he solved his problems by himself, so must I. I never had any private talks with him as other leaders had, notably Jawaharlal. I did not encourage Gandhiji's habit of playing the father confessor to the inmates of his Ashram and to those who came in intimate contact with him. I had an idea that some of them confessed their real or imaginary sins in order to win his confidence. As a matter of fact I had rarely a personal problem. I never indulged in long correspondence with him. Whenever I had something to ask, I wrote to his secretary, Mahadevbhai who was a dear friend...." Acharya Kripalani's readers would gladly agree that he has "written as I have felt."

One defect of the book is that there is hardly any discussion at some depth of the issues that arose as Gandhi made his epic journey through life, whether in South Africa or in his own land. To non-cooperation movement, when Gandhi was seen in all his glory (1919-22), the Acharya devotes barely five desultory pages. A page-and-a-half section on Gandhi's "trial and imprisonment" (March

1922) refers only perfunctorily to a stupendous speech, quiet and yet beautifully blazing, that Gandhi had made in Court. Shri Kripalani appears to have a strange aversion towards any meaningful approach to the Hindu-Muslim relationship which Gandhi toiled mightily and incessantly to straighten and strengthen and elevate. How a person of his learning and refinement could develop such allergy is a minor mystery. Obviously, if one goes by his writing, he felt no stirring of the spirit of Hindu-Muslim frater-nisation of the 'Non-cooperation' days; perhaps, with a sort of superior hindsight he thought it was a fake. The dreadful happenings that preceded and followed upon the partition of India must have disturbed Mr. Kripalani, but he appears uninterested in reflection on the human condition in India which had brought up such dross and also incapable of having glimpses, which Gandhi gloriously did, of the rainbow in the rain. He cannot be so simplistic as to take a broad line that partition came because of the perversity of Muslims generally and their leadership, but he very nearly gives that impression. Gandhi, it is true, never was a party to India's vivisection; he struggled against it with all his strength till he was forced, as he said, to swallow the bitter pill. Mr. Kripalani's narrative suggests that he felt the same way. However, he cannot just get away with it; he was Congress President at the time and had shown no special hesitation to welcome the transfer of power which Britain effected only at the cost of partition. Acharya Kripalani's "message to the nation" on 15 August 1947 did, of course, salute the Mahatma but more crucially rejoiced: "Never before was so great an event consummated with such little bloodshed and violence". Nor can the Acharya forget that at the June 1947 meeting of the All India Congress Committee, he said that "under painful circumstances" he had supported "the division of India", and

Haryana has all the villages electrified

SIDDHARTHAN KARIYAL

though he had "never swayed" in his "political loyalty" to Gandhi, problems had arisen which Gandhi had "yet found no way of tackling—on a mass basis".

It may be too much to expect, but it would have been salutary to know the Acharya's careful thought on problems recollected in tranquility. In the book under review there are many good things but not the issues that matter even today. Instead, one finds examples of the Acharya's allergy towards some of his leading colleagues—they are deliciously expressed, for he is above all a very civilised person. One wishes, however, that the anecdote, in which both he and the late Maulana Azad had a right to indulge, is critically screened by careful scholarship.

No-one can write seriously about a phenomenon like Gandhi without making some thing of a revelation of oneself. Acharya Kripalani is well enough known, perhaps, to his people but this book, which after all, has been seriously undertaken in spite of many difficulties as a kind of pious obligation, reinforces the picture that the country has of him. A liberal by temperament, the Acharya was drawn by Gandhi into a movement that called for disciplined zeal and readiness for personal sacrifice, perhaps mainly because of a plentiful endowment of self-respect and a certain quiet courage which was being constantly and grievously affronted by subjection to the foreigner. He plunged into the Gandhi stream, but stayed in some respects as an alien, suspecting (and even perhaps being amused by) the agonies and the ecstasies of that experience, yet looking on it still as the only worthwhile thing one could do in subject India. On April 1, 1928 (was the date deliberately chosen?) Gandhi wrote to Jawaharlal Nehru: "I am quite of your opinion that some day we shall have to start in an intensive movement without the rich people and without the vocal educated class but that time is not yet". For Gandhi, "that time" never came, not even in the tremendous days of 1945-46 when with only slight risk to presupposition about violence a truly great struggle could be launched. The Acharya does not quote this letter; perhaps it would have evoked in him a little sardonic pleasure if it had come to his notice.

His wisdom, and in spite of his genuine feeling for Gandhi's greatness, the sense of consistency and proportion he has always maintained come out in a judgment so perspicacious that it is fully set out: *"It has been my experience, living and working with Gandhiji, that what he achieved by his satyagraha appeared at the time to be small but the rest was subsequently accomplished through the combination of various circumstances. These generally favoured greater justice between man and man and group and group. It is also true that if the first small step had not been taken by Gandhiji the other forces that brought about the final result might have remained dormant for a long time."* (Author's own italics)

More than any one man and in a manner that was unique, Gandhi brought life and movement into a country nearly choked with the dust of the ages and roused it from torpor. He could not quite show the way we should tread in a world of restless engines, but he instilled courage into multitudes and threw out basic ideas of guidance in collective life that even self-opinionated radicalism cannot ignore. There are entrancing aspects of his thought which was always linked with concrete work—the idea, for example, that truth, for all his paramount stress on it, was no refrigerated sweet to be savoured in beatific purity, but that one moves, in travail, "from truth to truth". This is almost reminiscent of Heraclitus, representing a polar opposite to Gandhi, who said twentyfive hundred years ago that one never bathed in the same river twice! One wishes Acharya Kripalani, with his acute mind had, in re Gandhi, meditated on such themes. One must, however, be content with what one gets in this volume, and for all its omissions, it is well worth study and reflection.

To Our Contributors

Articles which are not accepted for publication in the journal will be returned only if they are accompanied by self addressed, stamped envelopes.

60 MILLION MORE EGGS EVERY YEAR

Four new projects, involving 220,000 US dollars in international aid, are to be taken up shortly by the Indian Society for Freedom From Hunger Campaign.

The biggest of them envisages the setting up of five chicken hatcheries in Bangalore, Bombay, Chandigarh, Delhi and a yet undetermined place in West Bengal. The five poultry farms are to produce a total of 60 million eggs and one million kg of poultry meat annually. Australia will provide the international aid complement of 103,500 US dollars.

The other three projects are: Young Farmers' Training Centre in Bhakra, Punjab; the development of Rural Youth Clubs under the aegis of the University of Udaipur, Rajasthan; and farmers' training and extension services in Anand, Gujarat. The three projects will receive aid from Australia (\$43,000), Belgium (59,000) and Denmark (\$16,800) and private funds. The Indian FFI Society will contribute the rupee equivalent of about 430,000 US dollars. FAO will contribute experts, consultants and various equipment.

Textile Exports

Hit All-time High

India's cotton textiles export reached an all-time record of Rs 111.5 crore in 1969-70, registering a 14 per cent increase over the previous year's performance.

Export of yarn increased by 127 per cent from Rs 12.8 crore in 1968-69 to Rs 29.1 crore in 1969-70, while export of readymade garments went up from Rs 2.2 crores to Rs 5.5 crore.

The Cotton Textiles Export Promotion Council has proposals for putting up a modern processing house in Bombay, either on a cooperative basis or with its own funds and with assistance from the Government, for helping mills engaged in the export trade.

THE antiquity of Haryana goes back to the Puranic period: The Battle of Kurukshetra was fought here. Modern Gurgaon was once Guru Gram—a village that once belonged to Dronacharya, the guru of the Pandavas and the Kauravas. Apart from legend and folklore, several proto-historic sites near Chandigarh, Sanghol and others also bear mute evidence to the region's affinity to the beginnings of India's culture and civilisation. Today, as one of the smallest and newest of the States belonging to the Indian Union, (it was formed on November 1, 1966, with an area of 44,056 square kilometers and a population of 97 lakh), Haryana is busy laying foundations for a viable welfare State.

On November 21, 1970, Haryana will become the first State to have achieved a cherished goal: One hundred per cent rural electrification, with power for each of its 6,669 far-flung villages. The all-India target is to electrify 50 per cent of the villages by 1980.

Despite being part of the very crucible of Indian history, this part of the country had remained 'backward'. Haryana's woes as a backward region started in 1857, when its peasantry rose in revolt against the British. But the first war of Independence collapsed and swift retribution visited the people of Mohindergarh, Rohtak, Hissar and Hansi. In Rohtak alone hundreds of persons were shot dead or hanged. The British also, through a deliberate act of State policy, instituted a divisive army recruitment programme for the Jats, Ahirs, Gaur, Gujars, Muslims and Rajputs. Thus, for nearly four generations, a major part of the man-power of Haryana was 'used for a single purpose: soldiering. During the British rule, the administration in Haryana undertook only police functions.

Faced with comparison with the more 'advanced' neighbouring State of Punjab, Haryana has determined to advance faster. Its Electricity Board was put on a war-footing to achieve 100 per cent rural electrification. This meant the collection of stores and raw

materials worth Rs 15 crore. In terms of labour, it involved the erection of 200,000 poles, the stringing up of 30,000 kilometers of lines, the installation of 5,000 transformers and the building up of a network of substations.

At the time of its formation, Haryana had only 1,215 villages electrified. The number of powered tubewells was about 18,000. Irrigation facilities were available to only 32 per cent of the net sown area. In the absence of rains and canal water, tubewells were given high priority for electrification. As a result, the number of tubewells rose to 29,000 by May 1968. Forty-seven more villages were also electrified during the period. From May 1968 to March 1970, power was supplied to an additional 2,105 villages and 39,000 tubewells.

The success of this massive operation gave the Board confidence to achieve 100 per cent rural electrification by January 26, 1971. But the momentum gained by the operations was so great that the task was well-nigh finished much before the stipulated date. Till the end of the last month, 2,500 more villages were electrified, and the remaining 802 will receive power this month.

As the Chairman of the State Electricity Board has observed, the availability of electricity has already revolutionised the social and economic structure of Haryana. A sample survey recently conducted in the tubewell villages shows that the utilisation of cultivable land has sharply increased, the cropping pattern has considerably improved and the use of fertilisers and mechanised agricultural implements has gone up. The yield per hectare has increased by more than 100 per cent. In the villages where electricity reached a few years earlier, the people have acquired refrigerators, mixers, washing machines in addition to common appliances like radio sets, fans and electric presses. Almost every household in these villages now owns

a cycle and some of them own automobiles also.

In the field of public health and sanitation, all the district and tehsil headquarter hospitals, have been upgraded. In 1966, the number of hospital beds was 4,584; now it has increased to 5,695. The hospitals at Karnal and Ambala have 200 beds each. Specialist services have been extended to district and tehsil hospitals. The number of doctors have gone up to 459 from 293. The State is free from all major communicable epidemics. As many as 13.1 lakh primary vaccinations and 31.1 lakh re-vaccinations against smallpox have been performed during the past four years. Since its inception Haryana has been in the vanguard of the IUCD programme, securing first position among the States every year. The Karnal district alone has six family planning villages in which all the eligible couples practise family planning.

In Haryana 82 per cent of the people live in villages and agriculture contributes nearly 50 per cent to the State exchequer's income. The State has no perennial rivers, and the Ghaggar which touches its northern fringe is more of a menace than a blessing. During the rainy season, it destroys standing crops and renders thousands of people homeless. A master plan costing Rs 80 crore for drainage and flood control is under way. The Jai lift irrigation project, which has been completed, will provide water to nearly 85,000 acres of arid land in the Bhiwani and Loharu Tehsils. Work on the Loharu Bund has commenced.

The area under high-yielding varieties had increased from 3.8 lakh acres in 1967-68 to 13.14 lakh acres last year, and is expected to go up to 17.50 lakh acres this year. Fertiliser consumption per acre had increased from 7 kgs to more than 31 kgs. The number of tubewells has gone up from 5497 in 1967-68 to 82,000 in 1969-70.

The State's per capita income is Rs 343.

The State gives attractive incentives to industries. All factories are exempt from property tax for five years from April 1969. Industrial units with investments up to Rs 7.5 lakh in Faridabad and Ballabgarh are exempt from paying electricity duty. A similar concession is available to bigger units with investments up to Rs 1 crore for a period of seven years if they are located in the backward regions. Factories get interest-free loans to set up their own power-generating units. Chemical and petro-chemical industries also get power tariff concessions. Various State financial agencies lend industrial loans ranging from Rs 50,000 to Rs 20 lakh. Among the new industries coming up are polyester fibre, synthetic detergents, television sets, plastics, dehydrated foodstuffs, tufted carpets, automobile accessories, mines and minerals, safety matches mechanised leather tanning and beer.

Transport

Haryana has an ambitious plan to nationalise completely its passenger bus services. This is a phased programme with 12 different schemes. Five of the schemes have been successfully implemented with a fleet strength of 972 buses, covering 54.7 per cent of the total route distance. Chandigarh has been directly linked with all district headquarters and sub-divisional headquarters by fast express services. Reciprocal inter-State agreements link important towns and cities with all the major centres in the adjoining States.

MALARIA ERADICATION

During the Fourth Plan period a sum of Rs 72.5 crore is to be spent on malaria eradication programme. The Centre's subsidy to the States for the programme will be carried on intensively in the "hard core" areas where the epidemic is persistent.

The Central Government is also giving a 100 per cent subsidy to the States in respect of additional staff at the primary health centre level during the Fourth Plan, which will strengthen the basic health services in the maintenance areas. The programme on which the Government is spending an average of about 15 million rupees every month, will cover a total of 527 million people in 28 States and the Union Territories.

GROWING ECONOMY OF HARYANA

NAVIN KUMAR

A NEW industrial complex, mostly producing producer goods is developing rapidly around the industrial towns of Haryana, like Faridabad, Ballabgarh, Bahadurgarh, Sonapat and Panipat.

At present there are 160 large and medium scale industries providing employment to 60,000 people in Haryana. Recently the State has received fresh applications for starting nearly 30 large and medium scale projects, involving a total capital investment of Rs 50 crore. During 1968-69 twelve units received, sanctions for establishing new industrial undertakings. Along with these, the Atlas Cycle Industries at Sonapat, the Hindustan Twyford at Bahadurgarh, Escorts at Faridabad and some other important industrial units have launched expansion programmes.

Water scarcity in the State is a great obstacle to the development of industries. But in spite of this handicap, industries have expanded rapidly in the State during the last two years. The projected industrial growth during the Fourth Plan appears to be still bigger. Incentives will be given to cottage and small industries too, which, in turn will step up the production level and open up further employment opportunities.

Agriculture, however, contributes the lion's share of the total income of the State, and as such it is the mainstay of the economy of Haryana. About 87 per cent of the people are directly or indirectly dependent on agriculture for their livelihood.

In spite of natural calamities like flood and drought, and absence of adequate irrigation potentialities, the rate of economic growth is quite high in the State. Subsistence farming with old and traditional methods of cultivation is being gradually replaced by a new strategy of intensive cultivation with the use of high-yielding varieties and improved farm technology.

During 1968-69 total food production in the State stood at 31 lakh tonnes, surpassing the respective targets of 27.30 lakh tonnes and 6 lakh tonnes. Cultivation of hybrid varieties like Sonara 64 and Larmarago wheat with improved farm technology and fertilisers can go a long way in increasing the food production of the State, and in fact, from 1969-70, the high-yielding varieties programme has been extended to the entire State.

A considerable chunk of land covering 4 lakh hectares, including Rewari, Dadri, Bhiwani, Hansi, and Hissar, however, does not have adequate irrigation facilities. About 3,000 villages in the region were seriously affected during the drought in 1968, when crops over a cultivated area of 7.2 hectares were damaged and a loss of Rs 40.2 crore was incurred.

Fighting Droughts and Floods

More tube-wells and canals in the area can tackle this serious problem. It may be noted that while the number of tube-wells energised during the period 1947-1966 was about 20,000, in 1968-69 alone 20,000 tube-wells were provided with electric connections. The number of power-driven tube-wells in the State is now well over 69,000. The availability of water through tube-wells will help stepping up the agricultural production directly, and giving a boost to the economy indirectly.

The commissioning of Jai Kanak Syster brings hopes of relief from recurring droughts. It will extend irrigation over an area of about 33,298 hectares.

Importance is laid on flood control measures too. Plans are being made to harness the two rivers Markanda and Ghaggara. The dams on these rivers will provide more electricity which will be used for electrification of villages and development of industries. It is expected that at the end of the Fourth Plan, all the villages will be electrified and this in turn will increase agricultural and industrial production.

A BABY BOMBAY FOR THE BIG BOMBAY

A. R. LELE

A new city of Bombay is to be developed for a population of twenty lakh. It will relieve the existing Bombay city of its suffocating congestion and inadequacy of amenities. And it will be a spot of beauty on the western coast of the country.

A CITY has always been an attraction for the rural people. So they visit the city occasionally. This seems quite natural. The city has shaped human life to a great extent. Most of the human history has been made in cities. The very word 'civilization' is derived from 'city', as the word 'politics' is derived from the ancient Greek word 'polis', meaning a city state.

The city of Bombay is no exception to this immigration of people from various places. People have, in the past, come here to earn a living. The process has not ceased to date. Bombay has grown dangerously, posing a challenge to planners. It is swelling at an alarming pace and without the benefit of the Industrial Revolution that brought a measure of relief to city dwellers elsewhere. The problems are manifold and their interaction is complex and far-reaching.

In spite of the problems, Bombay is still growing. Some parts of it are beautiful and some very ugly. Still more and more people are coming in. It is now a vast metropolis. It is not possible to move easily from one place to another in the city. It takes hours to go from the central business area to the periphery. All this is man-made. People have come together with all kinds of ideas, habits and skill. This has resulted in an enormous expansion of human capabilities in every direction.

Bombay is already too overcrowded and its population is soon estimated to reach 70 lakhs to make the

situation worse. The economy is imbalanced. On one side people live in skyscrapers, own luxurious cars, send their children abroad for education and go for enjoyment to clubs and hotels. On the other side, just a few steps away, people spend their nights on footpaths, are ill-fed and have no clothes to wear. The problem of journey to work is not yet solved. The concentration of activities on the southern tip of the island has created a north-south pattern of orientation. Suburbs have grown near the main routes of communication, as in a corridor. Many parts of this are not clean and healthy; housing shortage is ever widening and slums are seen all over along the corridor. There is no adequate water supply.

PLAN FOR A NEW CITY

A development plan was prepared by the Municipal Corporation of Greater Bombay; but it was soon realised that such a plan might not solve all the problems of Bombay. In March 1965 a Committee was set up under the Chairmanship of Dr D. R. Gadgil to formulate broad principles of regional planning for Bombay and Poona metropolitan regions. The Maharashtra Regional and Town Planning Act, 1966 was passed and came into force in January 1967.

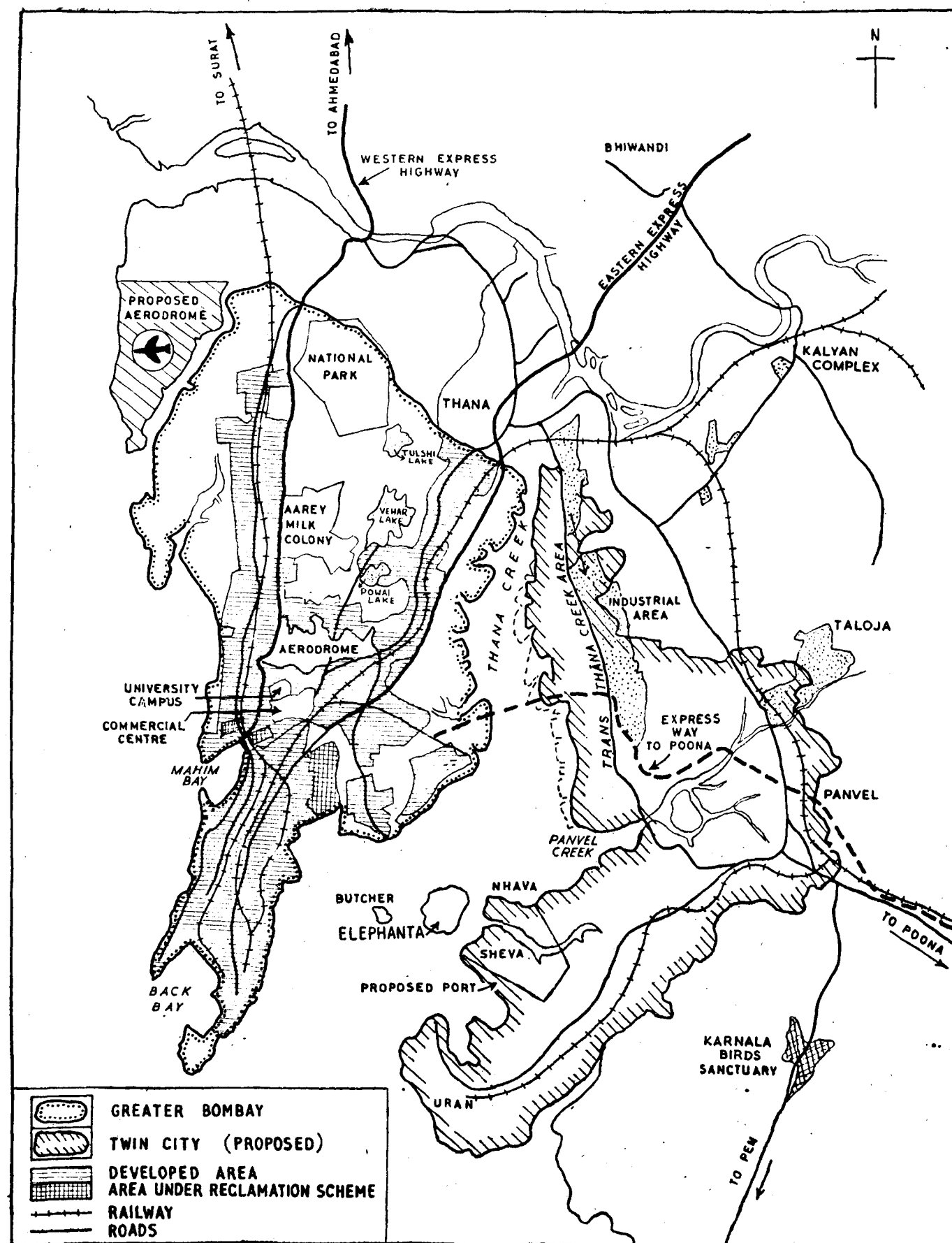
The Bombay Metropolitan Region was notified by Government and the Regional Planning Board was constituted in July 1967. A plan for the Bombay Metropolitan Region was released by the Board in January 1970. It proposed to build a new city on the mainland across the harbour. The proposal has been accepted by the Government and the City and Industrial Development Corporation of Maharashtra has been constituted to plan the new city.

The new city would well begin to take shape in a couple of years. The city of Bombay will change its face very rapidly. It has been decided that the new city will have no room for slums. Thus it will become India's first slumless city. It will be designed to meet all the major problems of the present metropolitan city.

The new city is expected to grow on the mainland across the harbour and the Thana Creek. The site has been suggested by the Bombay Metropolitan Regional Planning Board. Panvel and Uran are the two existing urban centres of the region. The hill ranges of Parsik on the east, the Thana Creek and the Uran seacoast on the west, the Karanja creek on the south and the Kalwa Industrial Complex on the north form the borders of the new city. The site covers an area of about 260 sq. kilometres, which has already been notified for acquisition.

At present the land at the site is partly under cultivation, partly waste,

partly low-lying and partly hilly with some forest. The long stretch of coast-line and some of the hills have a potential for recreational purposes. The area is well connected by roads and rail. The Bombay-Poona road is the major communication link. It passes through Panvel and there is a diversion from outside of Panvel also. Uran is linked with Panvel by road. The bridge across the Thana Creek is under construction and is expected to be completed by the next year. The bridge is part of



the new express road to Poona, work on which has already started. The Maharashtra Industrial Development Corporation has constructed a temporary road by the side of the proposed express-way. This road connects the Trans-Thana Creek area with Panvel town. Panvel is also linked by rail with Diva, which is on the main line of the Central Railway. Besides, there is a regular bus service between Trans-Thana Creek Area, Panvel and Uran. Uran has a ferry service which makes 7 trips a day from Bombay to Uran and back.

The Maharashtra Industrial Development Corporation has developed two industrial estates, one in the Trans-Thana Creek area along the Thana-Belapur road, and another at Taloja. The Thana-Belapur industrial estate is spread over 2,000 hectares and employs about 20,000 workers. The Taloja industrial estate has an area of about 900

hectares. A few industries have come up. This estate is expected to support bulk of the population near Panvel in the new city.

The new city will have a new port in the Nhava-Sheva-Uran area. A third industrial nucleus is expected to come up in this area and nearly 1,400 hectares are proposed to be reserved for this purpose. All these industries will generate a sound economic base not only in industrial but also in the tertiary sector, i.e. transport, commerce and other services.

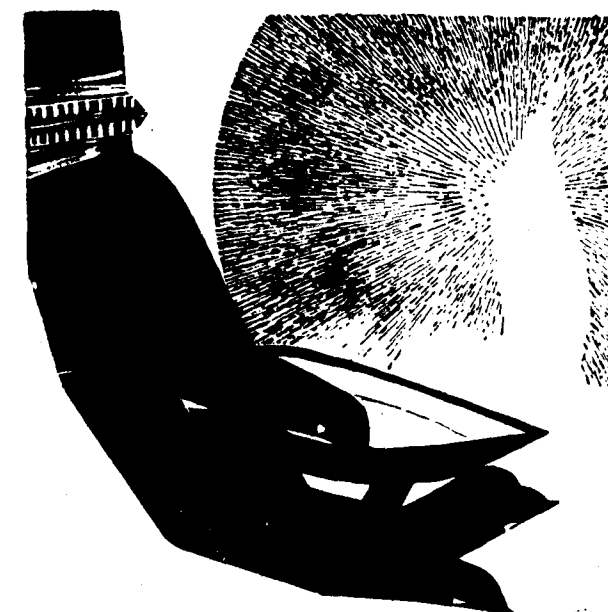
It is expected that the new city will have a population of 20 lakhs by 1991. It will definitely not be a mere "container" of people. It will also be a beautiful city to live in.

The new city will look totally different from the present city of Bombay and will change further with time. The buildings, communi-

cation pattern and location of activities will give it a way of life of its own. In short, it will have a personality. Every family will be helped to live happily in the new social environment of the new city.

The plan for the new city will determine its environment and will deal with the shape of things to come. In a developing country like India this new city will be a study in contrast between the old and the new, between the survivals of the rural past and innovations from the developed areas.

The overall objective of the new city will be the creation of inspiring and diversified environmental forces that generate a dynamic equilibrium among all parts of the region. The new city will be an end-product of a systematic dispersal of settlement and population, industry and cultural opportunities.



The splendour of festive lights

The hymns of the festive season fill the air and Nature is bathed in golden sunshine.

The busy, year-long spell of activities is over for a while. The time now is given to leisure. Time now to be back once more among the smiling faces of the near and dear ones.

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SHEARING AND WOOL GRADING IN RAJASTHAN

RAJASTHAN accounts for 40 per cent of the wool produced in the country and has a sheep population of 88 lakh. It has some fine breeds of sheep producing good quality wool both for worsted clothing and carpet production.

Since the launching of an integrated programme of sheep breeding and wool marketing in 1963, a State department has been active in presenting the Rajasthan clip in a standard form and in helping the sheep breeders receive better returns from the produce.

The State has 10 sheep districts, each one having 10 to 15 Extension Centres.

Shearing is usually done twice a year, only in some parts it is done thrice a year. Sheep are washed 2-3 days prior to shearing. In some areas of the State, washing is not done and sheep are shorn un-washed. Washed wool fetches better price as compared to unwashed wool. The State department purchases wool from sheep breeders directly. The flock masters are usually advanced money before actual shearing so that they sell wool to the department when shearing of their flocks is done.

Mechanical Shearing

Machine shearing programme has also caught the imagination of sheep breeders, particularly migratory flocks and they get their sheep shorn free of cost provided they sell their wool to the department. The advantages of machine shearing are many. Wool is removed from the body of the sheep without any second cuts and discomfort to the sheep. Machine shearing also means greater quality and staple length. This ultimately brings higher price returns to the breeder. In the last 2 years the shearing and wool purchase programme have covered also the migra-

tory flocks going to the neighbouring States of Gujarat, Uttar Pradesh, Madhya Pradesh, Haryana and Punjab.

Wool is purchased by the officials of the Extension Centres. These purchases are effected on the basis of the price schedule prescribed by the department. Later, the wool is transported to the Wool Grading Centres for grading. These centres are at Jaipur, Jodhpur and Bikaner.

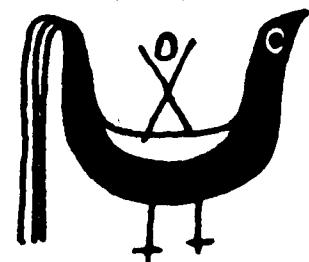
Wool Grading

The grading is done according to the type of wool into fine, medium, coarse and strong types. It is also sorted out in white, light yellow and heavy yellow colours. Block pieces of wool are also graded separately. While grading, the presence of vegetable matter in wool is also taken into account.

Periodical wool auctions are held at Wool Grading Centres with an average offering of 1,500-1,600 bales. Wool auctions are conducted on the patterns of international wool auctions held in Australia and the U.K.

Industries in Madurai

Madurai district in Tamil Nadu, a predominantly agricultural region, covering an area of 12,600 square kilometres with a population of 32 lakhs has become a centre of agro-based industries and small units producing electrical appliances, furniture, ancillaries, needles and other items. Cotton being one of the main crops in the region, textile industry, with the subsidiary units for processing the raw material, continues to provide employment to a large percentage of population. The traditional silk industry and the match wood industry also have vitalised the economy of the district.



QUOTATION BOX

After twenty-three years when the people start a movement, we call it anarchy.
—Mr. Chandra Shekhar, M.P. quoted in a letter in the Statesman.

I do not accept any product which is the result of a tripartite effort. I accept and recognise only the product of a bipartite effort of the Government and labour.

—Mr. Arjun Arora, M.P.

Foreign aid, far from buying it for us, plunges us too quickly into the modern maelstrom. Like the man trapped all night in the hotel bar. "We don't want in—we want out."

—Mr. Lester Pearson quoted in the Ceres.

A planet cannot survive half slave, half free, half engulfed in misery, half careening along toward the supposed joys of almost unlimited consumption.

—From a cartoon in the Ceres

There seems to be an inherent tendency among the economically powerful to monopolise a higher status and to translate their combined values into political power.

—Satish K. Arora in Economic and Political Weekly.

Too many implementers are glorified deskmen without the imagination or inclination to get things moving.

Ramesh Thapar in the economic and Political Weekly.

Today college is painted as a passport to affluence, a way to avoid hard labour. They are not told college is a means of enriching life, to increase one's capacity for enjoying and understanding life, and most of all that education is a life-long process—not just a four-year cram session.

—From an editorial in the Eaton Herald of Colombia (U.S.).

The Coconut Islands of the Arabian Sea

Laccadives on the Road to Progress

For a hundred years and more the Laccadive and Minicoy Islands were only a dot on the vast expanse of the Arabian sea. Virtually isolated from the rest of the world, the people were unaffected by the winds of change that were sweeping the mainland. These people lived a life of privation and solitude, away from the mainstream of progress and development. Then, in 1956, the Government of India assumed direct responsibility for the administration of the Islands, which became "Union Territory". That was the starting point of a new life for the islanders, who are moving forward steadily towards a new destiny.

THE Laccadive islands are a vast coconut garden, and the life of the people centres round the coconut tree. The chief occupations are coir twisting and copra making. Apart from this, the manufacture of vinegar and jaggery are important household occupations. In Minicoy fishing is a major occupation of the people.

Copra accounts for the largest share in the income of the people. Coconuts are cut, sun-dried, and exported to mainland markets. Nearly 60 to 70 per cent of the copra is of the edible variety. The total production of copra in the islands during 1967-68 was 1071 tonnes valued at Rs 42.16 lakh. This means about Rs 156 per capita, and indicates the important place it occupies in the life of the islanders.

The coir industry is the main cottage industry of the Islands, but it is confined only to women. Coconut husks are soaked in pits in the lagoons, then retted and spun. Handspun coir is in great demand in the Persian Gulf

countries, where they are used mainly for making ropes for sailing vessels. The trade in coir is a monopoly of the government. The producer takes the coir to the Government depots and gets in exchange 9 kilograms of rice to 14 kilograms of coir. This system is of advantage to the poorer sections of the people who get a ready and regular supply of rice throughout the year.

The total production of coir during 1967-68 was 590 tonnes. Against this an equivalent quantity of rice was sent to the islands, representing 22 per cent of the total rice requirements of the people. It is the poorer section of the community who are mainly engaged in this industry.

Both vinegar and jaggery are made from neerah or sweet toddy, drawn from the coconut tree. Laccadive Islands are perhaps the only place where natural vinegar is still manufactured and used, and is also in demand in the mainland markets. The jaggery produced from slightly fermented toddy is exported in tins.

The Islands did not have the benefits of the First Five Year Plan. When the islands were formed into a Union Territory in November, 1956, the Second Five Year Plan has already been launched. The Second Plan of the Union Territory, which was finalised in 1957, envisaged a total outlay of Rs 73.85 lakh. The actual expenditure, however, came to Rs 40.28 lakh. The shortfalls were mainly due to difficulties of communication and absence of suitable officers. The Plan however marked a breakthrough in development and provided the necessary infra-structure of transport facilities and a strong administrative machinery. The total expenditure during the Third Plan was Rs 108.5 lakh, which was Rs 10.2 lakh in excess of the actual allotment for the Territory.

Coconut cultivation is the only agricultural activity in the Islands. Altogether there are about 2,700 hectares under coconut trees. These have not been properly looked after and an estimated 20 to 30 per cent of the yield is destroyed by rats. During the Second Plan a large-scale rat eradication programme was launched. To popularise quality seedlings, coconut nurseries were started in all the islands. Demonstration plots were organised to show the islanders the usefulness of chemical fertilisers. The Agricultural Department also helps the islanders to raise various kinds of vegetables to enable them to get a balanced diet. During the Third Plan, agricultural field workers, recruited from the islands and specially trained, have been stationed in all the islands. In addition, arrangements have been made to supply quality seedling, implements, manure etc. to the islanders at subsidised rates.

To diversify the agricultural base of the island's economy, cultivation of food crops like rice, maize, pulses,

tapioca etc. have been started as inter-crops in coconut plantations. Irrigation by the use of pumpsets have also been started on a small scale. It is also proposed to introduce small, mechanised tillers to help inter-cultivation.

The Animal Husbandry Department functions under two Veterinary Assistant Surgeons. Six poultry units and a Model Poultry Farm were started during the Second Plan. There are dairy and poultry farms at Kavaratti and Androth, and a veterinary hospital at Kavaratti. Good quality bucks, which are replaced regularly, have been supplied to all islands to improve the quality of goat rearing.

Fisheries

Until recently fishing in the islands was confined to subsistence fishing. During the Second Plan, exploratory fishing was started with mechanised boats by the Fisheries Department. These experiments revealed the vast scope for tuna fishery in the entire Laccadives. Only Minicoy islanders caught this fish on a large scale. Fishing instructors from Minicoy were, therefore, appointed to teach other islanders the techniques of tuna fishing, which has expanded considerably since then. To encourage mechanised fishing boats have been given to the islanders at subsidised rates. Recently fishermen's cooperatives have started taking up large-scale fishing by using mechanised boats.

A pilot unit for canning tuna fish was opened at Agatti Island in 1963. Another large-scale canning factory has been commissioned at Minicoy, with an ice plant and cold storage attached to it.

Trade between the Islands and the mainland was conducted, until recently, through mainland middlemen. During the Second Plan it was found impossible to form cooperative societies in the Islands due to the delay in the promulgation of the Cooperative Regulation. At the end of 1961-62, three cooperative societies were formed at Androth, Amini and Kavaratti; and, during 1962-63, societies were formed in all the remaining islands. All consumer goods needed by the islanders are at present supplied through

these cooperative societies. They also market the island products like copra on the mainland markets. During 1967-68, consumer goods worth Rs 46.5 lakh were supplied by the cooperative societies and the total value of copra marketed through them came to Rs 42.6 lakh.

Today, consumer societies have a membership of 7,125 and a total working capital of Rs 37 lakh. Out of this the people's share comes to nearly Rs 16 lakh. The cooperative movement has recently extended its activities to the manufacturing and food processing fields. Bakeries, oil mills and canteens are now run by cooperatives. A handloom weaving cooperative has also been set up.

Industries

As there is no scope for large-scale industries, the progress in this field had to be confined to improving the existing cottage industries, and introducing suitable household industries. During the Second Plan, an attempt was made to improve the coir industry by introducing *charkhas* for spinning. Coir Training-cum-Production centres have been set up in all the islands, and about one thousand islanders have been trained in improved methods of twisting. A hosiery factory has been set up at Kalpeni. To improve the industrial skills of the people technical training is given to the islanders in various trades.

To provide the necessary base for starting small-scale industries, electrification of the islands has been taken up. During the Second Plan, Minicoy Island was electrified with a diesel generating set. Three more islands were electrified during the Third Plan. At present six islands are electrified, and it is expected, that all islands will be electrified by the end of the Fourth Plan.

There are at present one higher secondary school, three high schools, 11 senior basic schools, 18 junior basic schools and 6 nursery schools in the Islands. Of these, four senior basic schools and four junior schools are exclusively for girls. In 1956 there were only nine incomplete elementary schools in the islands. From 1,521 students in 1956-57 the strength in schools has increased to 6,700 dur-

ing 1968-69; while the number of teachers has increased from 14 to 302.

Education is free at all stages. For those going to college, scholarships are given and free board and lodging facilities are provided. There are at present 115 scholarship holders for post-matriculate courses, of which 14 are for M.B., B.S., two for engineering, one for agriculture, 14 for degree courses and 48 for under-graduate courses. It is proposed to start a junior college at Kavaratti during the Fourth Plan.

A programme to eradicate leprosy and filaria was launched during the Second Plan and a recent survey has revealed that the further spread of these diseases, has been arrested. The overall disease-rate of filariasis has come down to 6.08 per cent from 14.8 per cent in 1951. To provide protected water supply to islanders, well rings have been constructed at subsidised rates. Today, there are seven primary health centres and two hospitals in the islands. There are also health inspectors in all the islands.

Medical aid is free, and acute cases which cannot be treated in the islands are brought to the mainland, where free medical facilities are provided.

Communications

Transport was the main bottle-neck that stood in the way of the development of the islands. The Administration started with a chartered 100-ton motor vessel in 1957, and a second has been in service since 1963. In 1966, a cargo-cum-passenger vessel was placed in service from the island to the mainland. It has a passenger capacity of 39 and cargo capacity of about 50 tonnes. A bigger vessel, with a passenger capacity of 112, is expected to be commissioned this year. It will have cargo capacity of 600 tonnes and will be an all-weather ship. For inter-Island communication, a motor launch is in service. One more launch for this purpose will be commissioned this year.

Wireless stations have been installed in all the islands, which have helped to establish contact with the islands, and have improved administrative efficiency. There are post offices in all the islands, and money order facilities have been provided.

INTENSIVE FARMING ONLY SOLUTION TO COTTON SHORTAGE

PRATIMA GHOSH

THE cotton textile industry initiated industrial growth in India. During the years of planned development the production of cloth increased from 42,130 lakh metres in 1950-51 to 87,750 lakh metres in 1968-69. But the demand for cloth went up significantly. In the world market too, the value of India's exports of cotton yarn and piece-goods rose from Rs 78.4 crore in 1968-69 to Rs 91.6 crore in 1969-70 and Rs 58.33 crore during the first six months of this year.

The most important long-term problem is the chronic shortage of indigenous production of raw cotton. Whereas the demand for cloth has increased by about 25 per cent during the last decade, the annual cotton output has remained almost stagnant between 58 lakh bales and 50 lakh bales, the highest being 62.20 lakh bales in 1967-68. The outturn of 58 lakh bales in 1969-70 lagged far behind even the Third Plan target of 71 lakh bales. The Fourth Plan aims at an output of 80 lakh bales on the basis of an estimate of per capita consumption of 14.3 metres and export of 850 million metres of cloth. But even this modest target appears unattainable. The demand for cotton has increased in the meantime. In 1968-69, the cotton mills alone consumed 61.99 lakh bales of cotton.

The shortfall has to be made good through additional import of cotton and staple fibres. In 1968-69 imports of cotton were 4.29 lakh bales, while exports were around 1.90 lakh bales. During the sixties, India spent about Rs 851 crore on imports of cotton; the figure is likely to reach Rs 1,000 crore this year. Cotton imports were valued at Rs 102.7 crore last year. Would India waste so much foreign exchange on importing a cash crop which can be raised profitably in the country?

Sometimes it is suggested that cultivators do not get incentive prices due to arbitrary price fixation by the cotton traders. But, in fact, the price of cotton in recent years has not been unremunerative as far as the cultivators are concerned. With 1961-62 as the base year, the index number of cotton prices shot up from 117 in 1964-65 to 155 in 1968-69 and 171 in the mid-1969; it reached 190.3 in May this year. High prices to cultivators alone will not help cotton growers.

Over the recent years there has not been any significant variation in the area under cotton, which has been around 80 lakh hectares since 1955-56, the lowest being 76 lakh hectares in 1959-60 and the highest 82.6 lakh hectares in 1964-65.

India, having the largest area under cotton, ranks only fourth in production in the world, coming after the USA, the USSR and China. The per hectare yield of about 144.5 kgs is one of the lowest, as against the world average of 336.8 kgs. Even in developing countries like the UAR, Mexico, Sudan and Peru, the average yield is three to five times the average in India.

The yield can be at least doubled if scientific methods of cultivation are adopted and the necessary inputs like seeds, pesticides and improved technology are made available to the cultivators in time.

There are regions like the Tungabhadra and Nagarjunasagar river valley project areas, the Bhadra canal area in Mysore, and some regions of U.P. and Maharashtra, where extra-long staple and superior long staple cotton can be grown successfully. The crop of medium-staple cotton, for which demand both at home and

abroad is quite high, can be increased by about 50 per cent.

For raising cotton of superior quality, new strains have to be evolved. There is also an urgent need to evolve varieties of shorter duration which can fit into the cycle of multiple cropping.

Cotton-growing is generally dry-farming in India. Of the 81 lakh hectares, only 14 lakh hectares are under irrigation. Often the crop is affected by vagaries of weather. The adoption of improved practices like regulation of soil moisture, provision of soil aeration, raising fertility and taking up plant protection measures can improve the situation.

Development Schemes

In view of the vast requirements, the proposal to spend between Rs 4 crore and Rs 16 crore for cotton development during the Fourth Plan is grossly inadequate. To achieve a significant breakthrough in production, an allocation of at least Rs 50 crore is required.

The recent development schemes taken up by the Government and the Indian Cotton Mills Federation have shown that intensive cultivation can bring about significant increases in output. In 1968-69 the Central Package Programme for cotton development covered an area of about 4.78 lakh hectares, and about 5.5 lakh hectares were covered under the State programmes. The necessary inputs were supplied to farmers in selected areas.

The development scheme of the Federation covered about 10,000 hectares in 1968-69; it was further extended to 54,000 hectares in 1969-70, involving an expenditure of Rs 26 lakh. The experiments on demonstration farms in 1968-69 have shown that per hectare yield registered an 80 per cent increase in the irrigated area as compared to the adjoining non-project farms. In the unirrigated areas, the increase was 75 per cent.

The improved methods adopted in the few demonstration farms can be extended to larger areas. A package programme, involving Government, the private sector and research institutions, should be adopted for reaping the fullest benefit of research in increasing the production of cotton.

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Sprinkler Irrigation

JASBIR BATRA

For Better Use of Water

OF all the factors which determine agricultural production, adequate and timely supply of water is the most crucial. Though India has large water resources, it is estimated that out of 194.2 million hectares of cultivable area in the country only 82 million hectares of land can be eventually brought under irrigation due to various limitations. Again, though since the beginning of the First Five Year Plan 545 major and medium irrigation projects have been undertaken, out of which 325 have been completed, the present area under irrigation is only one-fifth of the area sown.

It has been suggested by some that the only way to increase agricultural production in the country is to bring about a more rapid increase in the area under irrigation. However, this is not so easy. It involves a massive effort, both physical and financial, which an underdeveloped country like India, with too many other urgent claims on its meagre financial resources, cannot make.

In fact, the best way out of this dilemma is to make the fullest and most economical use of the existing irrigation potential. There is, therefore, the need to train the farmers in optimal use of the water supply, as a complement to the adoption of improved agricultural practices. Demonstration farms, research stations and agricultural departments in the districts should also undertake to advise the farmers on the right use of water to get the maximum results.

According to an expert estimate the overall efficiency of water utilisation in India is as low as 10 per cent. An available supply of water that is enough to irrigate four times the present irrigated area is thus being wasted. However, the greatest loss of water takes place not during the hundreds of miles that canals traverse from the

reservoirs to the fields but from the main channels to the farmers' fields. Ignorance of plant-water relationship, poor lining, imperfect levelling and badly planned field-lengths account for 60 per cent of the water being lost.

A recent advance in agricultural techniques is the use of sprinklers for thrifty use of water. The spectacular achievements on the agricultural front in Israel have proved beyond doubt that besides helping to manage with restricted supply of water, over head irrigation like sprinkler irrigation results in better crops and better yields.

Compelled by its limited water resources, Israel rationed off the water supply to farmers according to the types of crops grown and the regions where they were grown. Their requirements were duly assessed by the Water Commission on the basis of field investigation. In order to make the best use of their rations of water most farmers took to the sprinklers. In fact, 95 per cent of the total irrigated area in Israel is now covered by this system. It has been found that utilisation of water in this system is as high as 92 per cent; whereas in the field channel method more than 70 per cent of the water is wasted.

In India sprinkler irrigation was initially tried on plantation crops in Government farms and forest nurseries and proved an astounding success. At the Tobacco Research Station, Veda-sandur, in Tamil Nadu, excellent nurseries were raised through this method. According to the researchers, this system has another great advantage; it prevents the erosion of fresh seeds in the nursery beds.

This modern method of irrigation is gradually gaining popularity in the plains. Many progressive farmer have taken to irrigating their crops by sprinklers. Nearly 320 sets are said

to be at work in the chicory cultivation areas in Coimbatore district of Tamil Nadu.

The Punjab Government has decided to introduce sprinkler irrigation in about 1,400 hectares of land in Bhatinda district. It is expected that this scientific method, which is specially suitable for sandy tracts, would increase food production in the State at the rate of one tonne per 40 hectare annually. The State Government also intends to provide sprinkler irrigation sets to farmers on loans.

While the system is highly useful for root crops, experts are of the opinion that almost all crops, except paddy which needs a lot of water, can be grown with sprinklers. Apart from the facility of regulating water according to the needs of crops, this method of irrigation increases the effective area of cultivation by releasing more areas which would otherwise have been lost by construction of bunds and channels. There is also a saving in the recurring expenditure on the levelling of land in uneven tracts. Fertilisers and pesticides can also be applied through sprinklers along with water, thus saving a lot of labour and time.

Further, sprinklers can be used at any time without much botheration, even at night as they can be set for a fixed period—even in snake infested areas—without requiring any personal attention in the field. Problems like water logging and soil-erosion are also absent in this system of irrigation.

According to agricultural engineers this system can be most successfully introduced in areas where irrigation is done through wells and pump-sets. Though the cost of installation of sprinklers is rather high (about Rs. 500) the area irrigated by it is nearly twice as much as that irrigated by surface irrigation from the same source.

INDUSTRIAL FINANCE INSTITUTIONS

J. C. VERMA

THE wide net-work of public and private financial institutions which have sustained the pace of industrialisation over the last two decades include the Industrial Finance Corporation of India (IFCI), State Financial Corporations (SFC), National Industrial Development Corporation Ltd. (NIDC), Industrial Credit and Investment Corporation of India Ltd. (ICIC), Refinance Corporation of Industries Ltd. (RCI)—since merged with IDBI in 1964,—Industrial Development Bank of India (IDBI) and also the State Industrial Development Corporation (SIDC), Life Insurance Corporation of India (LIC); Unit Trust of India (UTI) and the commercial banks (including the nationalised banks). Similar agencies are also in operation to help the small-scale sector. And yet the tempo of industrial activity has been less steady so that the resources available with these institutions, by and large, remained under-utilised. This paradox is due to a single factor—the lack of promotional activities in the country in the field of industry. With a view to meeting the enhanced requirements of finance, promoting rapid industrialisation and also fostering co-ordination between the various financial institutions, IDBI was set up in 1964 as an apex institution with facilities like direct lending, underwriting, guaranteeing deferred payments of foreign loans etc., of refinancing and rediscounting to be provided to banks and other financial institutions. The Fourth Plan remained in hibernation and the economy in the meantime has had many a setback. These factors could not propel industrial growth.

State Financial Corporations

The 14th Conference of the State Financial Corporations in Bombay in March this year noted that the SFCs were functioning below the average expectations partly due to the banks encroaching on their field in advancing Rs 250 crore in loans to small-scale industries. Besides, the National Small Industries Corporation and State Small

Industries Corporations have also been indirectly affecting the business of SFCs adversely. The Conference also noted that the State-operated undertakings also help in generation and distribution of power and transport facilities. In this multiplicity of financing agencies the SFC suffers a set-back. The SFCs have so far financed 5,815 units out of 1.46 lakh units, that is about 5.8 per cent only. Their share in industrial financing obviously cannot rise in the present situation. It is, therefore, necessary to plan the distribution of financial facilities through these institutions by reorganising their resources and by fostering unity of purpose through merger of institutions with identical objectives and operations. In its 49th report the Parliamentary Committee on Public Undertakings has suggested a merger of the IFCI with IDBI for unified approach, management and rapid industrialisation. Similarly, within the States different organisations started under the patronage of the State Governments should be merged.

Secondly, these financial institutions should try to create effective demand for investible funds by undertaking the role of promoters in the field of industry. This will involve these agencies with entrepreneurial activity and they will have to take into account not only the credit-worthiness of the borrower but also the project-worthiness. Therefore, where individual initiative is not forthcoming, these agencies can take institutional initiative to start an industry.

The Development Finance Companies have worked out the range of their promotional activities which includes conducting general industrial surveys and feasibility studies for special projects, formulating specific proposals for new enterprises, assisting in finding technical and entrepreneurial parties for local clients or for foreign investors, investing in share capital and underwriting securities in order to attract other investors, arranging mergers in order to create more economi-

cal industrial units, developing a capital market by trying to broaden ownership, and encouraging the acceptance of new ideas in the economic sector.

It has been suggested that financial institutions should be development-oriented. The Prime Minister in her budget speech has hinted that the Government is likely to reorganise the pattern of financial institutions and their operations so that these institutions assume a special responsibility to promote industrial development in selected backward areas. Such an approach has great relevance to the existing conditions in India where entrepreneurial ability is restricted.

Some financial institutions like NIDC and SIDC have gained experience in promotional activities. The promotional role of these agencies should have an added dimension—survey and technical feasibility studies, identification of a project, locating of raw materials and marketing, formulation and initiation of the project, collection of resources, engaging of know-how, managerial skills and lastly execution of the project, setting in the production process and evolving exchange and distribution mechanism for these products.

Several advantages can be secured by assigning a promotional role to the financial institutions. Firstly economic and industrial development of the backward regions can be initiated. Secondly, optimum utilisation of the investible resources of the financial institutions can be achieved. Thirdly employment of the available manpower, trained or untrained, can be secured in full measure, both on regional and national basis. Fourthly quality and cost control can be effected in increasing India's share in international markets. Fifthly untapped internal market in the rural economy can be tapped. To sum up, the industrial prosperity of the entire nation can be enhanced if only the Government lays down a unified policy and programme for assigning promotional role to the financial institutions in the field of industry.

INDIA CAN HELP DEVELOPING COUNTRIES WITH TECHNICAL KNOW-HOW

REVIEWING the development of consultancy services in the country, the reconstituted Committee on Technical Consultancy Services has pointed out that India is not only self-sufficient in many aspects of technology but has built up a consultancy expertise of exportable magnitude. She can help developing countries in establishing infra-structural facilities and industries in specified sectors. This wide-ranging expertise includes plan design and construction know-how in setting up plants and projects connected with infrastructural development including power, irrigation, roads, railways and telecommunications, in sophisticated industrial fields including iron and steel, aluminium, mechanical, chemical, mining, metallurgical, fertilisers, petro-chemicals, in consumer industries like paper, sugar, cement, textiles, oils, food products, soaps and cosmetics, leather and hosiery, and in small-scale industries.

The Committee consisting of representatives of the Planning Commission and Ministries of Industrial Development, Steel, Heavy Engineering and Public Sector Projects has proposed the creation of a foreign projects development fund for undertaking studies and establishing close contacts in foreign countries. It has recommended pre-investment surveys and preparation of pre-feasibility reports for securing consultancy contracts in foreign countries. This would call for advance knowledge and information on the national plans and projects. In order to undertake overseas consultancy services, there will have to be organisation of consortia of consultants for meeting the requirements of package deals for turn-key jobs. The Committee also recommended Indian consultancy organisations through partnership with reputed organisations in other countries and acceptance of sub-contracts from international firms. Registration with the international organisa-

tions, credit facilities to developing countries short of foreign exchange or with inadequate financial and other resources and financing of complete projects involving turn-key jobs and payments for contracts over long periods are among the other recommendations.

An appendix to the report lists the areas in which Indian technical know-how is sufficient enough not to require any foreign consultancy services. These areas are: paper, pulp and allied industries, sugar, rubber goods, chemical industries, leather and leather goods industries, rayon and synthetic fibres, asbestos and carbon products, timber-based industries, glass industry, cement and cement products, ceramics, castings, electrical engineering industries, industrial machinery, machine tools and small tools and heavy inorganic chemicals and other industries.

Surveying the development of engineering services during the last 10 to 15 years, the report has recommended the establishment of an all-India institution or institutions to lay down proper standards of education, experience, capability and capacity and to evolve a code of conduct for engineers.

For promoting indigenous consultancy services, the committee has further recommended that the Government should lay down policies which would ensure the maximum utilisation of the best and most up-to-date techniques of production suitable for Indian conditions and providing opportunities for their further development and allowing import of foreign know-how and consultancy services only where absolutely necessary for development of the industrial structure.

For the development of indigenous consultancy services the Committee has suggested some fiscal relief mea-

sures including easier bank loans to engineers' organisations, lower rate of income tax to be levied over three years for consultancy work and permission to Indian consultancy organisations to create special tax-free reserve funds (like development reserves) for earnings during good periods to help them tide over occasional lean periods, and tax rebates on fees received by indigenous organisations for passing on the available know-how. Identifying the areas where indigenous know-how is yet to be developed to the desirable level, the Committee has suggested the promotion of process know-how, details engineering, procurement and inspection, start-up and performance guarantees and product and equipment design, and specified the gaps in consultancy services in the specific sectors including various electronic components for telecommunications, ports development, deep mining, air-borne geo-physical surveys and shaft sinking and tunnelling techniques.

LAND FOR THE LANDLESS

Over 66,000 landless people belonging to Scheduled Castes and Scheduled tribes in Rajasthan have been allotted 88,997.1 hectares of land. These allotments have been made as part of the Gandhi Centenary programme. The largest allocations of land were made on Barmer where 2,132 persons received 16,479 hectares.

INDIAN WAGONS FOR YUGOSLAVIA

India and Yugoslavia have signed an agreement for the supply of 3,600 India-made railway wagons on a 12-year credit term to Yugoslav Railways. The total value of the contract is Rs. 37.5 crore. The wagons will be exported in unassembled form and will be assembled locally in Yugoslavia.

Photographic Competition

ON COMMUNITY DEVELOPMENT, PANCHAYATI RAJ AND COOPERATION, 1970

ENTRIES ARE INVITED FOR THE ALL-INDIA PHOTOGRAPHIC (BLACK & WHITE) COMPETITION ON COMMUNITY DEVELOPMENT, PANCHAYATI RAJ AND COOPERATION.

THEME AND SUBJECTS: The photographs should reflect the spirit and endeavour of the Community Development, Panchayati Raj and Cooperative Programmes and depict the activities pertaining to:

- COMMUNITY DEVELOPMENT WEEK — a pictorial representation featuring a model village, applied nutrition programme or the role of voluntary institutions (series of three pictures)
- COOPERATION WEEK — a pictorial representation (series of three pictures)
- ACTIVITIES OF ALL-WOMEN PANCHAYATS
- YUVAK MANDALS and MAHILA MANDALS implementing Community Development Programme
- SCHOOL AND UNIVERSITY COOPERATIVE STORES
- AGRO-SERVICE COOPERATIVES
- COOPERATIVE SUGAR FACTORIES

PRIZES FOR SELECTED ENTRIES	
FIRST PRIZE	Rs. 400
SECOND PRIZE	Rs. 300
THIRD PRIZE	Rs. 200
CONSOLATION PRIZES (6)	Rs. 50 each

NO PERSON IS ELIGIBLE FOR MORE THAN ONE PRIZE. ONE CAN, HOWEVER, SEND MORE THAN ONE ENTRY.

THERE IS NO ENTRY FEE

LAST DATE for receipt of entries — 2nd December, 1970

HOW TO ENTER: Two copies of each entry — glossy prints in size 25 cm x 30 cm suitable for reproduction — should be sent together with the negative. Each photograph should bear on the reverse (handwritten or typed on a separate piece of paper pasted thereon): ☐ Name and address of the competitor; ☐ Detailed caption with location (village, block/panchayat, district and State); ☐ Event or subject; ☐ Date of taking the snap, etc.

The photographs should be packed flat securely. The Government of India will not be responsible for their loss or damage in transit.

REPRODUCTION RIGHTS: Photographs entered for the Competition and their negatives, whether they win a prize or not, may also be used for putting up a photographic exhibition. The prize-winning photographs and their negatives will become the property of the Government of India in whom shall vest the right to reproduce them in any manner and for any purpose. In case of a dispute, the decision of the Government of India shall be final and binding on all concerned.

Entries should be sent to:

Director (Basic Literature)
MINISTRY OF FOOD, AGRICULTURE
COMMUNITY DEVELOPMENT & COOPERATION
(Departments of Community Development & Cooperation)
KRISHI BHAVAN, NEW DELHI-1

drvp 70/978

PADDY BOILERS OF KOTTAR

VIGOROUS attempts to accelerate the rate of agricultural production have brought to the fore certain problems of some crops, particularly with regard to their storage and processing. In the light of this aspect, the Planning Forum of the Pioneer Kumaraswamy College, Nagercoil, made a study of the rice processing units in Kottar in Kanyakumari District.

Since times immemorial, Kottar has been a great centre of the rice industry. The industry started when an enterprising rice merchant erected a rice mill and a rice boiler, early in this century, with a capacity to boil 120 bags of paddy per day. Since

64 to 68 kg of rice has to be given to the Government. The ratio, however, is fixed according to the quality of the paddy. The boiler mill-owners charge a rate of Rs 2 per 100 kg of rice boiled. They also retain the by-products such as bran and husk etc.

During the harvest season, the Government sometimes gives permission to the boiler-owners to purchase paddy from Tanjavur for processing. The quantity to be bought by each boiler-owner is fixed by the Government. At other times, the Government purchases the paddy itself to make it available to the boiler-owners. However, the boiler-owners are rarely asked by the Government to buy paddy with their own money. The paddy so bought is kept in the Government godown, for which the Government pays about 95 per cent of the value immediately.

Then, the industry has developed in a way. Today rice-processing has become the most lucrative form of investment for the small trader as well as for the middle class farmer.

Besides the large boilers, Kottar has also hundreds of small boilers, having a capacity ranging from 12 bags to 48 bags per day. The rice boiled and husked in these units is sold in the local market and also transported to different parts of Tamil Nadu. The industry enjoyed a boom for a long time, and flooded the south districts of Kerala with processed rice. However, a great change came about with the introduction of control by the Government in 1964.

Under the new scheme the owner of the boiler has to furnish a cash deposit of Rs 5,000 and security of property worth Rs 10,000 or Government bonds equal to that amount. The Government supplies 500 bags of paddy per week, irrespective of the size and capacity of the boiler. At the end of each week the boiled rice has to be returned to the Government. For every 100 kg of paddy

A PLANNING FORUM SURVEY

There are about 34 boilers in the private sector which work under this scheme. Besides, there is one Boiler-Mill in the cooperative sector at Irullappapuram, a suburb of Kottar. The average capacity of a boiler is 150 bags of paddy per day.

The findings of this study reveal that the industry is in doldrums. Most of the units have under-utilised capacities, as the five hundred bags of paddy—the quantity supplied per week—is not enough for them. Apart from this, there is hardly any development of ancillary industries like bran-oil and cattle feed. The area also requires a mechanical unit for the production of hybrid seeds. However, due to the inadequacy of credit facilities mill-owners have not entered these fields.

TO KNOW INDIA READ YOJANA

TRAINING CENTRE FOR WORKERS

A programme for training 10,000 workers and 100 worker-teachers during 1970-71 has been drawn up by the Regional Workers' Education Centre at Calcutta. The Centre was established in 1959 under a scheme of the Central Government. There are two other Regional Centres in the State at Asansol and Barrackpore. Already 40,658 workers and 767 worker-teachers were trained at the Calcutta Centre by the end of May 1970. The number of workers and worker-teachers who received training at the Asansol Centre by that time was 10,500 and 400 respectively.

The Workers' Education Scheme is designed to train literate and illiterate workers in general of various industrial establishments to enable them to take their due place in a democratic society and fulfil their role as responsible members of the working community. The training lasts for three months. In addition, short-term programmes like one-day schools, seminars and study circles are organised to create interest among trainees in different aspects of trade unionism.

While the Calcutta Centre serves the workers residing in Calcutta, Howrah, Hoogly, Midnapore and Birbhum areas, the Asansol Centre provides training to the workers of Durgapur, Raniganj and Asansol. The Barrackpore Centre is responsible for training workers of other areas of the State.

CONSUMER PREFERENCES IN TEXTILES

An urban Indian household spends on an average Rs 42 on textiles per year. This is made up of Rs 10 on piece-lengths, Rs 16 on dhotis and sarees, Rs 4.50 on read-made garments, Rs 1.40 on household linen and Rs 1.10 on hosiery goods. Cotton accounted for 86.6 per cent, synthetics for 5.6 per cent and mixed fabrics for 8 per cent of the consumption.

In rural areas, the average spending per family per month was only Rs. 20. Out of this, Rs 10 went for piece-lengths, Rs 8 for dhotis and sarees and a negligible Rs 2 for other items. Cotton accounted for 96 per cent of the rural preference. In both urban and rural areas, the saree is the most important item of textile purchases.

LETTERS

MARATHI EDITION OF YOJANA

I was happy to read M. Atchireddy's letter (*Yojana*, August 9) about the need for a Telugu edition of your journal. I would request you to publish *Yojana* in Marathi.

Maharashtra has always been ahead of others in socio-economic development. It has 9 per cent of the country's total population, 10 per cent of the total working force and 13 per cent of the net cultivated area. Maharashtra's per capita gross output in industry is more than that of the entire country. (Maharashtra : 451, India : 174). Maharashtra also leads other States in socio-economic indicators like consumption of electricity (113 in Maharashtra against 58 for the whole country), industrial consumption (79 against 40), number of banking offices per lakh of population (4.2—2.1), per capita bank credit of Scheduled Banks (190.6—53.3) and per capita income at current prices (Rs 420—Rs 521).

The Green Revolution has brought agricultural prosperity to the State. The people, as much as the Chairmen of the Panchayat Samities and the Sarpanches, will greatly benefit by a journal like *Yojana* in their own language. At present, there is no such journal in Marathi. Though all Zila Parishads and Block Offices receive *Yojana* in English, it has little use for the rural people who are actual cultivators of the land and the ordinary workers who are connected with production in plants.

(Mrs) Anuradha Hawaldar
Ratnagiri

Reader Mrs Hawaldar will be glad to know that *Yojana's* Marathi edition is to make its debut very soon.
Chief Editor

IMPARTIALITY

I enjoy reading various kinds of articles published in your magazine. Also, I appreciate very much your impartiality in publishing articles and views which are critical of Government policies regarding planning. It

goes to prove that your mind is not closed to reasoning.

Burnpur

K. P. Sinha

'YOJANA' IN URDU

In comparison to the number of readers of "*Yojana*" in Tamil, Assamese and Bengali, the number of Urdu-reading people in India is quite large and this language is quite popular in U.P., Punjab, Himachal Pradesh, Haryana, Bihar, Rajasthan, Madhya Pradesh and also in Andhra Pradesh.

It is surprising that the Planning Commission has not yet planned to bring out *Yojana* in Urdu to help spread new ideas and useful information amongst the Urdu-knowing people.

Simla

Satyen Sharma

(II)

At present '*Yojana*' is being published in five languages. It should also be published in Urdu because it is spoken and read throughout India. *Yojana*, which deals with economic development and gives information about the country's progress, if published in Urdu, can contribute a great deal towards the understanding of these matters by the Urdu-knowing people.

Malerkotla Mohd. Sadiq Chawhan

READER DISAGREES

Your reply to Mr Narayan Chetty's letter (*Yojana* July 26) and the way you edit *Yojana* make it pretty clear that you subtly avoid those areas where there is no hope and promise. You frequently publish the slogan 'To Know India Read *Yojana*'. But when your readers want to project the dark side and to suggest cures for the Nation's ills, you shy away from publishing them. You can be sure that as Indians, we would not hesitate to praise what is worthy of praise. But is it not our duty as citizens to point out the pitfalls and shortcomings, which are no less important than, "Lest We Forget", another of your regular features. This is what we expect, along with "Development Diary", in a journal which seeks to carry the message of the Plan to the people at large.

Calcutta

Amitava Guha

'THIS INDIA'

We, who are regular readers of *Yojana*, have been much pained to see that you have stopped the column "This India", which was very popular. Instead, you have started a new column "This I Like about New India". The new column is welcome but this is no reason why the most interesting feature "This India" should be suspended.

Ramani Mohan Maity
Dakshina Kashim Nagar
(W. Bengal)

STUDENT UNREST

I believe that the student unrest is being unnecessarily played up to give the impression of a 'Youth revolt'. The students are not revolting against any fundamental evil in our society. That the caste system is prevalent even today among the students proves it. My observation is that the origin of all student agitations lies in simple problems of transport or some alleged 'assault' which, on investigation, would prove to have been the result of provocation by students themselves.

Instead of crowding our universities with people who do not deserve to be students, it would be better to redefine the minimum educational qualifications for clerical and similar posts, so that those who will not see themselves through higher education do not get a chance to enter higher institutions of learning and to disrupt the discipline and the curriculum there.

K. Madhavan Nair

Changanacherry, Kerala

TO OUR READERS

Due to unavoidable circumstances this issue of "*Yojana*" has been delayed in publication. We also regret that the issues dated November 15 and 29 will be delayed. We hope to resume normal publication soon after. Inconvenience caused to our readers and advertisers is regretted.

Chief Editor

BOOKS

ON WASTED HUMAN CAPITAL

Surplus Manpower in Agriculture and Economic Development, by Prafulla Sanghavi, Asia Publishing House, Bombay, 1969. Pages 343. Rs 36.

B. N. Nair

IT is a significant sign of the times that the surplus manpower of India has begun to be referred to as the 'Human Capital' and not any more with the despairing sense of commiseration as the Gandhian is an aversion, showing itself oddly rather than making itself felt, towards the indiscriminate use of borrowed concepts that are already overworked by the Development Economists of the Western persuasion. It is a happy augury that the Dantwala Committee on estimates of unemployment has also been critical of the evanescent and undependable quality of refined concepts, such as the 'labour force', that are employed in labour economics, particularly for estimates of unemployment. The fact is that while concepts, British and American, have been borrowed from time to time or have infiltrated on their own strength, as tools of analysis reflecting a stagnation in indigenous experience, particularly intellectual effort, and the absence of the ever widening background in empirical research, there has also been the subtle game of introducing novel concepts and adding to the confusion of thought, that has, for long, gone unnoticed.

The author candidly admits his indebtedness to Nurkse and his reliance on his school of thought. However, there are no references to the subsequent work done on this subject by Mellor, Mynt and others abroad as well as in India, probably for the reason that he could not update his studies before their tardy publication. Therefore, some of the obvious shortcomings of the book on this count are the use of old NSS data and the accident of its late appearance at a time when

the Report of the National Commission on Labour, the Fourth Five Year Plan with specific emphasis on intensive labour schemes, programmes and strategies for agricultural development, have added new dimensions to our knowledge of the problem of surplus manpower in agriculture today and have also, in this process, thrown the earlier works into the shade.

Notwithstanding some of the above obvious shortcomings, the book has certain important redeeming features. The approach to the problem is methodical as is seen from the thematic presentation. While the appendices and the empirical exercises are thought provoking and mark out the book as a useful addition to the scanty litera-

ture by India authors like Majumdar, Patel and Sunil Guha, the historical part appears to be a genuine effort to understand the conditioning of the problem throughout the past decades of changing political rule in India.

The chapters on the 'consequences for inducement to invest in agriculture and economic development' the theoretical analysis of the choice of technique in agriculture as well as the comparative treatment of India and China in the Appendix, deserve special attention of the agricultural economists. The studies on agricultural marketable surplus, food shortage and inflation, are stimulating in the context of the measures contemplated under the Fourth Five Year Plan.

An assessment of Industrial Growth

Industrial Growth Since 1970 : An Assessment by Dr. P. B. Medhora. Published by the University of Bombay. Pages 118. Rs 10.

S. K. Das

THE author has made a deep study with a view to locating shortcomings in our march towards industrialisation during the period between 1950 and 1967. This period covered by the three Plans was the main subject to which the author focussed his eye to examine the pattern of growth and point out areas of weakness with an expert's deftness.

The study, though by and large very useful, has become partially backdated with the rapid re-orientation in industrial stepping up during the subsequent years, particularly after the Government's decision to nationalise 14 major banks and a breakthrough in the export trade, Dr Medhora's

study suffers from the fact that his concept of industry is rather limited. It makes a clear-cut distinction between agriculture and industry but internal trade has been virtually left out. This has brought in restrictions on an otherwise valuable study.

To obtain maximum advantage from available resources is the prime objective of industrial planning. In this task our efforts have not been wholly successful. The author has shown in a convincing way that shortages were there in various 'key' and 'basic' sectors of industry. There was no overplanning, according to Dr Madhora, as far as details go and wastage in resources could not be avoided. He found that the enthusiasm for achieving rapid industrial growth without much experience acquired for the purpose or lack of enough background knowledge about matters in hand under conditions of half-regulated mixed economy, were perhaps the causes of these failures.

The author has rightly stated that the system of planning has been a major factor governing the pace and

content of industrial growth. But he has regretted that there has been a lack of ground rules of planning and, as a result, the administration of planning has lagged behind the growing complexity of the economy. Dr Medhora has deservedly complained that "while the concrete results in terms of targets reached and production rises achieved under planning, have been repeated *ad nauseum*, an assessment of planning in terms of planning has hardly been done, though these will be more worthwhile exercises." The study has revealed that at one point of time in over 40 different industries licences issued exceeded Third Plan targets. This meant that the planning and licensing authorities failed to work in co-ordination.

The book is clearly not meant for the common reader though the study tries to pinpoint the fact that the ordinary citizens' hard-earned money was not being always very correctly utilised by the planners and the Government in charting and executing developmental programmes.

Economic Decentralisation

Industrialisation through Industrial Estates: A Pattern of Economic Decentralisation by Miss Kalyani Bandhopadhyaya. Bookland (Private) Ltd., Shankar Ghosh Lane, Calcutta-9. Pages 254. Price Rs 25.

Dipak B. R. Chaudhuri

THE concept of 'industrial estates' in India, as distinct from 'industrial areas', 'industrial parks' and 'industrial subdivisions', was derived mainly from that of the British 'trading estates'. Inspired by the success of trading estates in the industrial field in the U.K., the Small-Scale Industries Board first recommended the idea of setting up industrial estates for the development of small-scale industries. The Government of India, while adopting the British variant of industrial estates as an integral part of its industrialisation programme, has laid special emphasis on the development and dispersal of small-scale industries, because of the simple rea-

son that in the developing countries, with their abundance of labour, shortage of capital, skill and technical knowledge, small-scale industries seem to have a vital role to play. Industrial estates in India are to serve two basic objectives: industrial development, particularly the development of small-scale industries, and industrial dispersal and decentralisation. Miss Bandhopadhyaya's study is an attempt to examine how far and under what conditions industrial estates, both in absolute terms and when compared with industries located outside industrial estates, can be viable and efficient, so that they can be depended upon as a potent tool for industrial development, decentralisation and generation of employment.

On the basis of detailed case-studies of the industrial estates in West Bengal and examination of general policies and programmes of the Union Government, Miss Bandhopadhyaya makes 11 valid recommendations in respect of future planning of industrial estates. She finds that industrial estates can be a major tool for industrial development, including generation of employment, only if they are planned as an integral part of the programmes for regional development. Her recommendations relate to the economic principle of industrial location; building up of a transport infrastructure, upgrading the size of units to medium and large, shifting the emphasis from heterogeneous to functional estates to generate skill formation, establishing subsidised co-operative industrial estates throughout the country in rural areas and keeping the initial expenditures low by establishing one or two simple workshops due to lack of entrepreneurs and skilled labour in rural locations. They also cover allotment of sheds to the entrepreneurs on the basis of ownership through hire-purchase rather than on rent, providing special credit facilities to units in industrial estates, giving priority in the supply of essential raw materials, imparting training to workers as an integral part of the organisational apparatus of industrial estates, giving preference to power supply to units located in them, and supplementing community planning along with those estates.

Miss Bandhopadhyaya has collected enormous amount of data; the data and bibliography given by her will be useful for future studies in this field.

CANADA 1970

Canada 1970, Year Book Division, Dominion Bureau of Statistics, Ottawa.

This official handbook of 'present conditions and recent progress' is an excellent example of what the printers' art can do to present a country in the best possible light. Canada is known for its immense forest resources, (the handbook itself calls them vast, but not limitless), and the paper used for this compendium can be the delight of any printer. The beautiful colour photographs and eminently readable text combine to produce what we can call the Canadian image: a mixture of French sophistication and British pragmatism. But, Canada is also the home of myriad other Europeans, Asians, Eskimos and Indians, and Slovak girls still dance at Cap-de-la-Madeleine to preserve the traditions of their old homeland.

Individual credits are given at the close of many an interesting chapter: a touch of grace worthy of emulation by our own official agencies engaged in producing similar reference works.

S. K.

ENGINEERING INDEX OF INDIA

Engineering Index of India, March & June 70, Volume 1, Number 1 & 2. Published by Malaviya Regional Engineering College, Jaipur. Pages 123. Annual subscription Rs 35.

The quarterly journal under review is an index of significant writings on different branches of engineering published in Indian journals and books. It has scanned through over 200 journals, out of about 400 technical publications on general, civil, electrical, mechanical, transport, chemical, mining, metallurgical and nuclear engineering, brought out by technical institutions, research centres, industries and other organisations. The present publication meets the growing need of a comprehensive indexing service for consolidating masses of engineering and technical information available to developing economy like India's. And, such, it will serve as useful reference guide for engineering research workers, teachers, students, neo-scientists, and technicians and technocrats in the industrial units.

INDIAN POLITICAL SYSTEM

Politics in India by Rajni Kothari. Published by Orient Longmans Ltd. New Delhi, Pages 452. Rs 30.

M. K. Dharmaraja

THIS is a treatise on India's political development brought almost up-to-date and culminating with thoughts on future perspectives. Starting with the premise that "politicisation" provides the driving force of the central tendency of our times which is "modernisation", the author sets out to trace the progress of our national polity in the context of an ancient land that seeks to adopt the features of modern organisation. The result is a comprehensive work on the Indian political system examined from different points.

Prof. Kothari sees politics in India as pre-eminently a politics of integration. Already on the scene is a new impatient generation which may not be willing to wait for the spiral of economic take-off to really materialise. Hence the need for balance against potential disintegrative consequences that rapid change involves for the political system in any long entrenched and highly diversified society. It is explained that the tests of the political system derive from an interpenetration of social traditions, political power and economic reality. The book is divided into three parts—a historical overview, an analysis of the contemporary political system and an evaluation of the system's performance. The principal focus is the relationship between institutional development and governmental output. Politics, no doubt, is the fruit of history and modern India is a product of a variety of influences spread over a long period. The first was Hinduism followed by the Muslim impact which, however, had no great effect on local institutions and village affairs. Then

came British Raj with the establishment of a central authority, law and order and the creation of a middle class. Prof. Kothari goes on to point out how structural conditions for social regeneration emerged and he stipulates that the development of self-governing institutions was a joint product of British rule and the Indian response. A critical survey and analysis of the years before Independence followed by a long period of Congress Raj leads to an interesting dissertation on the significance of antecedents—a long tradition of multi-ethnic existence and a feeling of "Indianness" in the sub-continent in a setting of diversities. That is the bedrock of the past which has to be mobilised to change the direction of the present. India's modernisation is thus a response to the challenge of systematic change against the canvas of a continuing civilisation.

In this discerning analysis, the author speaks of Mahatma Gandhi's role as a builder of institutions but feels that he missed the essence of democratic policies and even today many of his followers exhibit this weakness though Nehru could transcend this because of his entirely different intellectual background. Not many new nations have been endowed with an array of such towering men for such a length of time. It was this unique initial advantage which helped in the making of institutions and a constitution, incalculably different from the new nations of Asia and Africa.

GANDHIAN ECONOMICS

Khadiagramodyog, 17th anniversary number, October 1970. Published by the Khadi and Village Industries Commission, Bombay. Pages 132. Rs 2.

THE Khadi and Village Industries Commission was founded soon after Independence and the work of developing Khadi and twenty odd other village industries entrusted to this statutory body. And, despite newspaper stories of problems of marketing large unsold stocks, it is a fact that Gandhiji's pragmatism is responsible today for providing gainful employment to thousands of people

What follows is current history taking the reader through the recent exciting events of the crises of succession and the 1969 mid-term Presidential election. We have some illuminating pages here on the structure of the Indian Governmental system increasingly federal and participatory, the more important differences in antecedent conditions and the social structure of politics which have thrown up different patterns of state politics and hence in the varying pressures on Centre-State relationships. Then we come to the traditions of urban protests and of United Fronts.

The politics of polarisation, of dissidence and defections, the new style in political coalitions and competitions, dangers of regionalism, chauvinism and casteism which in turn get crystallised into political shapes—these are all dealt with incisively. There is need, argues the author, for a fresh review of the country's organisation from the point of size, social cohesion and efficient administration. The gaps in understanding persist and the vitality of our parliamentary democracy would lie in solving the problems of national integration and economic development.

"Politics in India" fills a gap in comparative politics and with its copious foot-notes and valuable documented tables is bound to be of great help to students and researchers.

in the countryside, who otherwise would remain fully or partially idle.

For students of human affairs, other than the economists, there is more to the cult of the home spun than the provision of fuller employment: Khadi is a unique spearhead of movement away from mechanisation and the de-humanisation of an industrialised society, a fact well-recognised in Gandhiji's own times, and finding response in other movements in other parts of the world today. Chief among such movements is the growing concern in industrialised societies about man's future in an ecologically unbalanced world;

and the coming into being of a youth 'establishment' that rejects acquisitiveness and soul-less materialism. If the human hand is viewed as the finest piece of biological engineering and the human brain as the finest piece of electro-chemical organism, our problem is to teach its possessors to put them to the best possible use. Mass production leads to organised mass consumption, depleting nature and reducing man to a compulsive consumer. Taken to its logical conclusion, we will have the 'Brave New World' where society cannot out of organisational compulsion permit the individual even a recreational activity that does not involve the use of a mass produced mechanical contraption, like the reading of a book, for instance. A happier ideal would be a world where the human ensemble would engage itself in creativity for its own pleasures, and not out of social or organisational compulsion. And as Vinoba says in a short article in this annual number, the world is somehow moving

towards peace and equilibrium, and the Gandhian model of the self-contained village may lead to the global village where every individual is also self-contained.

Khadigramodyog, the organ of the Khadi and Village Industries Commission, is a monthly periodical devoted to the application of Gandhian precepts to production. While doing a good job of reporting and analysis of 'rural' economic problems, the journal never forgets the ultimate end of all this effort, which, in Nehru's words, is the creation of the better human being. This is perhaps the only economic journal in the world that treats the subjects, to use a shabby old phrase, from the spiritual point of view. The External Affairs Ministry may do well to place a copy of the journal every month in each one of its reading rooms in our Embassies around the world.

—S. K.

CALCUTTA UNIVERSITY LIBRARY

THE Calcutta University Library is not only the oldest University library in India, but is also one of the largest and best organised in the country. Decentralisation also makes it one of the best used. Its different departments of science, technology, medicine, humanities, economics, education, ancient Indian history and culture, and archaeology are scattered all over the city, making its shelves easily accessible to scholars and students. These long arms of the Central Library function under the overall charge of the Heads of Departments concerned.

A decision was taken by the Syndicate to create "a University Library of suitable dimensions and a reading or consulting room" way back in 1862. But it was only in 1869 when Joykissen Mukherjee of Uttarpara donated a sum of Rs 5,000, considered princely at the time, "for the purpose of forming a library in connection with the University" that plans began to take concrete shape. Four years later when the Calcutta University found new accommodation for its offices, it set aside a sum of Rs 3,500, and

appointed a committee to draw up a list of books of "suitable character".

From these beginnings, the library has grown to its present dimensions, largely due to the efforts of the late Dr Shyama Prasad Mukherjee, who conceived the idea of having a modern, self-contained and well-preserved library to serve the interests of the academic community. In 1935, the collection, which was scattered in various places, was centralised on the third floor of the Asutosh Building, specially constructed for the purpose. Dr Nihar Ranjan Ray, who was appointed Librarian, introduced measures to modernise the library and organised a fully equipped periodicals section. Under Dr Ray's stewardship the library grew in size and prominence, until in 1967 it was moved from the Asutosh Building to a new 10-storey building at the site of the old Senate Hall.

This building, constructed with a grant from the University Grants Commission and an equal amount

from the State Government donation, has nearly 80,000 square feet of floor space. On the ground floor are a lobby, offices and an exhibition area; on the first floor are the reference and circulation sections, the technical division and the offices of the librarian; the second and third floors are used as reading rooms; the fourth floor, yet to be opened, is proposed to be used exclusively for research scholars and the other floors will be used to accommodate the growing collection of books.

The total collection consists of over 400,000 volumes, with another 10,000 added every year. The library subscribes to 1,252 periodicals, at a cost of Rs 160,000. The University's own allocations are used up entirely for periodicals, while books are procured through UGC grants. A substantial part of this fund is set apart for text books alone.

The richest collection of books are on Indology, history, and English and Bengali literature. The library also has a valuable collection of manuscripts in Sanskrit, Bengali, Arabic and Persian, which are often loaned to other Universities. Among the Arabic and Persian collections are the *Akbarnama* of Ullama Abul Fazl, scribed by his own son. The library also has *Nahjul Balaghah* of Hadrat Ali. The Bengali manuscripts preserved include an old text of the *Ramayana*. On *Mahabharata*, the collection consists of works by Nityananda Ghosh, Dwaipayana Das, Kavindra Prasanna and Kasi-ramdas. The collection is especially rich in Vaishnava Padabali songs. Besides the *padas* of Vidyapati and Chandidas, there are rich anthologies of *padas* of Govindadas, Lochana Das and Basudev Ghosh. Also, there are many manuscripts on *Mangal Kavya*, in its various ramifications.

The Library's collection of about 3,000 Sanskrit manuscripts include works on philosophy, grammar, *smriti*, *Kavya*, the *Vedas*, *puranas*, *stotra* and music.

The library has 6,572 members including students, who borrowed 863,936 volumes in 1969-70 alone.

ENGINEERING NOTES

RECLAIMING SCRAPPED RINGS

New Method Developed by
a Bhilai Technician

A novel method of reclaiming scrapped rings of the roller straightening machine by weld deposition has been worked out by S. Krishnamoorthy, Assistant General Foreman in the Roll Turning Shop of the Bhilai Steel Plant. This process will improve the quality of the ring and also serve the purpose of import substitution.

Roller straightening machine is a vital equipment of the rail finishing section and contributes about ten per cent direct improvement in the quality of rails by eliminating defects like curves, waviness, etc. It is fitted with six straightening rings, which wear out by constant use. Formerly these rings were imported, but subsequently the indigenous variety replaced the imported ones. However, these indigenous rings were either very soft or too brittle and wore out faster. Besides, their supply was also not fast enough to cope with the demand.

Reclaiming scrapped rings was a challenging job as the rings were made of high carbon, high alloy steel which was not amenable to welding. Besides, the big size and high thickness of weld deposit created considerable difficulty in weld deposition. Krishnamoorthy surmounted these difficulties by developing proper technology after four days of round-the-clock work to reclaim and build one set of rings to the new ring size. It was given a trial run in August-end this year and stood the test successfully. In fact, as against the normal tonnage of 20,000 rails straightened from redressing to redressing, the reclaimed set gave a tonnage of about 30,000 and the wear-out too was less than normal. A set of new rings normally costs about Rs 56,000. The reclamation of one set by this weld deposition method costs only Rs 5,000.

Krishnamoorthy, 38, comes from a weavers' family in Coimbatore

He is a graduate in mechanical engineering. Working as an apprentice in the Hindustan Shipyard Limited for a year, he served for brief spells as Assistant and Process Engineer at Visakhapatnam and Coimbatore before joining the Bhilai Steel Plant as Graduate Engineer in 1957. He underwent a condensed course in metallurgy at Poona and was also trained in USSR for nine months.

He was the recipient of the National Metallurgists' Day Award-1969, for adopting the automatic weld building technology for reclamation of mechanical equipment of the mills.

INDIAN FIRM TO MANUFACTURE T.C. EQUIPMENT

Electronic Research Private Ltd., of Bangalore will soon be manufacturing polarised relays, a complicated and specialised component used in telecommunication equipment. These relays are currently imported by the State-owned India Telephone Industries of Bangalore for the manufacture of telecommunication equipment.

Production of this vital component is being undertaken with technical collaboration of Siemens AG of Munich, West Germany, who will train Indian engineers and also assist in the export of India-made polarised relays.

The factory has commenced manufacture and the trial samples have been found to be satisfactory. According to present plans in the first year of production the number of relays manufactured will be 10,000, progressively increasing to 20,000. The import content, which initially will be around 25 per cent, will be gradually reduced to less than 10 per cent.

It is estimated that the manufacture of these relays in India will save the country foreign exchange to the tune of about Rs 100,000 per year.

AIR-COOLED TURBO GENERATOR FOR NAMRUP

A 30,000 KW Turbo-generator of the air-cooled type for Namrup in Assam is now in an advanced stage of manufacture in Heavy Electricals (India) Ltd. This design was independently developed by HEIL engineers to specifically suit the transport limitation of the route that the generator is to travel.

It has been designed to meet requirements of the metre gauge railway line in Assam where the weight of the heaviest piece of a machine should not exceed 50 tonnes. The heaviest lift of a corresponding hydrogen-cooled machine being about 76 tonnes, the generator had to be redesigned to meet the above transport limitation. An air-cooled design was adopted and the weight of the heaviest piece, which is the stator, brought down to about 48 tonnes.

The indigenously designed T.G. set has many new features. By choosing air instead of hydrogen, as the cooling medium, the yoke has become lighter and cheaper. Also, the coolers are mounted in the basement external to the casing reducing its dimension from 3,506 mm to 2,690 mm.

The bearings are mounted on separate pedestals to avoid the use of heavy end shield and this has reduced weight and bearing vibration.

The costly seal oil and gas control equipment have been eliminated to minimise maintenance and reliability operations.

Cold rolled silicon steel has been used for the stator core resulting in a reduction of core diameter by 127 mm. The design incorporates changes in the cooling circuit in the form of redesigned ducts and baffles.

Already 30 MW sets of the hydrogen-cooled type have been successfully manufactured in Bhopal and supplied to two power stations.

Development Diary

* The Suratgarh Farm in Rajasthan is expected to yield a profit of nearly Rs 50 lakh for the year 1969-70. The production in the farm touched a new high with 1.24 lakh quintals of various crops worth over a crore rupees. The area brought under cultivation during this period was more than 2,400 hectares in the Kharif and about 8,000 hectares in the Rabi season.

*The first India-made MIG-21 aircraft, built at the Hindustan Aeronautics, has been released. While the air-frame of the MIG was built in Nasik, the engine was manufactured at Koraput in Orissa and the electronic equipment at Hyderabad in Andhra Pradesh.

*A one crore rupees harbour development plan has been launched in the Union Territory of Laccadives and Minicoy Islands. Dredging is now being carried out in the lagoons of Kavarathi and Minicoy and a fishing harbour is also being built at Kavarathi.

* For the first time, a soil testing mobile van worth Rs 2.5 lakh has gone into operation in Goa. It will render free service in all parts of Goa by conducting on-the-spot soil tests for individual cultivators.

* More than one crore rupees are being spent for intensive border development in Jammu and Kashmir during the current financial year as part of the rural development programme.

* A cross bar Auto-Telephone Exchange with four thousand lines has been inaugurated in Ranchi. The entire range of equipment has been manufactured indigenously by the Indian Telephone Industries at Bangalore.

* India's exports to Greece stood at Rs 1.89 crore in 1969-70 as compared to Rs 97 lakh in 1968-69. The major items of Indian exports to Greece are jute manufactures and non-electrical machinery and appliances which account for more than 56 per cent of India's total exports.

* India and Bulgaria have signed a trade protocol for 1971 under which the main items of export from Bulgaria

during the year would include steel, drugs, fertilisers, tractors and machinery. Exports from India will include iron ore, jute manufacturers, finished leather wire-ropes, drugs and marine products.

* In Himachal Pradesh work is going round the clock to complete the Beas-Sutlej Link project. The entire project, the biggest of its kind in Asia and scheduled to be completed by 1974, will link the waters of the Beas and Sutlej through a 25 km. long underground tunnel.

* Export of seafood from India has registered a sixteen per cent increase during the first half of the current year. During this period, exports went up to nearly 17,000 tonnes as against 14,500 tonnes for the corresponding period last year.

*The public sector accounted for nearly ninety per cent of the additional employment created in the country during the years 1961-69. Out of an overall increase in employment of a little less than 50 lakh during the period, the contribution of the public sector was about 45 lakh. According to the latest Reserve Bank of India bulletin, the public sector also registered a higher growth rate than the private sector. It was 4.5 per cent as against a growth rate of 3.4 per cent in the private sector. Maharashtra and Mysore recorded a high employment growth among all States.

* The small village of Allipura, near Srinagar, has increased its per capita income to Rs 700 by proper application of fertilisers and cultivation of Rabi wheat in paddy growing areas.

* A new method to reduce fluoride content in drinking water has been developed at the Public Health Engineering Research Institute, Nagpur. The new medium, known as Defluoron, can be used in installations similar to the pressure filter.

*With the energisation of the Bilaspur-Durg Railway route, the entire Rourkela-Durg Section with a route kilometrage of 452 has been electrified. The project has been completed at a cost of Rs 24 crore.

YOJANA

The journal of the Planning Commission published fortnightly in English, Hindi, Assamese, Bengali and Tamil

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Editorial Office :

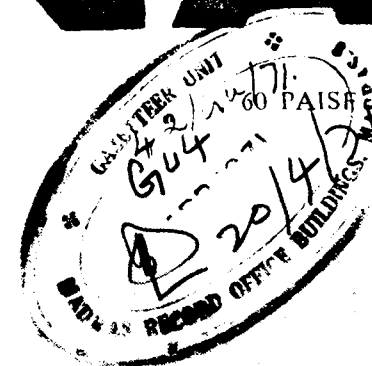
Yojana Bhavan, Parliament Street, New Delhi-1.

Circulation :

Publications Division, Patiala House, New Delhi-1.

YOJANA

FOURTEENTH YEAR 22 & 23 NOVEMBER 29, 1970



PROTECTING THE LAMP OF LIFE

TWO hands protecting the flame of life is as familiar a symbol across the country as the red triangle preaching planned parenthood. Symbolising the individual's aspirations and signifying the nation's resolve to progress, Life Insurance in India by the Indians and for the Indians completes one hundred years of its fruitful existence this year. The centenary of Life Insurance is an appropriate occasion for recounting its achievements as well as for planning welfare-oriented schemes for the future. This has a deeper significance in view of the fact that in a development-oriented economy Life Insurance has a much broader role to play in bringing happiness to millions of households—providing a revolving fund for economic growth, mobilising the surplus purchasing power from the individual's pocket in the form of forced savings, neutralising the evil effects of price spiral and channelising these resources according to the requirements of economic development. At the same time, keeping in view the socialistic objectives, insurance schemes need to be closely integrated to other social security measures.

Quantitatively, nationalised life insurance has scored quite high in terms of new investments and expansion. Daily it is paying off a thousand claims on death or maturity while 5,000 new families are daily covered under the Corporation's activities. In money terms, the yearly new business has shot up fourfold—from Rs. 277 crore in 1957 to Rs 1,025 crore in 1969-70. The Corporation has contributed Rs 233.97 crore in private sector industries, while its share in the country's housing schemes stands at Rs 258 crore. Qualitatively, too, the Corporation has diversified its activities in providing a better life to the individual and promoting the growth of the nation. A vast segment of its resources is channelled to finance rural electricity, so that it not only provides the light of safety to every home but also energy for the creation of a new life in every village. Large assistance has flowed to municipalities for implementing protected water supply and underground drainage schemes, covering 27 per cent of the urban population. For housing, the LIC has committed Rs 100 crore in the Fourth Plan. Finances are channelled to various Housing Boards and to Apex Cooperative Housing Societies. It is

also planning to build model townships, starting with the township in Borivli, near Bombay, providing for 4,000 flats. Under its "own your home" scheme around 50,000 houses will be built during the next three years.

In the agricultural sector too, LIC aims at building up storage capacity and its commitments in the public borrowing programmes for mobilising resources for agriculture will be around Rs 505 crore during the Fourth Plan. Another step has been taken in the direction of providing better health services to the millions. The LIC plans to start a pilot scheme of health insurance for the policy-holders on payment of an extra premium. Along with this, its decision to participate with other institutions, like the Tuberculosis Association, Cancer Institute etc., in propagating health schemes to make people health-conscious is quite commendable.

However, this is not the complete picture. The very fact that only over 75 lakhs, consisting about 1.5 per cent of a vast population of 54 crore, are insured in India, makes one believe that "even if the LIC belongs to the country, the whole of the country does not belong to the LIC as yet". It should rather have been otherwise, particularly because there has been a decline in infant mortality and greater longevity of the people at large, in the wake of planned development. In terms of coverage, therefore, life insurance has still miles to go. The recent decision of the Board of Life Insurance Corporation to remove all extra premium on occupational hazards payable by socially weaker sections of the community is a progressive step in this direction. The policy-makers should innovate, experiment and take bold steps to see that the opportunities enjoyed by the few are extended to the many. For instance, special facilities could be made available to the rural people; the drought and famine stricken farmers could be provided with a policy which would enable them to keep the policy alive for a longer period of one to two years if they fail to pay the premium. The social structure is fast changing, the family size is shrinking, a healthier and longer life span is now possible—these are factors in favour of expanding life insurance activities and the Corporation should take advantage of this situation, more so because man has always been searching for security in a life full of uncertainty.

NEW APPROACH TO STATE PLANNING

ANAND SARUP

THE Plans of States occupy a significant position *vis-a-vis* the national plan as well as the public sector plan. The States' Plan outlays account for 50 per cent of the public sector outlays and nearly 1/3rd of the total investment under the Fourth Five Year Plan. Many of the important national objectives in key sectors like Agriculture, Education and Health are to be achieved through the efforts and investments envisaged in the State Plans. Moreover, it is through the State Plans that important infrastructural facilities are created in different parts of the country for the development of agriculture and industry. In respect of most priority sectors of development, the programmes and dimensions of development are determined in the process of State Plan formulation.

We have already established quite a diverse and well developed framework of basic industries and infrastructural facilities. Lately, our agriculture has also started showing signs of rapid development and in its wake, considerable private as well as public investments are also being made to augment irrigation facilities and modernise cropping practices through the introduction of modern inputs and a diversified array of agricultural machinery and equipment. In spite of these positive developments it cannot be said that our economy has reached a stage of self-generating development. We are still engaged in a relentless race between economic development and growth of population. Unless our family planning programmes make a major break-through, we may soon find ourselves once again in great difficulties. We are also finding it necessary to do something urgently to meet the problems of unemployment and the sharpening of inter-regional and inter-class disparities. In addition, at this early stage of development, we are beginning to notice imbalances between the creation of productive potentials and capacities and our capability to utilise these gainfully and expeditiously. All things considered, we now seem to have reached a stage when *ad hoc* planning without appropriate techniques and procedures cannot

deliver the goods. The problems of today are too complex and too diversified to respond to general prescriptions and uniform solutions evolved through a fragmented process of sectoral planning.

Spatial Dimension

The unintegrated or fragmentary approach to planning has chiefly been the result of a lack of spatial dimension in Indian Planning. While making earlier plans, systematic efforts were not made to formulate the national plan through a hierarchy of integrated sub-regional or district or State Plans. During the Third Plan period some efforts were made in many States to rationalise the process of planning by preparation of village, block and district plans. While this did help in identifying some of the local problems, the exercise did not go far enough because of the absence of an integrated approach to planning at the State level. Programmes for various sectors continued to be conceived and aggregated by separate agencies whose activities were nowhere coordinated or synchronised in a systematic manner. The village, block and district plans were mere exercises in the identification and aggregation of demands and these, therefore, did not make any significant impact on the process of planning at the State level. The aggregates of individual demands emerging from these un-integrated exercises were so much greater than the available resources that the planners at the State level continued to evolve their priorities and programmes on the basis of their own assessment of the requirements of the State as a whole. This naturally resulted in the uniform application of development programmes all over the State irrespective of their suitability to local physico-geographical conditions. Performance of development schemes consequently left much to be desired and in many cases led to the accentuation of regional or sectoral imbalances.

When the work of the formulation of the Fourth Plan (1969-74) was

initiated, the States were requested to start the work of the formulation of their plans with a critical review of the economic and physical situation in order to assess the progress already made and also to identify the point at which each State stood, particularly with reference to the development of natural resources and infrastructure, and existence of regional or sectoral imbalances and the volume, distribution and diversification of employment opportunities. This was suggested to the States because of the feeling that without a review of the past experiences, it would be possible neither to identify local problems nor to determine the objectives and priorities which should underlie the plan and the measures which should be taken for increasing the functional efficiency of the administrative and institutional structure involved in the formulation or the implementation of development programmes.

In the approach to the Fourth Five Year Plan which set forth the national objectives and priorities which were to provide the overall framework for the Plans of the States, it was clarified that the objectives and dimension of growth envisaged in the Plans would not be realised unless steps were taken first of all to maximise the benefits from available irrigation, power and industrial potentials and also to ensure the early completion of continuing irrigation and power projects. It was further pointed out that the existing inter-regional imbalances and disparities could not be removed unless an integrated area approach was adopted to identify local potentials and priorities and programmes were taken up for the extension of facilities and services which would ensure the most effective utilisation of available resources.

Guidelines

In order to assist the States in preparing plans on the lines indicated above, guidelines were provided by the Planning Commission through a series of communications spelling out the



To help them reap better...
help them
sow better

We help them sow better by making better equipment possible like tractors that plough an acre an hour, bulldozers, scrapers, traxcavators, superphosphate plants. This is only the groundwork behind our efforts in making more food possible. We've been thinking of food from other angles as well. Like dairy, for instance. Leading dairies depend on us for complete dairy equipment. And that's not all. We also supply and install cattle feed plants, bulk handling equipment, refrigeration plants, bacon factories, slaughter house equipment...Our efforts in making more food possible are backed by collaborators like Caterpillar—people who move the earth; Chemiebau who are well known for the design and supply of chemical plants all over the world; Atlas—famous for refrigeration plants, bacon factories, slaughter house equipment; Niro Atomizer, Paasch and Sikeborg, Wright Hargreaves—manufacturers of dairy equipment, Buhler—designers of bulk handling and grain storage plants...

LARSEN & TOUBRO LIMITED
P.O. Box 278, Bombay 1

YOJANA November 29, 1970

YOJANA

Fortnightly Journal published in
English, Hindi, Assamese, Bengali
and Tamil on behalf of the
Planning Commission

Vol. XIV Nos. 22 & 23

November 29, 1970

Agrahayana 8, 1892

Yojana seeks to carry the
message of the Plan, but it is
not restricted to expressing
the official point of view.

Chief Editor

Saradindu Sanyal

Editor

Manmohan Dev Raturi

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Hameeduddin Mahmood

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Jasbir Batra

Staff Correspondent

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Rosscote Krishna Pillai

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Avinash R. Godbole

Photographic Officer

T. S. Nagarajan

Cover photo by T. S. Nagarajan shows
children at the Samalka Pre-School Centre.
Please see article on page 12.

Editorial Office : Yojana Bhavan,

Parliament Street, New Delhi-1

Tel : 383655, 381026, 387910

Telegraphic address : YOJANA,
New Delhi.

Business Office : Business Manager,

Publications Division, Patiala

House, New Delhi-1

Inland Subscription : Annual: Rs 7.50.

Two years: Rs 13. Three years:

Rs 18. Single copy: 40 paise

Foreign Subscription : One year: 15sh

or 2.50 U. S. dollars. Two years:

26 sh or 4.00 U.S. dollars. Three

years: 36 sh or 5.00 U.S. dollars

Single copy: 10d. or 15 U.S. cents.

LEST WE FORGET

Some of our youngmen think that they have discovered a new way of revolution. I would appeal to them always to keep the interests of the country before them. Slogan-mongering, vandalism, and sabotage would not help.

Jawahar Gandhi

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manner in which the suggestions made in the 'approach' would be concretised. The States were asked to formulate their own programmes on the basis of carefully identified hierarchy of sectoral and programme objectives derived from the analysis of the problems and potentials of various area units and communities. They were also encouraged to introduce into their plans such administrative and institutional innovations as could enhance the operational efficiency of development programmes.

To facilitate the introduction of spatial dimension in the process of planning under the Fourth Five Year Plan, the States have been allowed much greater initiative in the selection of schemes and programmes than hitherto. Till now the State Plans have been formulated, by and large, in terms of standard schemes which had been approved by the Central Ministries and the Planning Commission and which carried with them a pre-determined quantum of assistance in the shape of loans and grants. This did not leave much scope for the States for introducing innovations in the pattern either of programmes or the administrative and institutional structure. In their anxiety to maximise the accrual of Central assistance, particularly grants, States were liable to distort their own priorities and to take up for State-wise application standard schemes carrying a high percentage of Central assistance. By stipulating that Central assistance for the Fourth Plan would be allocated on definite objective criteria and not on the basis of types of schemes adopted, the way was cleared for the formulation of State Plans entirely on the basis of local priorities and local conditions.

The main objective of laying down certain objective criteria for the distribution of Central assistance pre-determining the grant and loan component of Central assistance is to reduce the uncertainties which have till now attended the process of fixing the size of the five-year and annual plans of the States. Central assistance now being a pre-determined quantity, the size of the States' plans will be dependent largely on the efforts of an individual State to marshal its own resources for plan programmes. It is expected that with the adoption of a completely new approach to the distribution of Central assistance, there

will be no difficulty for the States to adopt an area approach to planning and thereby to ensure that the nature and quantum of development effort in each region, district or sub-region would be determined by the needs of the area. It is expected that in due course the area planning approach will by itself take care of the special problems of the State, including the problem of inter-regional and inter-district imbalances.

Institutional Sector

An important aspect of local initiative for development programmes relates to the strengthening of the institutional sector. In the institutional sector the resources that would become available to an area do not depend entirely upon the decisions taken at the State or national level. The accrual of resources to different areas is also governed by the performance as well as the matching contributions raised by the institutions of the local area by way of deposits and share capital and recoveries of advances made earlier. In the Fourth Five Year Plan, the institutional sector will play a much greater part than had been the case in the earlier plans. For agriculture alone, the Finance Cooperative and Land Development institutions are expected to provide as much as Rs 1,015 crore during the Fourth Five Year Plan period.

From the foregoing paragraphs it must be clear that certain basic methodological and qualitative changes have been introduced in connection with the formulation of the Fourth Five Year Plan. Many of the measures suggested involve considerable preparatory work both at the State level as well as in the field. The exercises necessary for implementing these measures would necessarily take considerable time and for this reason the formulation of the State Plans will have to be looked upon as a continuing process in which there will always be scope for modification and elaboration from time to time. While the five-year plan provides a definite framework of developmental priorities, resources and availabilities, the specific schemes of plan implementation are expected to be enunciated in detail, in terms of their specific objectives and inter-relation with other schemes in the annual plans. The annual plan exercises are also expected to be utilised for the modification and

improvement of schemes in the light of operational experience of the past year.

It is expected that every State will undertake from time to time a careful analysis of its physical and regulatory policies and its administrative and institutional framework to ensure better coordination and greater efficiency in the implementation of the plan programmes. As institutional finance is to play a very significant part in the implementation of the plan, it is expected that due importance will be given to see that the viability and operational efficiency of cooperative organisations and administrative departments, which will channel these resources to the beneficiaries, are established. It will also be necessary to evolve appropriate procedures for the regular and systematic review of schemes on the basis of carefully identified quantitative and qualitative indicators. Without this it will not be possible to improve the performance of ongoing programmes from year to year and plan to plan.

TO OUR READERS

Due to unavoidable circumstances, there has been delay in the publication of this issue, No. 23, which also includes issue No. 22. We hope to resume normal publication soon.

INDIAN HANDICRAFTS MAKE HEADWAY IN EXPORT MARKET

INDIAN handicrafts in demand outside for their beauty and utility from ancient days, have re-emerged as an important foreign exchange earner in recent years. India's export earnings from handicrafts have increased fourfold from Rs 19.3 crore in 1961-62 to Rs 76.5 crore in 1968-69, and are expected to reach Rs 100 crore mark by the end of the Fourth Plan. Being one of India's six major export items, these have contributed 5.6 per cent of the country's total export earnings in 1968-69, as against 2.91 per cent in 1961-62.

Commoditywise, precious, semi-precious and synthetic stones and jewellery

constitute over 50 per cent of the handicraft exports, while woollen carpets, rugs and druggets account for another 15 to 18 per cent, followed by art metalware, hand-printed textiles, shawls, scarves, sarees and woodenware, and other minor items like pottery, antiques, paintings and artistic leather goods.

Countrywise, Belgium, the US and the UK are the major customers, importing 28 per cent, 17 per cent and 16 per cent of the exported handicrafts respectively during 1968-69. The share of the countries of European Economic Community have gone up from 30 per cent in 1967-68 to 39

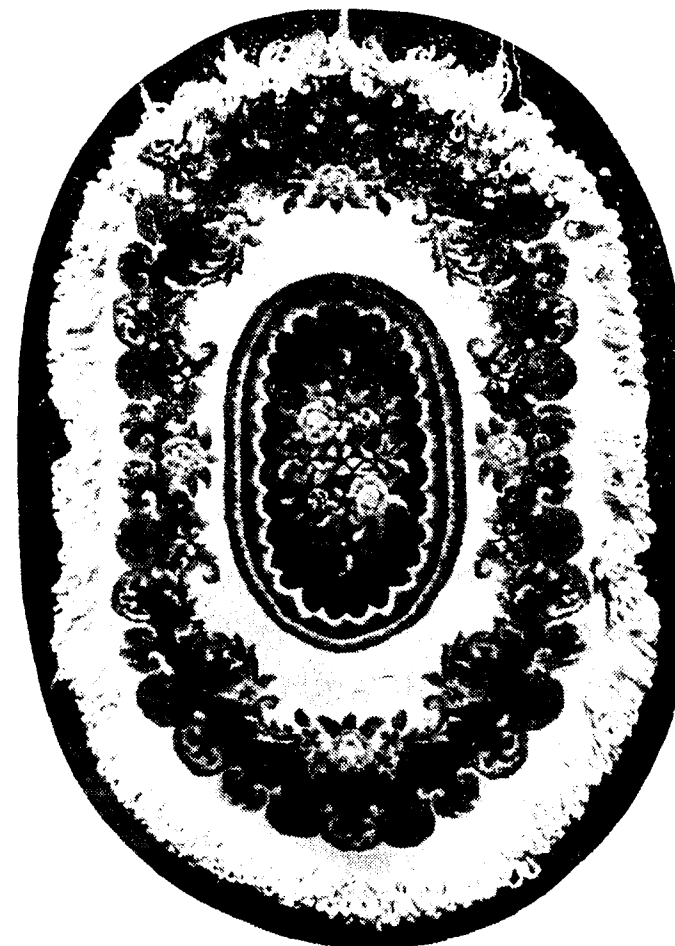
per cent in 1968-69, while that of Free Trade Area declined from 24 per cent to 18 per cent during the period. The exports to European Economic Community are likely to increase further as a result of the new policy of duty-free entry of certain Indian hand-made products worth \$ 5 million per year. Among other importers are Federal Republic of Germany, France, Canada and Japan.

Things of Beauty

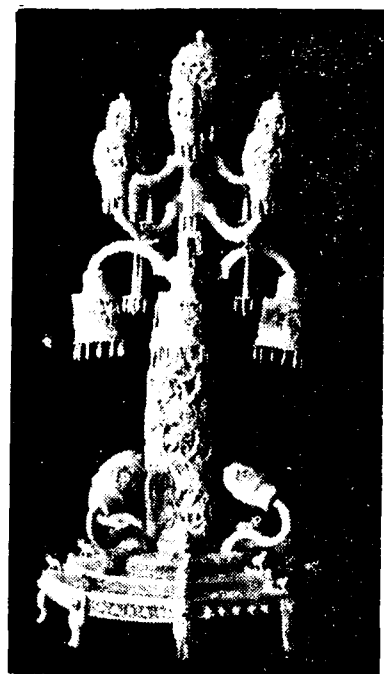
Revealing the innate skill and artistic taste of the traditional artisans, Indian handicrafts had been associated with different phases of history. These crafts and trades localised in specific centres had earned fame and economic prosperity for the areas concerned.

The brocades of Banaras and Murshidabad, the jewellery of Jaipur, the ivories of Mysore, the glazed pottery of Khurja, the glass-work of Ferozabad, the inlaid metalware of Moradabad and Hyderabad, the papier mache of Kashmir and numerous other handicrafts from different parts of India, have always been things of beauty and joy to the creators and the purchasers, and fetched handsome prices at home and abroad.

Silk and cotton goods, ornaments and jewellery, beautiful carvings in stones and ivory, had been shipped to far off countries in ancient days. Along with the beautiful things, the useful things made of bronze, copper, zinc, iron, gold, silver and other mix-



A woollen carpet with a floral motif. These carpets, along with rugs and druggets account for 15 to 18 percent of exports from handicrafts.



An exquisite piece of ivory carving, this lampstand is the work of craftsmen of Delhi.

ed metals, were also exported. The art metalware, the age-old important handicraft of India, has diversified tremendously in recent years, with Moradabad alone producing 2,000 varieties ranging from table tops, plates, lamps, lamp stands, bells, to kitchenware, knives, boxes and carving sets.

At present, the internal consumption of the art metalware goods stands at Rs 1,000 crore per year, while its exports reached a peak of Rs 5 crore during 1968-69.

As a whole, the handicrafts contribute over 14 per cent of the total share of the unorganised industrial sector in India's national income. In the beginning of the decade of the sixties, over 10.12 lakh people were employed in over 3.72 lakh handicraft establishments, which have multiplied considerably providing more jobs in recent years. The total gross output and the value added by manufacture have stepped up from Rs 250 crore and Rs

A craftsman with traditional skill is shaping *sola* into exquisite form. Handicrafts in India provide employment to millions of people like him.

Photographs : All India Handicrafts Board.

138.31 crore in 1961 to Rs 317 crore and Rs. 173 crore at the end of the Third Plan. The annual growth rate of these industries registered a steady increase of over 5 per cent during the Third Plan and after, against 3.8 per cent growth in the decade of fifties. Internal sales through increased number of handicrafts emporia have also gone up from Rs 2 crore in 1960-61 to Rs 4 crore at present, which is likely to reach Rs 10 crore mark by the end of the Fourth Plan.

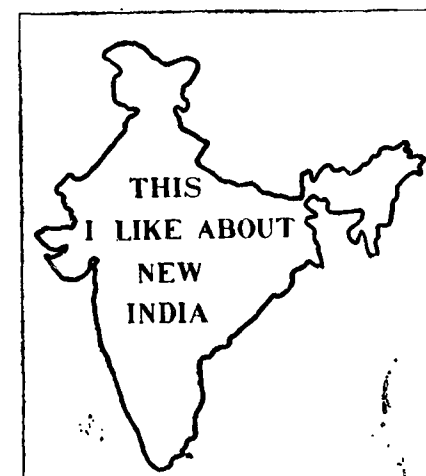
Schemes

Planwise, expenditure for development of handicrafts incurred by All India Handicrafts Board on Central Schemes, have gone up from Rs 25.87 crore in the First Plan, to Rs 209.29 crore in the Second Plan and Rs. 224.58 crore during the Third Plan, while the expenditure during 1966-67 to 1968-69 was around Rs 180 crore.

During the first three Plans, over 10,000 designs in 16 crafts were produced or restyled, over 4,000 people

were trained in different fields of handicrafts, and over 3,000 cooperatives were formed for the artisans. Improved tools, and equipment were evolved, craft surveys and quality markings were undertaken, and exhibitions were organised to give a better deal to these artisans. In the Fourth Plan programme for handicrafts, particular emphasis has been laid for quality improvement, supply of improved tools and designs, promotion of organised production, formation of cooperatives, preservation of skills and internal sales and exports. Special efforts would be made for developing selected crafts, which have an expanding demand in the export market.

For this, model centres would be set up for stimulating the growth of well-organised units in which new designs and improved tools would be used to produce quality handicrafts. Skills would be promoted further through provision of training facilities for young artisans under master craftsmen.



SRIDHAR AL GHAQ NEW SPIRIT AMONG YOUNG MEN

TALK about the youngmen these days and almost the first thing you hear is that they are, to the last one among them, irresponsible, inefficient and impossible. Everything about them is deplored, from their level of intelligence to their way of walking. But take the case of village, where the process of industrialisation is just starting. There are youngmen here who also go to school but who have to start earning soon after, not being able to afford higher education. They have their own ideals and aspirations and I will relate here the story of one such young man.

An engineer had been entrusted with an urgent work in a rather unhelpful surrounding. He reached the place with a couple of assistants. A few naked children came around at first and looked curiously at the machinery. Two elders from the village followed them. But all of them remained aloof. Suddenly, as if from nowhere, appeared a young man with a purposeful look in his eyes. With his engaging smile and easy manner it did not take him a minute to get friendly with the visitors and familiar with their project. He helped the engineer and his assistants set up the tent, install the equipment and prepare the test area. He disappeared for a while but came

back with a large earthen pitcher full of cold water and a few coconuts and insisted on serving them personally to the visitors.

Throughout the experiment that followed for the next few hours, he was unobtrusively around, doing a minor chore here and a small adjustment there, and generally following the experiment with undisguised admiration and interest. After his initial surprise, the engineer treated the young man practically as another assistant. As dusk fell, the experiment was successfully completed and the preparations for the return journey to Delhi began. They could only get his name—Balu. For all the help he had rendered, the wonderful spirit of friendliness he had displayed and his engaging smile, he could speak no Hindi and the visitors could speak no Tamil. But everything had gone along so merrily.

I was one among the visitors to that sun-dried place on the outskirts of Madras City that day. I can never forget the hours I spent in the company of Balu. There are many like him in our villages who are thrilled with the sense of their personal involvement in the country's progress. You will meet them, as I did, in the factories in outlying areas, in projects and work-sites. This new spirit among our young men is an extremely significant feature of New India. And this is what I like, nay love, about it.

NARENDRA AGGARWAL TRADITIONAL VALUES

As one belonging to the post-Independence generation, I am really proud of the fact that in the process of modernisation, we have retained our traditional values, morals and customs. This is what I like most about New India. Economic and material progress is very necessary for the health and well-being of a nation, but this is not all. Unless economic development is matched by cultural, religious and spiritual awakening and development, a person cannot be happy, relaxed or content.

Look at the crisis in Western society. Despite the general economic prosperity and the material affluence of the people, they are not happy.

The family is breaking up and time-honoured institutions like marriage have ceased to carry the old meaning. It is when one contrasts New India against this background that one is really proud of this country.

While New India has adapted a lot of western practices to local conditions, it has not forgotten its cultural heritage. It is in this that the strength of New India lies.

G. K. SHENOY MORE SCHOLARSHIPS FOR STUDENTS

In 1969-70, it was my proud privilege to distribute a total sum of Rs 50,000 as scholarship and freeship to the students of my college. Practically half the number of students received one scholarship or the other. This is a far cry from the situation some 20 years ago when scholarships and freeships were available to hardly a dozen or two. In fact, receiving a scholarship was then considered the privilege only of a scholar. College education was beyond the reach of average students. In my own part of the country, in South Kanara District of Mysore State, there are at least 25 colleges and institutions of higher education. Twenty years ago there were hardly four colleges in the entire district and going for post-graduate courses was possible only for a privileged few—the cream among the graduates.

SPECIAL CLOTHING FOR ANNAPURNA EXPEDITION

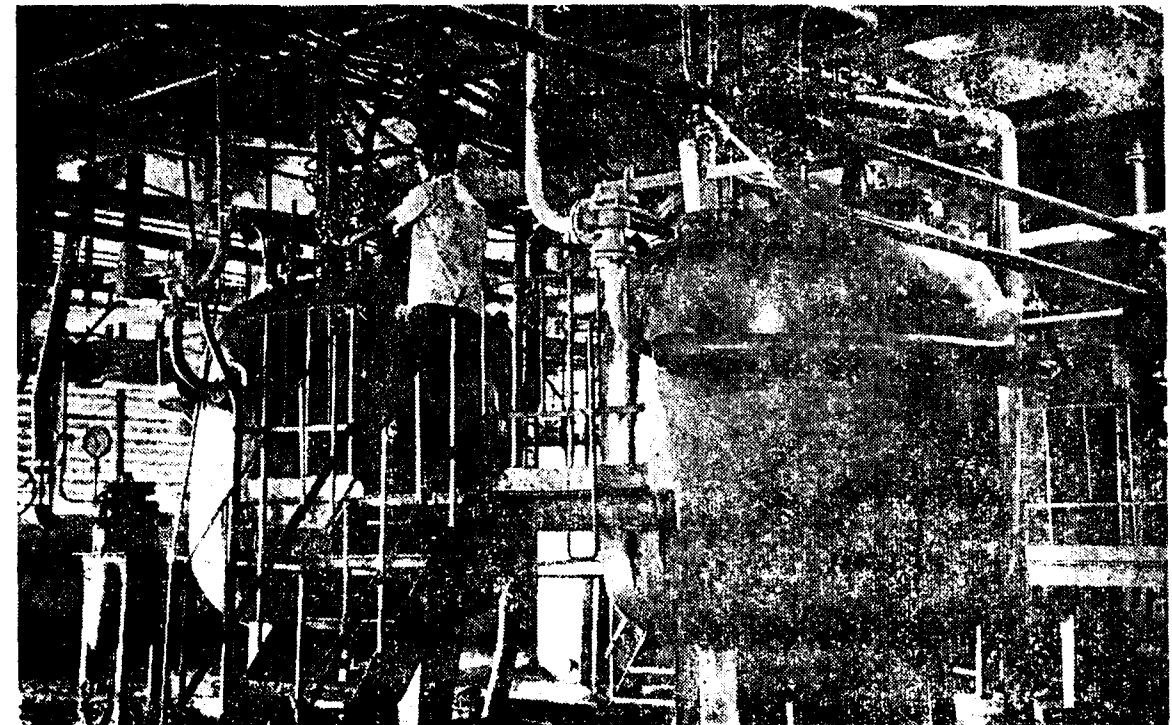
The light weight clothing, used by Chris Bonnington, leader of the successful Annapurna South Face Expedition, was made from Bri-Nylon Dunloprufe, Dunlopreme foam laminate and Borg deep-pile Terylene.

The clothing, designed to the requirements of Chris Bonnington had many interesting features. Most important was its lightness, which helped to combat fatigue—one of the chief dangers to the climbers, combined with warmth. The clothing was especially made by Dunlop (India) so that it did not restrict the wearers' movement from the lower slopes to the 26,545 ft. summit.



DRUGS FROM RISHIKESH

The Central Oil System, where oil is fed to the fermenters



*THE second public sector unit to be set Moderate Prices". With its products al-
up by the Indian Drugs and Pharmaceu ready in the market, the plant has begun to
icals Ltd., the Antibiotics Plant, Rishikesh, fulfil its basic tack. Diversification of pro-
aims to ensure the health of millions of duction has started and a greater use is
people by providing "Quality Drugs at being made of indigenous raw materials.*

TEXT : JASBIR BATRA

Photographs : B. S. Amar, Photo Division

WITH the mass population of the life-saving antibiotic drugs, the Indian Drug industry has come a long way from being mere "bottlers" and "formulators" of medicines. The history of this vast basic industry, since Independence has been almost brilliant. It all started with the establishment, between 1963 and 1968, of large-scale modern public sector medicinal plants by the Indian Drugs and Pharmaceuticals Ltd., in technical collaboration with the USSR. This included the commissioning, in 1968, of the Antibiotics Plant at Virbhadra, a few kilometres away from the holy town of Rishikesh (U.P.), well-known through ages for its preparation of excellent ayurvedic medicines and as a centre of spiritual healing. The Russians gave valuable help by providing designs, equipment, and training to the technical personnel for the plant. Best use was also made of the talent, experience and capacity available in the country.

The Rishikesh Plant, which is the biggest in Asia, is now producing six different types of antibiotics which are comparable with the best-available brands in the world.

Built at a cost Rs 25 crore on a 363.6 hectare plot on the bank of the river Ganga, the Plant has been designed to produce 290 tonnes of antibiotics, equivalent to one billion vials, capsules and tablets a year. This is expected to be sufficient to meet the public demand for antibiotics at moderate prices. However, the Plant itself is a flexible chemical complex, which can be adjusted within reasonable limits to the requirements of time and new discoveries.

It is now more than three years since the Plant started initial production in May 25, 1967. The first product to be produced at the plant was potassium penicillin salt. Production of

streptomycin started in January 1968 and sterile powder was taken out two months later in March 1968. Conversion of potassium penicillin salt into sodium and procaine salts was taken up in May 1968, and of tetracycline soon after.

The Plant has four main sections of production for processing its products. While fermentation process is carried out in one section, recovery and purification of the fermented products is done in the second. The third section is meant for sterile finishing and the fourth houses the ancillary mechanical and electrical services.

The Antibiotics Plant has its own well-equipped Research and Development Laboratory, with a modern pilot plant. It has also a well-equipped animal house and other analytical laboratories.

In spite of the teething troubles, the Plant produced 12 tonnes of antibiotics in the very first year of its production i.e. in 1968-69. Since then production has been steadily rising. During December 1969, nearly Rs 25 lakh worth of antibiotics were produced. The monthly production target for 1970 and 1971 has been fixed at Rs 50 lakh and Rs one crore respectively. The plant is expected to produce 200 tonnes of antibiotics worth Rs 12 crore by the end of 1971.

The drugs produced at the Rishikesh Plant are already being sold both in the home market and abroad. The Indian Drugs and Pharmaceuticals Ltd. has made major contracts for the internal as well as the foreign sale of its products. The first bulk consignment of sodium and for-

Scientists testing the clarity of the final product



tified penicillin was shipped to Yugoslavia on February 3, 1969 barely two years after its commencement of production.

The main task before a drug plant in the early years is the stabilisation of production. Normally it takes two years to master the technique in order to obtain the required efficiency of production. The Rishikesh Plant also faced some difficulties in this direction in the beginning. Its manufactured material could not pass the strict quality control tests. The chief problem was that clarity in respect of its sterile products could not be maintained for long.

With the assistance of Soviet experts, the Plant has, however, been able to overcome this difficulty. At present it has achieved stabilisation of production in four products, namely, procaine penicillin, sodium penicillin, streptomycin and tetracycline.

The Plant has set itself very high standards of quality, so much so that the antibiotics mar-



A lady worker of the plant inspects the filled vials before packing

keted by it pass standards which are even higher than those laid down by the Indian Pharmacopoeia. This is especially true of the streptomycin manufactured by it which has less toxicity than what is allowed under the Indian Pharmacopoeia. Because of these high standards, the Plant authorities have had to reject a high percentage of their products. This, however, they do not mind as it ensures maintenance of high quality at all times.



Microscopic examination of the seed at the Penicillin Seed Laboratory

The chief aims with which the Plant was started were: (1) to reduce dependence on foreign markets by increased domestic production of quality antibiotics and (2) to lower the cost of these to an extent that they come within the reach of the common man, i.e. to provide "Quality Drugs at Lower Costs".

Name of Product	Annual capacity (in tonnes)
1. Penicillin Potassium	
(a) Sodium Salt of Penicillin	30
(b) Procaine Salt of Penicillin	45
2. Streptomycin Sulphate	70
3. Dihydrostreptomycin Sulphate	15
4. Tetracycline	25
5. Oxytetracycline	75
6. Chlortetracycline	70
7. Nystatin	10

The results achieved by the Plant authorities in this direction are very encouraging. They have not only succeeded in steadily raising the rate of production, but have also been able to cut down the cost of production by increasing the yields of drugs from basic cultures, by introducing cheaper raw materials in place of costly imported raw materials, by the utilisation of bye-products and wastes and by the introduction of improved and modified production processes. For example, the scientists engaged at the Rishikesh Plant have discovered a variety of soyabeans, which is a very good substitute for the imported soyabean powder. These are now being grown in the country and their use has reduced the cost of production of streptomycin by nearly 50 per cent. The scientists have also successfully substituted cane sugar for imported lactose and a demulsifying agent by an indigenously available compound. The cost of production of penicillin in the last one year has been reduced by one-third.

Not only this, the Plant has also been instrumental in reducing the market prices of drugs like tetracycline and oxytetracycline from Re 1 and Rs 1.50 per capsule to 80 paise per capsule. By providing an alternative source of supply, it has compelled many private drug companies to reduce their prices. This has to some extent reduced the fleecing of Indian customers by foreign drug companies.

An important task in which the Plant authorities are at present engaged is in the adjustment of product mix to the prevalent demand pattern of antibiotics. The dihydrostreptomycin capacity is being diverted to increase the production capacity of streptomycin to 85 tonnes. The reason for this diversion is that whereas dihydrostreptomycin has been found to be toxic and of little use, the quantity of streptomycin available in the country is inadequate for tuberculosis treatment. The Plant is also preparing to cut down the capacity of the tetracycline group of antibiotics, especially chlortetracycline.



Taking samples from the feed vessel for testing sterility

At the same time, the researchers at the Plant are busy developing new antibiotics, not planned earlier, so as to create conditions for fuller utilisation of the Plant. Very soon the Plant intends to take up the production of a new antibiotic called Grisefulin, with the help of the USSR who have agreed to provide the requisite know-how and technology.



THE PRE-SCHOOL CENTRE AT SAMALKA

An Experiment in Social Action

SAMALKA, a small hamlet near Delhi, boasts of a pionerring experiment in social action. At a newly opened pre-school centre, about 50 children between 2 to 5 years of age are under the charge of two to three young and enthusiastic teachers. The school has been opened and is financed entirely by the local people and the teachers are also local girls.

MINA SWAMINATHAN

Samalka is not an exceptional village, however. Most of the villagers are small farmers and workers. The women have to tend cattle and look after the field and home. Majority of them have not received even primary education and few villagers have gone for higher education. The pre-school

children used to play in the dust most of the day and nobody bothered about their education. Into this situation a chance meeting brought the workers of the Nehru Experimental Centre, an organisation which runs a community-sponsored nursery school for children from all kinds of homes. They could convince the young men of the village of the benefits of pre-



The village Pradhan, who has stood solidly behind the experiment

school. A meeting was called with the village *pradhan* and more informal meetings followed.

The villagers started thinking in terms of having their own community pre-school centre. However, this posed several problems. The workers from the Centre offered to train a few educated girls from that village and help them set up the school. The village *chaupal* could be the venue of the Centre. The biggest problem, however, was that of collection of funds. It was calculated that about Rs 1,000 should be raised as a starting fund which would enable the school to run for about a year. If the project continued, then other sources, such as Government Departments, would be approached. Meanwhile several girls who had completed their High School education and one trained teacher in the village were willing to work for

very modest payment. So the project was taken up.

A committee was formed to look after the collection of funds, and door-to-door campaign for fund collection started. It was agreed that everyone should be asked to contribute. At this juncture the scheme faced some opposition but the villagers decided to take up the challenge and start the Centre during the summer vacation. A quick recruitment drive located six girls who agreed to be trained, and it was also decided that the training of the teachers and running of the school would continue simultaneously.

On a blazing hot morning in May the workers of the Nehru Experimental Centre arrived in the village, wondering if the pupils and teachers would turn up. The Pre-school started with three potential teachers and fifteen children, and by the end of the week there was a regular attendance

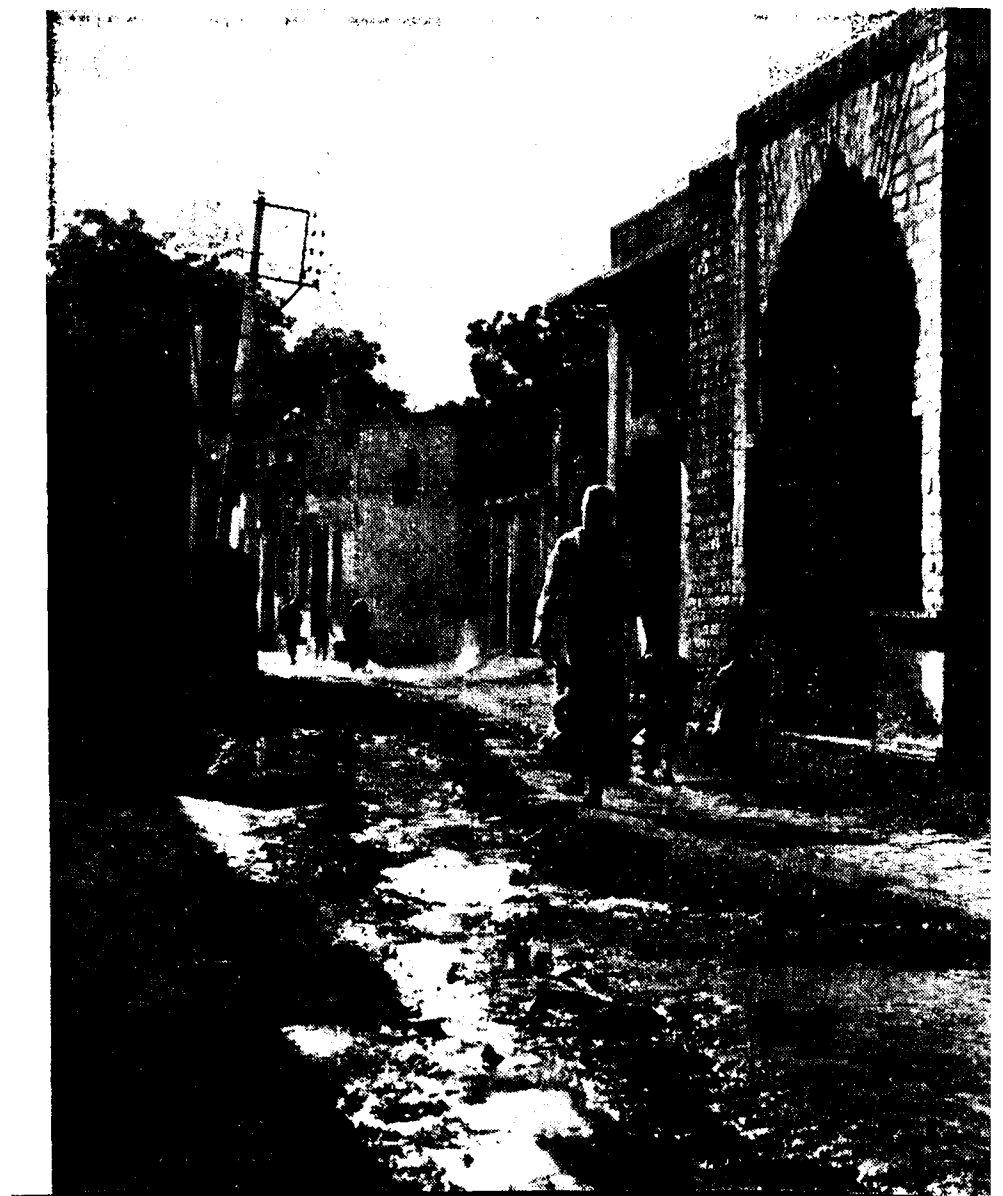
of about 25 pre-school children between 2 to 5 years of age. After two and a half hours of work the school would close and then the workers of the Centre and the three teacher-trainees would sit together for an hour or more, making and repairing equipment, planning activities for the next day and discussing programmes.

THE PROBLEMS

However, another problem remained. The education of little children is largely dependent on availability of educational materials and tools. The teachers and workers of the Centre themselves made some equipment, using paper, cardboard, rags, glue, wool and waste materials; toys and articles were also donated by interested people, while all kinds of household goods and other ordinary things were used resourcefully. Some essential items, of course, had to be purchased out of the meagre funds.

Photographs by T. S. Nagarajan

Samalka's main street. The village needs sanitation as much as education



The problems of limited space, replacement of equipment and human limitations on the part of the teachers with such short training were also there. Above all, the problem of inadequate resources continued to be a big handicap; especially when the unit could not collect funds from outside agencies.

In spite of these difficulties the school has come to stay. Attendance is growing slowly but steadily. Six of the 40 children belong to the small Harijan community in the village. The attitude of the people to pre-school education is also changing.

GROWING ACTIVITIES

Activities are growing around the pre-school centre. Once a week, one of the families provides snacks to the children. The villagers are becoming increasingly aware of the need for a programme of providing nutritious food to the children. There are plans to get milk powder from one of the main distribution agencies and to give a simple school meal daily.

Simultaneously, lots of other developments are taking place. A women's club or mothers' club is growing around the school. Once a week the mothers get together on the occasion of devotional singing, where the workers meet the ladies informally. At every meeting, a useful half-hour session of demonstration or a film show on hygiene or child care, a talk or a discussion are organised. It is planned to use this forum for regular demonstrations and classes on better nutrition.

A programme like this needs team work and cooperation not only at the village level but at all levels. Educational experts, Community Development Block workers, social workers, nutrition experts, doctors and health workers, social education workers and others are slowly becoming more involved in building up a network of activities and services around the pre-school centre.

This is the beginning of the application of self-help in the neglected area of pre-school education. But this experiment also holds out the hope that the idea of self-help will spread to other areas and usher a new era of social action.

77,000 VILLAGES ELECTRIFIED

A. P. SEETHAPATHY

THE Rural Electrification Programme has been growing in importance from Plan to Plan. Twenty-five years ago, power generation in the country was so small that it was not enough even to meet the demands of the urban population concentrated in a handful of large cities and of the industries around them. However, States like Madras, Mysore, Kerala and Punjab had laid some emphasis on rural electrification even before the forties. But they could hardly cover any ground.

Since the introduction of planned development in the country, rural electrification has been appreciated as a real necessity for the masses. Availability of power in rural areas ensures augmentation of food production, employment and rise in living standards of the people. Mechanisation of water supply by replacing animal power with pumpsets results in radical changes in the economy of the countryside. Rural electrification has changed the face of the entire countryside leading to many social and cultural changes. It has removed drudgery, offered some amenities of life, afforded the rural population with more and better jobs and given them opportunities of gainful employment during the lean periods of agricultural operations.

Emphasis on mechanisation of pumpsets has given spur to rural electrification. With the incidental benefits of extending power available for irrigation pumpsets to nearby villages, it has been possible to cover the power needs of a large number of villages as well.

The progress of rural electrification was insignificant before Independence. Hardly 1,500 places, having less than 10,000 population, had the benefit of electric supply in 1947. Over the last 25 years the needs of some 77,000 villages have been covered. But the Herculean task of covering 5,67,000 villages has yet to be accomplished. However, the proportion of the total population so far benefited is as high as 40 per cent. The number of villages covered under the scheme rose

from 1,500 in December 1947 to 69,991 in December 1969.

Power supply increase to irrigation pumpsets during the same period has been equally phenomenal with the service connections rising from hardly 6,000 in 1947 to over one million at present. During the Fourth Plan, 1.25 million more pumpsets are planned to be connected up.

To promote rural electrification and spur consumer participation, five pilot rural electric cooperatives, one each in Andhra Pradesh, Gujarat, Maharashtra, Mysore and Uttar Pradesh, are being started. The objective is to help rural people to share the power judiciously among themselves. Small industries will be set up to provide gainful employment to these people.

Considerable work has been done for increasing the availability of wood poles from indigenous sources. Special designs for the use of jointed poles using two smaller lengths, have also been evolved. In order to avoid deterioration of wood poles buried underground, designs for composite poles have been developed. Of late prestressed concrete and re-inforced concrete cement supports are being used increasingly.

Wherever possible aluminium has replaced copper and there is a programme of change-over to reduce copper still further. Besides, in overhead conductors aluminium has replaced copper in insulated service cables and underground cables and is expected to replace windings in distribution transformers.

A Rural Electrification Corporation with an outlay of Rs 45 crore by the Government of India and Rs. 105 crore by the USAID has been set up in the public sector to finance selected rural electrification schemes in various States. These resources would be able to provide enough money for energising about five lakh irrigation pumpsets.

REPORT ON THE SECOND SESSION OF THE

FAO CONSULTATIVE COMMITTEE ON TEA

TEA IN TURMOIL

HAMEEDUDDIN MAHMOOD

THE proverbial tea cup turmoil now seems to engulf the entire tea trade, turning the globe into a cauldron in which the tea-producing countries are the brewries of an impending crisis. Undeniably though the world consumption of tea has been slowly growing, the tea trade has suffered steady price erosion, touching its nadir in 1969. In the London auctions, the tea prices fell continuously from 134 pence per kilogram in 1954-56 to 97 pence per kilogram in 1969. In the US, the slump during the same period was from 130 cents to 83 cents per kilogram. The economic significance of this price deterioration lies in the fact that tea is a tropical product grown only in developing countries. It is also their major foreign exchange earner being a major item in their exports.

The situation has shades of an economic tug-of-war with the tea-exporting developing nations, receiving an ever declining price for their produce while at the same time paying ever increasingly more for importing, from developed countries, manufactured goods, capital goods and industrial raw materials. No other commodity in world trade is so much exposed to speculation and wide price fluctuations as tea. The worst sufferers of this declining trend have been India and Ceylon, each one of whom accounts for 33.5 per cent of the total world tea exports, valued last year roughly at 500 million US dollars. The steady decline in tea prices in world markets forced the tea-exporting countries to hold back 90 million kgs. of tea from the world market in 1970—only to halt further erosion in prices. Though a self-control measure, this indicates the magnitude of the sacrifices tea-producers have had to make in the face of such heavy odds as cut in prices, keen competition from other beverages, especially coffee, heavy internal taxes and customs duties in some countries and a comparatively low level of per caput consumption in others.

— The tea plantation came to India in 1830. These plantations now cover 335,000 hectares with an average annual production of about 400 million kilograms.

— Tea is one of the biggest foreign exchange earners, accounting for 12.7 per cent of India's total exports. Sharing 33.5 per cent of the world's total tea imports, India earned Rs 1302.7 million in 1969 from its tea exports of 176.7 million kilograms. However, the peak export performance was in 1967 when 213.7 million kgs of Indian tea netted Rs 1890.4 million in foreign exchange.

— In 1964, the Indian Tea Board was set up to promote tea drinking habits in India and abroad, to help overseas buyers of tea with necessary services and also to help the development of the industry.

— For uni-national promotion of Indian tea, the Board maintains offices in London (to serve the U K and Ireland), Cairo (to cover Arab countries), Sydney (for Australia, New Zealand and Fiji), New York (covering the U S and Canada) and Brussels (to serve West Europe).

In addition, it contributes substantially to Tea Councils in eight countries. In 1969-70, the Board contributed £158,000, over one-fourth of the total campaign funds of the U K Tea Council.

— India is also exporting sophisticated tea-making machinery.

in their exports by securing "stable, remunerative and equitable prices to increase their foreign exchange earnings to desired levels."

The existing pattern of world trade is somewhat disharmonious. In the developed countries where "tea prices are not inflated by heavy taxes and customs duties", the need for tea promotion is the maximum for the stiff

competition this beverage faces from other drinks. In other countries where there is high incidence of customs duties and other internal taxes, demand for marginal tax reductions would not serve any purpose unless backed by increased intake of tea. Though Japan has curtailed import duties from 35 to 20 per cent in May this year, the tea tradition of Japanese culture is in danger of being inundated by coffee, whose consumption, totalling 60,000 tons, has registered a 25% rise in demand. The Soviet Union, having one of the lowest per caput tea consumption—300 gms per year—does not appear to offer the prospect of any spectacular increase due to state purchasing in tea and high retail prices. Russia's tea imports (11,000 tons in 1961-63) improved only by another thousand tons in 1969, whereas the rise in coffee imports during the same period was 20 per cent. The retail price of tea in the Soviet Union is as high as 1.11 rouble per kilogram of ordinary tea and 9.6 roubles for a superior variety. The per caput tea consumption in Russia's two neighbours, Turkey and Iran, is much higher at 480 gms and 960 gms per year respectively. The East European countries stepped up their tea imports only from 7,000 tons in 1961-63 to 15,000 tons in 1969. While the per caput tea consumption in East Germany was 100 gms per year, the same in West Germany has been steadily increasing. In 1967, West Germany imported Rs 4.1 crore worth of Indian tea. This had increased to Rs 5.1 crore in 1968. Barring Poland (per caput consumption: 250 gms per year), per caput tea intake in other East European countries is as low as 50 gms per year. And again, it is coffee which has registered a marked rise in per caput consumption, the total imports being 1,11,000 tons in 1968. The per caput tea consumption in developing countries which import tea has increased only by .7 per cent over the years. Their total population being 322 million, increasing at the rate of about 10 million every year, their tea intake has been comparatively low i.e. 1,45,000 tonnes between 1967 and 1969.

In this atmosphere of continuing gloom the Second FAO Consultative Committee on Tea met in New Delhi from November 30 through December 5, 1970. Over 100 delegates from 15 exporting countries, accounting for 95

per cent of the world's tea exports, and 14 importing countries, which account for 80 per cent of world tea imports, participated in the weeklong deliberations. They were assisted by two conciliators, appointed by the FAO in consultation with the UNCTAD, to extend the area of agreement and narrow down the area of differences among the exporting and importing countries. As its terms of reference, the Committee had to discuss all problems connected with tea, to review short-term and long-term developments in production and consumption, trends in trade, prices and consumer preferences, to study market structures, promote tea consumption, improve international tea statistics and to draft further international action on tea.

India made an impassioned plea at the meeting for identifying market potential, formulating and implementing suitable promotional strategy designed to spread tea drinking habits. She asked affluent countries to make effective contribution so that the world could move away from the period of mutual recrimination to a period of constructive cooperation in the Second Development Decade. India's Minister for Foreign Trade, Mr L. N. Misra appealed to the participants from importing countries to ensure that "the cup that cheers them also brings cheer to those who have laboured to produce the tea in it". The appeal was largely heeded.

According to econometric analysis, the outlook in tea trade will brighten up in 1971 securing an expected rise of 10,000 tonnes per year in tea consumption in importing countries. To shore up the price lag, the short-term arrangements evolved in 1970 will be continued in the next year. Periodical statistical reports on tea production and consumption will also start appearing from that year.

The Meeting secured agreement on the following points:

- * The global export quota of black tea in 1971 should be maintained at the same level as agreed in connection with the *ad hoc* arrangement for 1970, with provision for a review meeting early in 1971, at which time additional export quotas, not to exceed 10,000 tonnes, would be allotted, if justified by market situation.

- * The representatives of exporting countries reaffirmed the consensus reached at the Mauritius Meeting that they should ensure that over the longer term the increase in export supply should match the increase in world import demand so as to achieve and maintain a remunerative and equitable level of prices.

- * The importing countries reaffirming their willingness to cooperate in the solution of the problems of tea economy, requested that they should be informed as early as possible of the decisions reached by the exporting countries, particularly with regard to the individual country quotas. If regulation was to be done on an April-March basis, a review should take place about November while, if regulation was to continue on a calendar year basis, the review should be held in September.

- * The meeting agreed that work on promoting tea consumption and on the negotiation of an export agreement must go on side by side. It was necessary also to discuss with the Governments of the importing countries which have high taxes and duties on tea. The meeting, therefore, established a Standing Group on Promotion:

to study ways and means of promoting the consumption of tea in general to examine the potentialities of various markets and suggest priorities for the allocation of promotional funds; and to keep under review promotional matters generally and in individual countries.

- * Both importing and exporting countries agreed to work together to achieve effective long-term measures for tea. The representatives of importing countries agreed to consider the way in which they could support the efforts of the exporting countries, aimed at achieving a remunerative level of tea prices, in the interim period during which appropriate long-term measures were being worked out.

Till the long-term strategy is evolved, the Second Session of the FAO Consultative Committee, which should meet again in spring next year, has been able to set about an holding operation which should bring at least some cheer to tea producing countries.

Custom Service to Popularise MECHANISED CULTIVATION

DIPAK B. R. CHAUDHURI

A new concept in agricultural operation is to make a mechanised fleet of agriculture service units available to farmers in their fields. The increasing requirements of land preparation in the common areas of major irrigation projects and other dry and irrigated areas have brought to the fore the need for organising such Custom Service units.

The breakthrough from traditional agriculture to scientific agriculture is undoubtedly not easy. During the past year, there has been a steady increase in investments by farmers themselves in works such as minor irrigation and mechanisation of agricultural operations. The Custom Service has been designed to help small farmers who cannot invest money in acquiring expensive tractors and other modern agricultural equipments. In many agricultural areas like Punjab and Tamilnadu timely agricultural operations have been hampered due to non-availability of labour and inadequacy of bullock-power. Quite a large number of small farmers cannot afford to maintain bullocks. The use of tractors and other machinery in such cases will not only be economical but also result in better yields.

The Union Government scheme for Custom Service envisages several types of agencies like banks, co-operative societies, affluent farmers etc. to organise such mechanised agricultural assistance. The public sector State Farms Corporation of India is gradually diversifying its activities which include undertaking custom work on behalf of private parties and other governmental organisations. The SFCI is the pioneer organisation to turn the concept of Custom Service into something of practical use having immense possibilities.

During this year, the mechanised fleet of the Corporation based at Jullundur helped a number of big and small farmers in levelling land, harvesting etc. The Suratgarh farm has popularised the use of tractors and agro-machinery in the Ganganagar

area and many progressive farmers are hiring such machines from the State farms. In and around the Hissar farm of the SFCI, the Custom Service is attracting good business.

The SFCI was recently commissioned by the Cattle Farm at Chip-lima, Orissa, to carry out land levelling work on the farm and the work is worth about Rs 6 lakh. The SFCI farm at Raichur is also providing such Custom Service to farmers in Mysore State. The Maharashtra Government and the Tripura Administration have also shown interest in hiring the Custom Service.

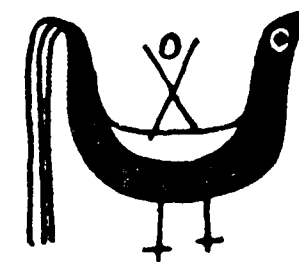
The Custom Service provides ways and means of securing the best and maximum utilisation of the machinery at the disposal of the State farms. The pioneering Custom Service units of the Corporation also help popularisation of mechanised cultivation. Moreover, this also brings additional revenue.

OIL INDIA WELL STRIKES HYDROCARBONS

Oil India's exploration well No. 14, in Kusijan, Assam, which reached its objective depth in a record time last August, has yielded gas, good quality crude and a modest sprinkling of hydro-carbons. The daily output is expected to be about 280 barrels of good quality crude and 3.7 million cubic feet of gas.

In its exploration area, the Company has already completed 14 wells at a cost of over Rs 6 crore. Six more exploration wells are to be drilled to complete the exploration programme during the Fourth Plan period.

The Company, exploiting a 510 sq. mile area has so far produced 18 million tonnes of crude oil, thereby effecting a saving of Rs 170 crore in foreign exchange.



QUOTATION BOX

It is as futile to expect clean elections as it is to expect nuclear powers to manufacture "clean" bombs.

—From the 'Southern Economist'

I realise, I have become a weeping philosopher.

—C. Rajagopalachari

Those who want a revolution of blood want it at the expense of the blood of the other person—not their own.

—From an editorial in 'Himmat'

The only crime of the Government is that it governs. The unpardonable sin of the supreme power is that it is supreme.

—Samuel Carter quoted in the 'New Statesman'

In Australia, a friend tells us a business concern owns a private aircraft which is flown at need by an employee who is normally a truck driver, and who gets 25% extra when doubling as aviator. Yet, when recommended for local emulation, this gives us pause. Bloody-minded as the Indian Airlines pilots may be, the prospect of being flown from Delhi to Calcutta by a DTU bus driver even if given 25% extra, is not exactly reassuring.

—From the 'Statesman'

I now live like a hermit on the outskirts of Moscow. I communicate only with those who guard me from others—and who guard others from me.

—Nikita Khrushchev

The President proposes, the Supreme Court disposes.

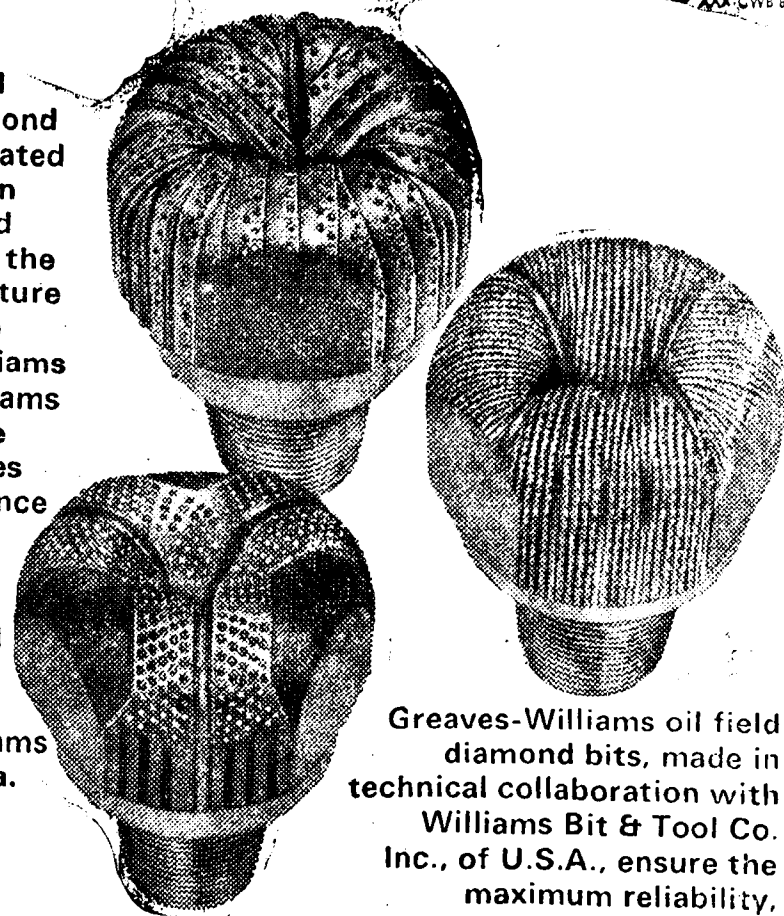
—From an editorial in 'The Times of India'

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TOTAL RURAL INDUSTRIALISATION

IN 25 YEARS

PRATIMA GHOSH

[The tenth meeting of the Rural Industries Planning Committee, held in New Delhi recently, reviewed the working and progress of the Rural Industries Project Programme, launched 8 years ago, and outlined future schemes of rural industrialisation. An exhibition of products from over 30 Rural Industries Projects from all over the country was also held on the occasion.]

THE Rural Industries Projects are playing a pivotal role in the development of rural India, and a broad-based perspective plan for extending the projects over wider areas, during the successive Plan periods, will pave the way for total rural industrialisation in 25 years.

The development of the rural sector requires enlarging development opportunities, raising income and standard of living of the rural people, diversification of the village economy, reducing exodus to urban centres, eliminating regional economic imbalances, reducing inequalities in wealth and income and securing social justice. With these broad objective in view, the Rural Industries Projects Programme was launched under a Central scheme in 45 selected areas all over India in 1962-63. Four more areas near Ranchi, Bhilai, Durgapur and Bhadravati were included later in 1965. The scheme, initially designed to help the rural artisans improve their production techniques and to assist new entrepreneurs set up their units, fostered the growth of small-scale industries in the industrially backward regions, diversified the structure of the traditional village economies, increased production and generated employment opportunities for the local people.

At present, about 34,073 villages with a total area of 158,982 sq. kms are under the Rural Industries Projects Programme. On an average each project area covers 3 to 5 Community Development Blocks, serving a population of 3 to 5 lakhs while in six specific areas the coverage extends to the entire district.

The number of industrial units assisted under the scheme has snowballed to 28,851 in 1969-70 from 3,033 in 1964-65. Out of these the number of new units helped has cumulatively gone up from 1458 in 1964-65 to 13,198 in 1969-70, while the number of existing units assisted for expanding their production capacity increased tenfold—from 1575 to 15,653 during the period.

These industries, primarily based on local raw materials, local needs and available skills changed the face of the rural economy in these specific pockets. Their products range from the traditional consumer goods like

leather and footwear, wood-products, ceramics, clay, glass items, textiles, building materials, to non-traditional commodities like bicycles and sewing machines, transistor and radio sets, plastics goods and thermometers, sophisticated agricultural implements and machinery, engineering goods, chemicals and electrical goods. In the wake of the green revolution, the agro-industries, including a number of agricultural input-producing industries, and agricultural processing units such as rice hullers and shellars, khandasari units, oil mills and food preservation units have come up in rural areas. One significant point to note is that out of these industries about 28 per cent using power and modern technology claimed a lion's share of 56 per cent of total financial assistance, accounted for 67 per cent of the total investment, contributed 52.2 per cent of the gross value of production and generated 43 per cent of the employment opportunities.

The cumulative value of production of these units totals Rs 35.92 crore. Yearwise, the contribution of these industries has increased from Rs 88.70 lakh in 1964-65 to Rs 7 crore in 1967-68 and to Rs 10.12 crore in 1969-70, registering a 12-fold increase in 8 years.

The most remarkable achievement of the Rural Industries Projects Programme is the creation of more employment opportunities for the rural people. This has lessened the pressure of population on land to some extent by diverting the surplus

unproductive agricultural labour to productive occupations, and has thus succeeded in a limited way to solve the problems of rural unemployment and disguised unemployment. The cumulative number of persons employed in different village industries has gone up from 32,090 in 1964-65 to 1,15,625 in 1969-70.

The implementation aspect of the Rural Industries Projects Programme reveals that since the inception of the programme the volume of expenditure has gone up from Rs 2.56 lakh in 1962-63 to Rs 12.88 crore in 1969-70. Out of this, grants contributed Rs 6.14 crore while Rs 6.74 crore were in loans. Planwise, the expenditure during the 3rd Plan came to Rs 4.79 crore and rose to Rs 6.45 crore in the subsequent 3 years. Out of the 4th Plan provision of Rs 4.5 crore for the projects, the expenditure during the first year of the Plan was anticipated to be Rs 1.34 crore while the budget provision for the second year is Rs 1.15 crore.

Training

The provision of training facilities for the artisans is another important facet of the programme. This aims at increasing the productive capacity of hereditary artisans by improving their skills and imparting skill to the new entrants. Since the inception of the programme about 428 training schemes covering 47 trades provided training to over 35,000 people, while the number of training centres increased from 261 to 342 during 1964-65 to 1969-70. The projects under the scheme covered pottery, coir, tanning, leather goods, engineering works, electroplating, plastic goods, fruit processing, agricultural implements, carpentry, bell-metal works, dyeing and printing. The training in the use of improved technology has enabled the artisans to increase their income by 200 per cent to 300 per cent.

Another important aspect of the programme is the provision of common facility services, which provide assistance in respect of machines and operations which help to convert semi-manufactured articles into finished products. This programme started with 161 services covering a wide range of industries. During the 4th

Plan, owing to a financial cut, the number of centres has declined to 121. The number of units assisted, however, has gone up from 1487 in 1964-65 to 19,885 in 1969-70.

The broad-based industrial extension service along with facilities of technical advice, and preparation of project reports, are also being made available to the small rural units.

Qualitatively, specific emphasis is being laid on the adoption of modern technology, and an appropriate technology cell is likely to be set up to study this problem and to ensure the availability of new processes and techniques to the development of rural industries.

Financing Rural Projects

The investment aspect of the programme shows that the total new investment in 28,851 industrial units stands at Rs 13.46 crore, out of which loans advanced from projects funds is Rs 6.74 crore, while Rs 2.30 crore have been supplied by banks, the remaining Rs 4.42 crore were contributed by the entrepreneurs themselves.

With the cut in outlay for the projects loan assistance to the states for providing credit facilities to these units has been reduced from Rs 120 lakh in 1968-69 to Rs 25 lakh in 1969-70. However, the State Bank of India has come in a big way to assist these industries. Under a special liberalised scheme of the Bank, credit facilities on easy terms are available in 49 project areas to the extent of Rs 5,000. Under the scheme, during the last 8 months, over 3,000 units have received around Rs 75 lakh, which is expected to go up to Rs 1.50 crore at the end of the year.

Future Programmes

A review of all these aspects of the programme and satisfactory progress during the last eight years calls for streamlining of the future programmes. The 10th annual meeting of the Rural Industries Planning Committee likewise suggested that the coverage of the existing 49 projects should be extended to include the entire districts (excluding towns with a population of over 15,000). The Centre would finance the projects up to the end of the 4th Plan and from the beginning of the 5th Plan the States should take up the responsibility of implementation.

It was further envisaged that 50 new districts should be selected and preliminary work of survey of industries and preparation of schemes should be taken up in the next two years, and later on during the 5th Plan period 50 new Projects would come up in those districts where concessional finance or 10 per cent capital subsidy would be available. During the successive Plans, newer projects under the State governments would be taken up and thus all the districts would be covered within 25 years. This bold new strategy of rural industries projects would bring a balanced development of the whole of India within a generation.

OVER 1,300 TUBEWELLS ENERGISED IN WEST BENGAL

Out of 1,423 tubewells in West Bengal, 1,303 have been energised. Under a comprehensive programme for rural electrification with bias for energisation of wells for agriculture and rural industries, 12 schemes involving Rs 8.4 crore are likely to be taken up.

The Rural Electrification Corporation has so far sanctioned Rs. 314 lakh for five schemes for electrification of 1,372 villages, energisation of 5,109 irrigation pumpsets and tubewells and for providing electricity to 9,682 rural industries.

* A Rs 1.25 crore scheme for supplying mechanised boats to groups of fishermen in South Kanara district of Mysore has been completed. The South Kanara District Cooperative Fishmarketing Federation, which implemented the scheme, now proposes to undertake a Rs 3 crore project for the construction of bigger fish trawlers.

* A trade protocol for 1971 envisaging the possibility of further increase in the two-way trade exchanges in the coming year going up to a level of Rs 100 crore has been signed between India and Czechoslovakia. The items of export from India to Czechoslovakia in 1971 would, among others, be building materials and sanitary fittings, textile machinery, machine tools and other engineering goods. The principal items of import from Czechoslovakia would be tractors, rolled steel products, tool alloy and special steel and organic and inorganic chemicals.

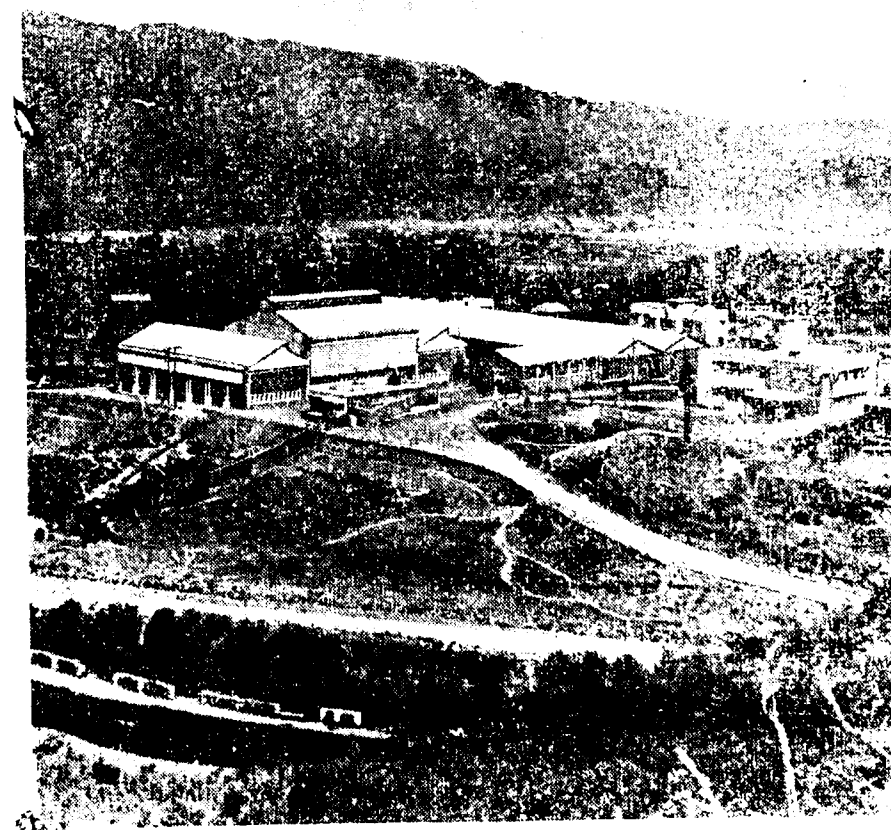
PROFILES OF SUGAR INDUSTRY

By Our Staff Correspondent

SUGAR industry, which is the country's second largest industry, is said to be facing a 'crisis of plenty'; 21 lakh tonnes of surplus stock valued at Rs 265 crore has to be carried over to the next year. The peak stocks in 1970-71 are expected to be as high as 37 lakh tonnes valued at Rs 500 crore. The major problem for the industry, therefore, is to create storage capacity for such huge surpluses of sugar. The Government has offered financial assistance in this regard and Central and State Warehousing Corporations have offered to provide the necessary storage facilities at specified places. Stocks of one million tonnes are likely to be built up to meet intra-seasonal fluctuations in the production of this essential commodity.

During the year 1969-70 sugar production reached a new high of 42.6 lakh tonnes, which was more by 7 lakh tonnes over the last year's production. Internal consumption during the year also rose by 6.5 lakh tonnes reaching a record level of 32.5 lakh tonnes. As against 80,000 tonnes of different varieties of sugar exported in the year 1968-69 the 1970 export totalled 3.25 lakh tonnes. Of this, 2.4 lakh tonnes, nearly 74 per cent of total sugar export, was from the cooperative sector. During the year there were 70 sugar production units in the cooperative sector with an installed capacity of 11.57 lakh tonnes accounting for 33 per cent of total sugar production. Their number will go up in the next five years to 118 accounting for 50 per cent of total sugar production in the country.

Problems facing the sugar industry in general and cooperative sugar mills, in particular, were discussed at length at the 11th annual General meeting of the National Federation of Co-operative sugar Factories, held in New Delhi.



HIMACHAL Pradesh, a Union Territory on the threshold of attaining full Statehood, is abundant in forest wealth and has large potential for hydel power development. Its forests cover over 21,585 sq. km. or 38.5 per cent of the State's total area of over 56,000 sq. km. About 1,15,405 hectares of the forest land are under *Chil*. It is from these trees that resin and pine-gum are extracted. Himachal Pradesh, next only to Uttar Pradesh, has the largest expanse of *Chil* forests in India, and yields about 39 per cent of the total resin production in the country.

The State's *Chil* forests have immense potential for industrial development. Resin tapping and its further processing into finished products—

The Bilaspur Rosin & Turpentine Factory (picture above), a landmark in the economic progress of Himachal Pradesh, is the biggest Public Sector undertaking in the State with processing and distilling capacity of 7,000 tonnes of resin annually.

rosin and turpentine—play an important role in the economy of the State as these are the primary ingredients in the manufacture of soaps, varnishes, paints, plastics, rubber, pine oil, camphor and medicines. At present about 10,000 people are engaged in the tapping of resin. Some of the surplus agricultural labour is also drawn to this work. Nearly 45 per cent of the State's total revenue comes from this source. The commissioning of another rosin and turpentine factory at Bilaspur last year, in addition to the existing one at Nahan, is expected to boost forest income a great deal more than the current year's estimate of Rs 65.2 million.

In view of its importance to the State's economy, the Himachal Government is keen on extending tapping operations all over the area where *Chil* is found. Besides augmenting the area under green wood, modern methods of tapping and resin processing are being profitably employed in the State-run rosin and turpentine factories.

Resin and Turpentine Production in Himachal Pradesh

Steady Increase

in Recent Years

The Nahan factory, started in 1945 by the then ruler of Sirmur, was running at a loss till 1949, when it was taken over by the Industries Department of the newly formed Himachal State with which the princely State was merged. Things took a better turn in 1959 when it was placed under the charge of the Forest Department. Its resin processing capacity increased from 1,766 tonnes of resin in 1950-51 to 3,766 tonnes in 1969-70. During the current year the factory also produced 2,882 tonnes of rosin and over 7.1 lakh litres of turpentine oil and more than two lakh liters of subsidiary products like phenyl, varnishes, hardened-rosin and black Japan. The total sale proceeds similarly rose from Rs 1.07 million in 1950-51 to Rs. 7.55 million in 1969-70. The estimated net profit for the year is Rs 900,000 while accumulated profits up to 1968-69 work out to Rs 3.6 million. Revenue from resin including the revenue of rosin and turpentine factory at Nahan, thus accounts for about 21 per cent of the total forest revenue of the State, which in turn is nearly 45 per cent of the total revenue.



IGNORAMAN

WANTS TO KNOW

Whether

*A day sans murder will
be an abnormal day
for West Bengal*

gent in his conversation, Firaq is remarkably sweet and lyrical in his poetry. He represents the true synthesis of the Indian culture, deriving his inspiration from the great Hindu epics, celebrated Persian classics and the humanists of English literature. He spurned a lucrative career in the Indian Civil Service and landed into jail as a freedom fighter. During a long creative span Firaq produced a series of distinguished poetical works like *Dhari ki Karwat*, *Ishqiya Shaeri*, *Shola-e-Saaz*, *Shabnamistan*, *Roop* and *Gul-o-Naghma*, which was adjudged as the best literary work of the decade. Firaq is a master of freeflowing verse and lyrical diction, entirely his own. The urbanity of Urdu expression is welded charmingly with the simplicity of the Hindi expression in Firaq's poetry which is closely aligned with Nature as the basic mainspring of his literary creation. Firaq believes that literature is not a wheel revolving in the void; the whole field of human culture, according to Firaq, gives birth to literature which, he thinks, is the most secular and most spiritual force in life. He thinks that both for the individual and for the community literature is a voyage of self-discovery. Firaq's poetry thus helps its reader weave together the fragments of the unique Indian personality which is a heritage of centuries of inter-mixing and synthesis.

DOGRI LITERATURE IS RICH IN CONTENT

THE Dogras, living in the picturesque north-western Himalayan region, have been known for their martial prowess and the contributions they made to the arts, particularly painting. Yet another aspect of their life is highlighted at a three-day All-India Dogri Writers' Conference being held in Delhi—it is their literature, both folk and modern. Dogri or Dogri-Pahari, as some may call it, has by the virtue of its literary output during the last three decades or so, earned for itself the status of a language. Its modern literature as compared to other regional languages, may not be so voluminous, but is rich in content.

There is a long, though discontinuous, history of Dogri literature. Dogri is claimed to have originated from a Prakrit namely Dhakka or Takka and is greatly influenced by Saurseni. Philologically, Dogri occupies a place of importance among the Indo-Aryan family which retains some oblique strains of its neighbouring speeches of Austro-Dardic origin. It is highly syncopative and synthetic in character and preserves to a large extent the Sanskrit *Samdhi* elements.

Traces of linguistic effectation of Sanskrit by Chameali Dogri, as spoken in Chamba, came to light with the discovery of Chamba Copper Plate Grants and Rock Inscriptions of the period extending from the 7th to 14th century. From then onwards, a regular and continuous usage of Dogri has been witnessed not only in such antique records but also in miniature Pahari paintings found in various erstwhile princely states now forming part of Jammu and Kashmir and Himachal Pradesh.

Dogri received a big fillip in the 19th century during Maharaja Ranbir Singh's reign when it was made a court language. A number of Sanskrit books, codes and manuals were translated into this language. Biblical literature like *The New Testament* was translated in "Jumboo or Dogri" and published from Serampur Mis-

sionary Press in 1826, while the Gospels of St Mark and St John were published in Chameali in the years 1891 and 1894. Printing of Dogri in Takari characters was also undertaken by the missionaries at Ludhiana.

Takari or Tankari incidentally was the script for Dogri and its various hill dialects in the days gone by when attempts were made both in Jammu and Chamba to reform it by bringing it closer to Devanagari. Though this script is still being used in the interior of Dogri-Pahari speaking areas, particularly by the trading classes, the modern Dogri writers have given it up in favour of Devanagari. It may be interesting to note that whereas Dogri took its name after the regional community of this area known presently as Dogras, its script Takari seems to be the contribution of yet another ancient people of the region known as Takkas.

The Jammu and Kashmir Constitution recognised Dogri as well as Kashmiri as the main regional languages of the State. The State University has also extended its patronage. A great spurt in writing in Dogri took place. As a result, the language has now a fine corpus of poetry, drama and prose. There is also a conscious effort to bring to the Dogri-Pahari speaking people the best in other literatures. Tagore, Prem Chand, Gandhi and even Gorky have been rendered in Dogri, not to speak of Sanskrit classics. Last year the Sahitya Akademi acknowledged Dogri as an independent modern literary language.

FIRAQ GORAKHPURI

RAGHUPATI Sahai 'Firaq' Gorakhpuri, who received the Bharatiya Jnanpith Literary award for 1969 for his anthology *Gul-o-Naghma*, is the last of the colossi of Urdu literature. The 74-year old Urdu poet, who was professor of English at Allahabad University, has been in a way a controversial figure. Brutally frank and exceedingly pun-

A YOJANA TRIBUTE TO NORMAN BORLAUG

FIRES IN THE FIELDS

"I have infinite faith in the small farmers," said Norman E. Borlaug to *Yojana* in 1964, and added: "All that is needed to be done is to light a few fires—and they will spread." Today the wheat fields in India, Mexico and other developing countries are blazing with fire, lit by the sparkling scientific intellect of Borlaug, who has been nominated for the year's Nobel Peace Prize. Nobel Peace Prize for an agricultural scientist? Why not, when peace has an inverse relationship with hunger all over the world. Similar surprise had been expressed when George C. Marshal was nominated for the same award in 1953. But again why not? Didn't Marshal Plan mark Europe's economic recovery? Both George Marshal and Borlaug are miracle workers in that they created hope where there was despair, confidence where there was defeatism and plenty where there was penury.

Agriculture in the Third World, though the mainstay of its economy, was an area of utter darkness, where primitivism reigned and from out of the starving soil sprouted emaciated, undernourished saplings. These were not farms but chalk gardens. Then, Dr. Norman E. Borlaug stepped on the scene. He believed in the right plant in the right soil with just the right measure of water supply. Water can be managed by building reservoirs, tapping under-ground sources and expanding existing irrigation works. The right soil can be created by "correcting its tiredness" by massive doses of fertilisers. But how about the right plant? Dr Borlaug's inventive genius as a geneticist and plant breeder came to the rescue of the mankind. By hybridising a new variety that yielded four times the normal variety of wheat and which was rust resistant and responsive to fertilisers, Borlaug created a global phenomenon called the Green Revolution. The variety was Sonora and it was evolved by Borlaug in Mexico where he was guiding the Rockefeller Foundation's Wheat Improvement Programme. There is a street in Mexico dedicated to him in "grateful recognition".

The fires started by Borlaug in Mexico reached the plains of Punjab when, in March 1963, he was invited to help resolve India's food crisis. The

"Apostle of Wheat" and "Benefactor of Agriculture" repeated his miracle here. He came to India with greater confidence. He told *Yojana* in an interview with its Chief Editor, Mr H. Y. Sharada Prasad in 1964: "You have high proportion of irrigated land. You have a growing fertiliser industry. You have scientists". A pioneer in the genetic breeding of plants, his work on triticales is likely to be another sweeping revolution on the agricultural scene. This will solve not only food scarcity but also the problem of chronic protein deficiency.

This agricultural scientist is a real man of the soil. He believes: "Farmers everywhere live close to their soil.... If you can prove something on their own plot you will see that they become enthusiastic." This indeed is the cardinal point in agricultural extension. Even more meaningful is Borlaug's observation about plants. He says: "Plants can speak to men. Unfortunately they only whisper. Hence, if you wish to hear them, you must be very near to them. By sitting in your laboratory you will gain the impression that plants are dumb." Let our agricultural scientists be not dumb to this frank and valuable advice.

... Egg production in the country has gone up from 2,500 million in 1961 to 5,463 million during 1968-69. There are now 103 poultry projects in the country. An 'Intensive Egg and Poultry Production-cum-Marketing Project' was initiated during the Third Five Year Plan which has largely contributed to poultry development.

Nine more hatcheries with a capacity of 50,000 eggs, are to be set up at Bangalore, Bombay, Chandigarh, New Delhi and in West Bengal.

... The first electrophraulic governor for water turbines has been successfully tested by the Heavy Electricals (India) Ltd, Bhopal. This sophisticated equipment comprises electronic and hydraulic regulating gear. The entire equipment was calibrated and set with indigenous knowhow.

The free-standing governing unit is entirely manufactured by HEIL, except the electrophraulic actuator head.

The commissioning of the second rosin and turpentine factory at Bilaspur last year marks a new landmark in the economic progress of the State. Equipped with most modern machinery, the factory has fully automated oil-fired boilers. It is the biggest rosin factory in the public sector in the State and the first of its kind. Designed and built with completely indigenous know-how and resources, it has an installed processing capacity of 7,400 tonnes of resin annually by batch method of steam distillation. At present the daily turnover is worth over Rs 50,000. The factory is expected to attain its rated capacity and sales of over Rs 14 million in 1970-71.

The gross sales of the factory during the first year of its working amounted to over Rs 7 million, making a profit of about Rs 600,000.

The two factories together will utilise about 12,000 tonnes of the total production of resin in the State. A third factory will soon be set up to use the remaining 5,000 tonnes. With latest process know-how the Bilaspur factory has thus paved the way in Himachal Pradesh for an industrial complex based on rosin and turpentine.

Record Cloth Export

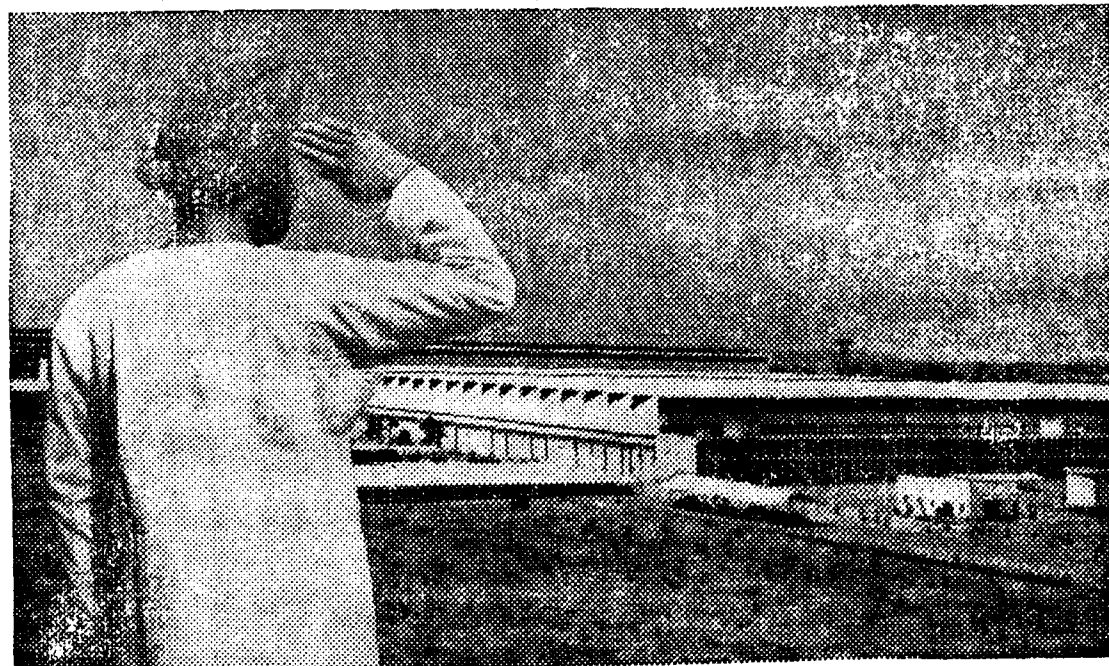
Exports of Indian textiles have reached a new high, with stocks worth Rs 583 million in foreign exchange having been sold out during the first half of the current year. Exports during January-June this year were higher by 16 per cent as compared with the corresponding period last year.

Massive Export of Radio Sets

India is aiming at exporting Rs 200 million worth of radios in 1974-75. The mark-up in export target is in view of the excellent export performance during 1969-70, with the overseas sales of India-made radio sets reaching a record figure of Rs 15 million in foreign exchange. These exports are expected to rise to Rs 40 million in 1970-71.

* Andhra Pradesh has prepared a Rs 30 crore project to develop its ground water resources. It will help irrigate 92,000 hectares of land.

INDIAN ENTERPRISE AND EXPERTISE



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design and manufacturing techniques is being carried out continuously. Today, even the precision tools, jigs and press tools needed for the manufacturing programmes are produced at HEIL itself.

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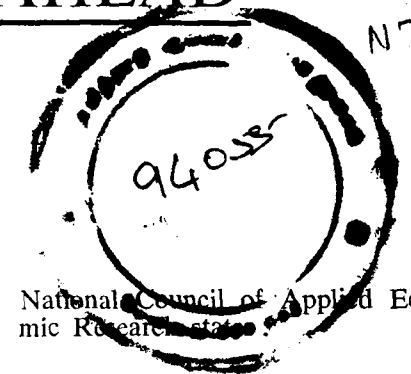
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MYSORE MARCHES AHEAD

K. NARASIMHAIAH



IN terms of area, Mysore is the sixth largest State in India and ranks eighth in population. The State comprises of 175 talukas grouped into 19 districts.

Since November 1, 1956 (when the new State came into being) Mysore has seen through two five-year plans and three annual plans. These 13 years have been a period of intense developmental effort and economic activity. Agricultural production has recorded a substantial increase since 1956-57, and in 1968-69 it was higher by 36 per cent. The production of steel, sugar, paper, and heavy chemicals has also gone up considerably. There has been tremendous addition to the power capacity of the State. There has also been visible evidence of the results of planned expansion of transport, communication, irrigation and community facilities such as education and health sources. The State's income in real terms during this period has increased by 61 per cent and per capita income by 27.1 per cent.

Out of the total geographical area of 1,89,24,722 hectares, 62.1 per cent was used for cultivation in 1966-67. Food crops such as cereals, pulses, were raised on 74.03 per cent of the total cultivated area, and on the remaining area oil-seeds, fibres, plantation crops and other non-food crops were grown. Production of food

crops increased by 40.94 per cent in 1968-69 over 1956-57. Similarly, the production of sugarcane and cotton went up by 105.39 and 5.27 per cent respectively.

During the Second Plan period, Rs 488 lakh were spent on land development, irrigation, fertilisers, and manures, improved seeds, plant protection, improved agricultural practices, and intensive cultivation programme. It was estimated that nearly one-fourth of the total outlay of Rs 620 lakh was allocated to agricultural research and education. Supply schemes, including plant protection, were accorded the highest priority. Even during the Third Plan period, agricultural research and education continued to enjoy priority. Supply schemes also were given equal priority in the Third Plan.

Agriculture Productivity Index (1956-57 base 100)

1960-61	112.4
1965-66	103.5
1968-69	139.2

There was a fall in the agricultural productivity in 1965-66 because of drought conditions. Since 1966-67 the index of productivity has shown a rising trend owing to the various development measures undertaken to improve agricultural production.

However, the report of the technoeconomic survey conducted by the

National Council of Applied Economic Research

"In 1960-61 Mysore was producing 38.5 lakh tonnes of food grains. This was not sufficient to give to its population the basic nutritional requirements of 18 ozs per day. The shortage was of the order of 3 lakh tonnes."

The total livestock population in the State according to the 1966 census was 20.49 million and total poultry was 8.28 million. The animal husbandry sector contributed in 1967-68 Rs 64.46 crore or 5.2 per cent of the State's income. Livestock improvement comprising of Key Village Scheme, sheep development, poultry development and piggery development and veterinary research were the main programmes undertaken during the Second Plan. More emphasis was laid on providing improved bullocks for agriculture, increasing egg production, upgrading indigenous sheep and pigs, providing better veterinary facilities and improving nutritional level of cattle by the introduction of better fodder crops. In 1966-67 a pig breeding unit was established at a composite livestock farm at Hasarghatta. A pilot pork marketing centre was opened at Bangalore in 1967-68. Further, feed mixing plants were established at Hebbal, Belgaum, Mangalore and Kolar in 1968-69.

The contribution of forests to the revenue of the State has been steadily increasing from Rs 3.57 crore in 1956-57 to Rs 13.51 crore in 1968-69. Raising of medicinal plants, essential oils, oilseeds, canes, bamboos and other minor forest produce of great economic value were included in the scheme of forests during the Second Plan. During the Third Plan much importance was given to the raising of plantations, especially of the fast growing species and expansion of the

	Second Plan		Third Plan		Rs in lakhs	
	Outlay Expenditure		Outlay Expenditure		1966-69	1966-69
					Outlay	Expenditure
Agricultural Production (including soil conservation)	620	488	1544	1374	—	—
Animal husbandry	134	80	195	114	176	92
Forests	73	114	289	267	237	221
Fisheries	68	42	130	174	233*	221*

*(Includes Rs 53 lakh which was sanctioned by Govt. of India out side the plan in 1966-67.)

area under teak. In 1966-67, 4,250 and 1,280 hectares were brought under teak and match-wood plantation separately. In 1967-68, rubber plantation was developed. The schemes which were under operation in 1966-67 and 1967-68 were continued during 1968-69 also.

The new Mysore State has a coastline of about 320 km, about 1/15 of the western coastline, extending from Majali in the north to Ullal in the South. The inland fisheries resources are also abundant. The State has about 26 large tanks and reservoirs, 2,700 major tanks and about 30,000 minor tanks. The total area of ponds and tanks in the State is estimated at 3,44,129 hectares. In order to increase the fish catch from the sea, mechanised fishing was introduced and two boat-building yards were established—one at Mangalore and another at Karwar. One field research laboratory and 8 units of rice and coldage were established during the Second Plan period. A crash programme was implemented during the Third Plan. During the year 1966-67, a proposal for taking up the development of fishing harbour at Malpe with Yugoslav aid took a tangible shape. A preliminary survey of the ports was made by a team of Yugoslav technicians. Another important development was the construction of a fish net making plant at Tungabhadra dam. The construction of fishing harbour along with the shore facilities at Karwar was taken up during 1968-69.

Power and Water Resources

Mysore is fortunate in having a rich irrigation potential. It has big rivers like Krishna, Tungabhadra and Cauvery traversing the State from west to east.

Major and Medium Irrigation

	(Rs in crores)	
	Outlay	Expenditure
Second Plan	33.0	27.1
Third Plan	33.1	30.9
1966-69	22.3	33.6

In addition to the 11 continuing schemes of the First Plan, 14 new projects were taken up during the Second Plan of which three were major viz., the Tungabhadra High Level Canal (stage I) in Bellary district, the Ghataprabha project (stage II) and Kalini reservoir project and 11 other medium works at an estimated cost of Rs 78.68

crore. In addition to the 25 projects taken up during the First and Second Plan periods, 4 major and 6 medium projects were initiated in the Third Plan period. Important among them were the Upper Krishna, the Malayarbha, the Harangi, the Hemavati and Kambodakoda reservoir projects. Tungabhadra high level canal, stage II, was taken up for execution in 1968-69 and schemes which were taken up during Third Plan were continued in 1966-67 and 1967-68.

This land in the heart of the peninsula is a bastion of progress and development

Yet the most important source of irrigation in Mysore continues to be the tank. There are in all about 37,328 tanks commanding a total area of 4.41 lakh hectares. Most of them, however, require renovation.

Minor Irrigation

	(Rs in crores)	
	Outlay	Expenditure
Second Plan	750.0	720.0
Third Plan	18.5	43.7
1966-69	20.3	25.3

The rate of increase in expenditure on minor irrigation through the Plans has been quite spectacular. The additional area brought under minor irrigation during this period was 1.37 lakh hectares.

The first hydro-electric power station was established as early as 1902 when the Cauvery river was harnessed to feed the Kolar Gold Mining Company from the Shivasamudram Station.

Power Development

	(Rs in crores)	
	Outlay	Expenditure
Second Plan	27.28	26.56
Third Plan	68.98	69.35
1966-69	48.75	55.61

The State suffered a setback during the Second Plan for want of adequate power supply. A new era of development dawned after commissioning the Sharavati Valley Project and the glory that the State enjoyed as a pioneer in the field of generation of hydro-electricity has now been restored to Mysore. There has been significant increase in the installed capacity, power generation, rural electrification and servicing of pumpsets in the State. The installed capacity has stepped up from 1,79,200 KW in 1955-56 to 7,74,025 KW in 1968-69 and the generation of power has gone up from 747.0 million KWh to 2,507.3 million KWh.

The Government has accelerated the rural electrification programme and expanded the network of transmission lines to carry hydel power to the remotest corners of the State. The number of towns and villages that are electrified has increased from 3,281 in 1956 to 7,882 in 1968-69.

In 1955-56, only 7,923 irrigation pumpsets were run by electric power. Their number was 91,725 by the end of March, 1969—an increase of about 11 times in the course of 13 years. The State has become surplus in power which is being supplied to neighbouring States. In 1967-68, Mysore supplied to Tamil Nadu, Goa, Andhra Pradesh and Kerala a quantum of power of 613.6; 42.5; 6.6 and 13.8 million units respectively.

Minerals Industry

	(Rs in crores)	
	Minerals	Industry
	Outlay	Expenditure
Second Plan	1.4	3.2
Third Plan	1.2	0.7
1966-69	0.4	0.4
	(Rs in crores)	
	Outlay	Industry Expenditure
Second Plan	10.4	8.9
Third Plan	13.6	12.0
1966-69	6.3	8.6

The need for industrialisation was recognised early by the architect of modern Mysore, M. Visvesvarayya, who exhorted the nation to "Industrialise or Perish." It was he who laid the foundations of an industrial base in the State. Gold mining was by far the most important organised industry. Cotton, silk and woollen textiles came next. Further, heavy industries like the Mysore Iron and Steel Works, the Aircraft factory, Mysore Paper Mills were directly owned or aided by the Government. The important schemes that were taken up

during the Second Plan period were the development of the Government Sandalwood Factory at Shimoga in addition to one at Mysore, with a view to meeting the increasing demand for oil.

In the field of industry one of the most important ventures undertaken by the State is the NGEF Ltd. set up with the technical collaboration of the famous firm of AEG of West Germany. This project produces high voltage transformers, switchgears, electric motors etc. Another outstanding feature in the industrial development is that an industrial licence has been issued to set up a fertiliser factory at Mangalore with the technical and financial collaboration of Humphrys and Glasgow Ltd. of UK and Stanicarbon N.V. of Holland. Special types of steel which were being imported from outside the country, are now being manufactured by a State-owned producing unit at Bhadravati. As a result of various development schemes, the number of factories increased from 1,635 in 1956 to 3,113 in 1967 and number of workers from 1,72,000 to 2,42,552 during the same period. Thus the programmes under the plans have given a great fillip to industrial production. The income from manufacturing (factory establishment and small enterprises) has increased by nearly three times between 1956-57 and 1968-69.

Social Sector

Considerable progress has also been made in the field of transport and communications, cooperation and social services. The total length of roads increased from 43,448 km in 1956-57 to 63,285 km in 1968-69. The traffic handled at Mangalore Port increased by 63 per cent between 1957-58 and 1967-68. The number of cooperatives increased from 12,509 in 1956 to 19,335 in 1966-67. A good deal of attention and a considerable amount of money have been devoted to provide adequate facilities for education.

The number of primary schools has gone up from 27,050 to 32,210 with an increase in the number of school-going children from 2.2 million to 3.3 million. The percentage of total enrolment in the age-groups 6-11 is now 85.4 for boys and for girls it is 74.7. The State's literacy rose from 19.3 per cent in 1951 to 25.3 per cent in 1961. Similarly in the field of health services the number of primary health centres increased from 203 to 453,

leprosy clinics from 1 to 51 and family planning clinics from 3 to 321.

The economy of the State now is very different from what it was in 1956. Per capita income has moved up from Rs 285 to Rs 500 during the period between 1956 and 1969. The area under irrigation has just exceeded ten per cent of net sown area. Foodgrains production has risen from 3.8 million tonnes to 5 million tonnes and the power generated in the State has increased to 3,120 million KWh. There are at present more than 9,000 towns and villages electrified. More than 1,10,000 pumpsets have been energised.

Women Work Centre of Mana Camp

MANIK KHER

THE Mana Transit Camp, was set up about 16 kilometres from Raipur, Madhya Pradesh, about seven years ago for the displaced families from East Pakistan. Though many were given immediate shelter at this camp, several of them were shifted after some time to the Dandakaranya Project and other work sites where they were provided with land, jobs and some financial assistance for their permanent rehabilitation. However, there were some families whose male members were either killed or could not come from East Pakistan to India. These came to be known as the Permanent Liability Families and were given a dole by the Government.

At present there are 5,000 such P.L. Families at the Mana camp and their resettlement poses a big problem. As far back as 1964 Mrs. Dipika Nandi, a leading social worker and wife of the Chief Commandant, Mana Transit Camp, set up a non-official organisation at Mana for providing free of charge training in tailoring to the P.L. Families, so as to provide them with a permanent source of livelihood. The training centre of this un-official organisation was given recognition by the Usha Sewing Machine Company which awarded certificates to about 200 women trainees.

The benefits resulting from the activities of the centre not only created a new enthusiasm in the P.L. Families, but also made an impact on

A total outlay of Rs 350 crore has been envisaged for the Fourth Plan. First priority is given to irrigation and flood control, followed by power and agricultural programmes. The implementation of the Fourth Plan schemes would result in making fuller use of the resources of the State with the objective of raising substantially the standard of living of the people.

Mysore is known for the wide variety of minerals it contains. With an annual outturn of minerals worth about Rs 8 crore, Mysore ranks fifth among the mineral producing States in the country.

the Rehabilitation authorities, who took over the centre in 1966. Today the training centre has emerged as a big "Work-Centre" for providing training to nearly 200 women in its different sections. It also employs 350 women who are given a daily wage of two to five rupees.

The centre has thus succeeded in giving a substantial relief to the P.L. Families of Mana Camp. Meanwhile a new non-official training centre has been started which trains about 100 women in specialised tailoring, nursing and various handicrafts. It also runs an adult education class for the illiterate P.L. women.

New Lubricants

THE Defence Research Laboratory (Materials), Kanpur, has developed indigenous substitutes for Koshin-S, a dry lubricant, being used in Ordnance Cable Factory, Chandigarh, after extensive research and development work. Practical trials carried out in the factory showed superiority of developed stores over imported materials.

The process has been studied on pilot plant scale. The material is being produced by Production Division of the Laboratory. Tallow oil, ground nut oil, castor oil, glycerine, softener and anti-foamer are the main raw materials needed for the process. Kettle with stirrer, mixer and heating arrangement are the essential items of plant and machinery.

A LAND OF CHARISMA

YEAR after year Mysore has been attracting tourists, both Indian and foreign. In 1956 the Kannada-speaking areas merged in Mysore, augmented not only the resources of the State but its varied charms for the tourist. The concept of tourism as an economic lever has led in recent years to the conscious exploitation of natural resources. And tourism now is fashionably described as an industry. According to the statistics, last year the tourists brought in Rs 35 crore in foreign exchange to the nation's exchequer. Mysore accounted for one tenth of it.

Mysore is now conscious of its tourist possibilities, and also of the meagre extent to which these have been developed. No other place offers a tourist, within a radius of one hundred miles, a hill station, a game sanctuary, palaces, historical monuments, beautiful temples and illuminated gardens.

C. H. PRAHLADA RAO

A thousand years ago one Kannada poet spoke of the charm of this land, and pined for rebirth here even as a mere butterfly. Ancient monuments stand today as epics and poems in stone.

Mysore has an area of 85,000 square miles, and a population of 2.5 crore. Both the land and the people offer endless variety. Hills, valleys, forests and natural waterfalls dot its landscape. An abundance of architectural and sculptural wealth matches well with a variety of dress, customs and manners, and folk and classical arts constitute an irresistible invitation to enchantment. With an average elevation of 2,000 feet above sea level, Mysore is famed for its salubrious climate.

Bangalore, the capital, with an elevation of 3,000 feet, with varied attractions within a hundred miles, marks the beginning of an exciting journey into a wonderland.

Nandi Hills 38 miles from Bangalore in Kolar District is a beautiful hill station and health resort, with his-



The famous Jog falls

torical associations and an ancient temple.

The flora and fauna of Mysore are well known. The Lal Baugh in Bangalore, associated with Sultan Hyder Ali, constitutes the botanists' paradise, and for the layman its beauty is ecstatic. The Brindaban Gardens in Krishnaraja Sagar, the first dam across the Cauvery built by Visvesvaraya, are charmingly laid out.

The wild game of Mysore has been the temptation of the Maharajas of yester years. The commoners now have four game sanctuaries, in Bijapur, Nager Hole, Jagger Valley and Dandeli, where lovers of wild life can watch their favourites in their natural habitat. A bird sanctuary at Ranganatittu, near historic Srirangapatna, an island town formed by Cauvery, a pilgrim centre, is another attraction.

A natural waterfall of great beauty at Jog, seventy miles from Shimoga, has been celebrated in legend and folk-song. Sharavati, one of the shortest rivers flowing westward, leaps from a height of 900 feet into a ravine, creating in the process a many-splendoured scene. By the side of this magnificent fall is the Mahatma Gandhi Hydel Works.

Mysore is famous for its magnificent temples. Among the better-known are those at Belur, Halebidu and Somnathpur. The rock-cut Badami temples and the groups of temples at Pattadakal and Aihole. The Belur temples, 22 miles from Hassan, an abiding homage to the excellence of Hoysala architecture, have moved the hearts of poets. Dr. D. V. Gundappa has celebrated the romantic belles carved in stone in his

Anahpura Geethegalu. The Belur temple, the seat of Lord Chenna Keshava, was built 800 years ago during the reign of the Hoysala king, Vishnuvardhana; and the immortal sculptor was the legendary Jakana-charya. Built on a star-shaped platform the contours of the temple are in harmony with the points of the star, and the bracket figures of the stone damsels are a great attraction.

The rock-cut temples of Badami, seventy miles from Bijapur and those at Pattadakal and Aihole, are tributes to Chalukya architecture. In Badami there are four cave temples, one Shaivite, another Vaishnavite, another a combination of both and the last Jaina. The temples overlook a lake named after Agastya. The temples at Pattadakal and Aihole are of considerable interest to students of Indian architecture.

One of the standing wonders is the colossal Gomateswara a 60 ft. high monolith perched on a 3,000 ft. high hill at Sravanbelgola about 90 miles from Bangalore. The statute has acquired the reputation of a Kashi for the Jains.

On the banks of Cauvery close to the seat of the former princely state stands another capital city—Srirangapatna, the place where Tipu Sultan breathed his last fighting the British. At the confluence of Cauvery and Arkavati, sixty miles from Bangalore, is a beauty spot, Makedatu, so called because the river passes through a narrow gorge which a goat can make in one lap. Later, the river plunges from a height of 1,500 feet.

Among the historic forts, the one at Kittur recalls memories of the war of independence by Queen Channamma. The ruins of Hampi, the seat of the Vijayanagar Empire, is another complex of exquisite architecture and sculpture. The birthplaces of rivers Cauvery and Sharavati are sacred spots of pilgrimage.

"Gol Gumbud" in Bijapur has attracted the attention of tourists the world over as an engineering marvel, incomparable in its stupendous size and awe-inspiring in its height. The hall of the dome measures 18,225 square feet. The dome itself is 124 feet in diameter and 178 feet in height. A unique feature is that the whole structure has no pillars to support. Actually a mausoleum of Sultan Mohammed Adil Shah of Bijapur built 400 years ago, it is also called "the



Gomateswara

whispering gallery" because the faintest sound echoes and re-echoes seven to ten times in successive peals. Ibrahim Roza is another object of interest to the tourist.

Among other tourist attractions in Mysore are the colourful Dussehra celebrations during Vijaya Dasmi and the exciting elephant trapping at Khedda, in the Kakanakote forests.

As can be expected of a setting rich in traditions, Mysore has several places sanctified by association with saints. Kudala Sangam at the confluence of Krishna and Malaprabha, where Basavanna, the great savant who has left rich legacy of *vachanas*, is an inspiring place for the devotees. Sringeri, the seat of Sri Shankaracharya,

and Melkote, associated with Ramanujacharya, are pilgrim centres of spiritual delight.

Mysore's industrial progress and her achievements in exploiting rivers for agriculture and power, have created new centres of tourist attraction. The Tungabhadra Dam, the Krishnaraja Sagar Dam, the Sharavati Project, the Bhadravati Steel Works and the Vidhana Soudha in Bangalore are the modern temples of the new Mysore.

A land of infinite charm, Mysore's western ghats hold for the tourist great thrills as one wends ones way through serpentine roads. Udipi, the seat of Lord Krishna and a great pilgrim centre, lies in the lap of the ghats.



IN the major cities of India, road transport services, i.e. bus services, are the most important means of mass transportation because of their route flexibility and convenient service. From the cost point of view, the bus services involve less initial capital investment, which is a positive merit in the case of comparatively less over-grown cities, and can be profitably run in areas with moderate density of population. The highways for buses are also used by private vehicles and trucks. Thus bus services can cover a large network of highways and serve a wider area. On the other hand, mass transportation by rail or tramways suffers from the disadvantage of being confined to specific routes, for which the origins and destinations off the route require feeder service by road. That is why the bus services play a significant role in

Picture : A typical street scene in Calcutta

ROAD TRANSPORT

G. C. BAVEJA

	Number of passengers carried per day			(in thousands)
	Buses	Trains	Trams	
Bombay	2200	2224	—	4424
Calcutta	1500	744	727	3021
Delhi	1003	—	—	1003
	1040	245	—	1285
Total	5793	3213	727	9733

intra-city travel in Calcutta, Bombay and Madras, which have suburban train services. (Of these cities, at present Calcutta is the only city in India which has tramways, whereas in Delhi and Bombay tram services were discontinued in 1962 and 1964 respectively.)

Thus, the buses carry about 50 per cent of the passengers in Bombay and Calcutta, about 80 per cent in Madras and they are the only means of public transport in Delhi, as is evident from the table given on pre-page.

In spite of its importance and utility, the city road transport services face a number of problems—organisational, operational and financial. The Road Transport Undertakings in India have statutory responsibility of providing efficient as well as economical service. In actual practice, however, it has not been possible to provide efficient and adequate service and to cope with additional requirements of increase in traffic. The results are overcrowding and long queues, particularly during peak hours and irregular services, in large cities. Nor has it been possible to run the undertakings on business principles or on economical basis. Nearly 62 per cent of the routes in Bombay city are uneconomical whereas in Delhi almost all the routes are uneconomical.



A city bus of Delhi

The organisational structure of the city bus services shows considerable variations. From this point of view, the city bus services can be classified as follows—bus services under the control of the municipal corporations or the city municipalities, e.g. transport undertakings in Delhi, Bombay, Ahmedabad and Poona; city services provided by State Road Transport Corporations which also serve the rural areas, e.g. the city buses in Surat, Baroda, Rajkot, Navsari and Surendranagar-Wadhwan are run by Gujarat State Road Transport Corporation; city services provided by State

Transport Departments, e.g. city transport services in Madras, managed by the Tamil Nadu State Transport Department; city services run by a separate State Road Transport Corporation. The only case of this type is Calcutta State Transport Corporation (CSTC).

The present structure of the city undertakings, under the control of municipal corporations, has certain defects.

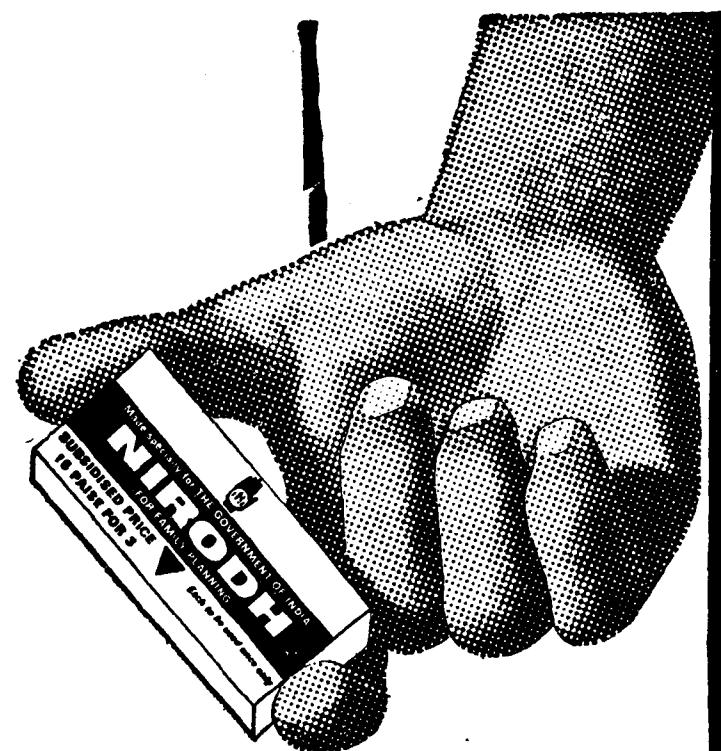
From the management point of view, under the Municipal Acts, only limited powers are delegated to the General Manager of the Undertaking.

The general manager, who is the executive head of the city undertakings, is not even a fullfledged member of Transport Committee, which takes all major decisions regarding procurement of buses and opening of new routes. The procedure of recruitment to certain posts through the Public Service Commission, as in the case of undertakings like BEST and DTU, causes unnecessary delay and restricts the right of management in the field of personnel selection.

On the financial side, budgetary allocations to the undertakings are closely linked with the fortunes of the

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municipal bodies, while the undertakings cannot avail of the facility of loans from banking institutions like the Industrial Development Bank of India.

If the shortcomings are to be removed, it is desirable to convert transport undertakings of major cities into corporations under the Road Transport Corporation Act. This would enable them to manage their affairs on business lines instead of being tied to political and other considerations, and would provide them the necessary operational flexibility.

Huge Losses

In the case of metropolitan cities like Calcutta, Delhi and Bombay, the financial position of the undertakings has been deteriorating steadily. The following table shows the mounting losses incurred by these undertakings.

Losses in Crores of Rupees

Year	CSTC (Calcutta)	DTU (Delhi)	BEST (Bombay)
1964-65	0.70	0.60	0.74
1965-66	1.18	0.87	1.69
1966-67	1.47	1.00	1.33
1967-68	2.12	1.47	1.46
1968-69	2.69	1.67	1.02
1969-70 (Estimated)	3.55	2.42	1.55

The huge losses suffered by the city undertakings can be attributed, *inter alia*, to a large proportion of over-aged buses.

Owing to financial difficulties the city undertakings have not been able to take up a systematic programme of replacement of over-aged buses whose repairs would be uneconomical. These worn out buses constitute 47.3 per cent of the total fleet in the case of CSTC, 39.3 per cent in the case of DTU and 17.4 per cent in the case of BEST.

Recognising this problem the Working Group on Metropolitan Transport Services, set up by the Planning Commission for evolving a time-bound programme to improve public transport services in metropolitan cities, has recommended acquisition of about 3,000 buses for four metropolitan cities of Calcutta, Bombay, Delhi and Madras during the next four years. The capital requirements for the above-mentioned buses and other ancillary facilities works out to Rs 38 crore.

This programme will cover both the replacement requirements and minimum requirements of expansion

	Capital requirement (Rs. in crores)	Number of buses to be acquired
Calcutta	7 (a)	553 (c)
Bombay	12	600
Delhi	12	1127
Madras	7 (b)	687
	38	2967

(a) Including Rs 2 crore to be financed through Industrial Development Bank of India.

(b) Including Rs. 4.6 crore for replacement programmes to be met out of depreciation fund.

(c) Including 150 buses to be renovated.

of bus traffic in the metropolitan cities and requires to be implemented fully.

Another problem confronting the undertakings is inflexibility of fare structure. Even as their operational costs go on increasing because of increase in incidence of taxation, increase in wages, rise in the prices of spares and components, and increase in the rate of interest, it is not possible for them to raise the fares to the extent needed, because of public resistance. For example, since the last revision of fare structure of DTU and CSTC in 1964, it has not been possible to raise the bus fares even though the costs have gone up considerably.

An additional factor contributing to the losses of city undertakings is leakage of revenue, varying from 8 to 15 per cent, on account of ticketless travel, in peak hours. This has assumed serious dimensions in certain cities like Calcutta and Delhi. In case of DTU the Morarka Commission indicated that if ticketless travel could be curbed, the income of DTU could increase at least by Rs 50 lakh per annum, constituting 7.6 per cent of traffic income. Among the measures suggested are employment of additional supervisory staff for intensive checking, arrangements for advance booking at terminal and important leading points, and deterrent action against staff indulging in malpractices.

High incidence of taxation both direct and indirect also inhibits the growth of city transport services. Direct taxes on road transport include (a) motor vehicle tax, (b) passenger tax and (c) wheel tax, while indirect taxes comprise import and excise duties and taxes on motor vehicles, components, tyres, batteries, H.S.D. oil

and lubricants, levied by the Centre and States. The percentage of direct and indirect taxes levied by the Central and State Governments to the total cost of operation in 1969-70 amounted to 29.3 per cent in the case of DTU, 28.4 per cent in the case of BEST and 37.3 per cent in the case of Madras City & Suburban Services.

The city transport undertakings are required to work as commercial enterprises as well as public utility concerns, it is not unreasonable for them to expect relief from public taxes. Recognising this principle, the Government of Maharashtra gives a rebate of one-third on the motor vehicle tax on the vehicles plying within municipal areas. Similarly, the passenger tax charged in the case of city services is 5 per cent of fares, as against 20 per cent in the case of mofussil services. The Government of Gujarat too, levies only one per cent of the fare as passenger tax in case of city services as against 23 per cent in case of other services. The Government of Tamil Nadu levies lower rates on motor vehicles which operate in municipal limits, and while the State Government has increased motor vehicle tax on passenger vehicles operating on mofussil services by about 20 per cent with effect from July 1970, the rates of taxes for city services have not been raised. No relief on fuel taxes, however, as is given in the UK or Switzerland, is provided in India in respect of taxes levied by the Central Government.

The incidence of taxation being already high, there is adequate justification for at least a moratorium on future increase in the rate of taxes levied by the Centre and State Governments on passenger vehicles plying in urban areas. Thus the measures for solving the problems faced by city road transport services can be summed up as—conversion of city transport undertakings into corporations; provision of adequate financial assistance for replacement of over-aged buses and for reasonable augmentation of fleet; suitable adjustments in fare structure to cover increases in costs; adoption of measures for prevention of leakage of revenue, and increases in taxes. Admittedly though these measures alone may not help the city undertakings to provide an efficient and economical service, these will go a long way towards removing some of the handicaps.

THROUGH CROSSROADS OF ASIA

Asian Highway Spans Fourteen Countries

THE Asian Highway Project, a 'wild dream' a decade ago, is fast becoming a reality. In 1959, the Economic Commission for Asia and the Far East (ECAFE) set up this gigantic project involving fourteen countries including Afghanistan, Burma, Cambodia, Ceylon, India, Indonesia, Iran, Laos, Malaysia, Nepal, Pakistan, Singapore, Thailand and Vietnam, and calling for a network of 60,000 kilometres of roads to serve an area of 2.5 million square miles and a population of over 600 million. Today, about 83 per cent of the network of roads linking Iran with Saigon and Singapore is already motorable in all weathers.

The project posed a major engineering challenge because of the topographical diversities of Asia comprising vast plains and deserts, large rivers and some of the highest mountain ranges in the world. The main routes naturally seek out the mountain passes and follow the rivers. In several countries, old caravan routes,

such as the great *silk route* that carried silk and other merchandise from China to Samarkand, have been retraced.

To start with, construction standards were agreed upon for phased development, a Highway Code was drafted and a uniform system of road signs introduced. After the approval of the project by the ECAFE, in June 1963, the United Nations Special Fund was approached for money. The Fund commissioned a firm of engineering consultants to examine the project and make a general appraisal of it as a whole. The consultants visited most of the countries, surveyed the Asian Highway system from various aspects to find out how far the existing roads measured up to the ideal routes based on physical, economic and technical considerations. They came to the view that one through route of satisfactory standards will make the project a success. They were also convinced that the dynamics of road transport and the inevitability

of the automobile as a pivot of economic development justified the Asian Highway project as one of continental significance. The inadequacy of railways and the limitations of shipping in serving the vast interior of the Asian mainland also underscored the importance of international highways as a means of strengthening understanding and economic relations among the countries concerned.

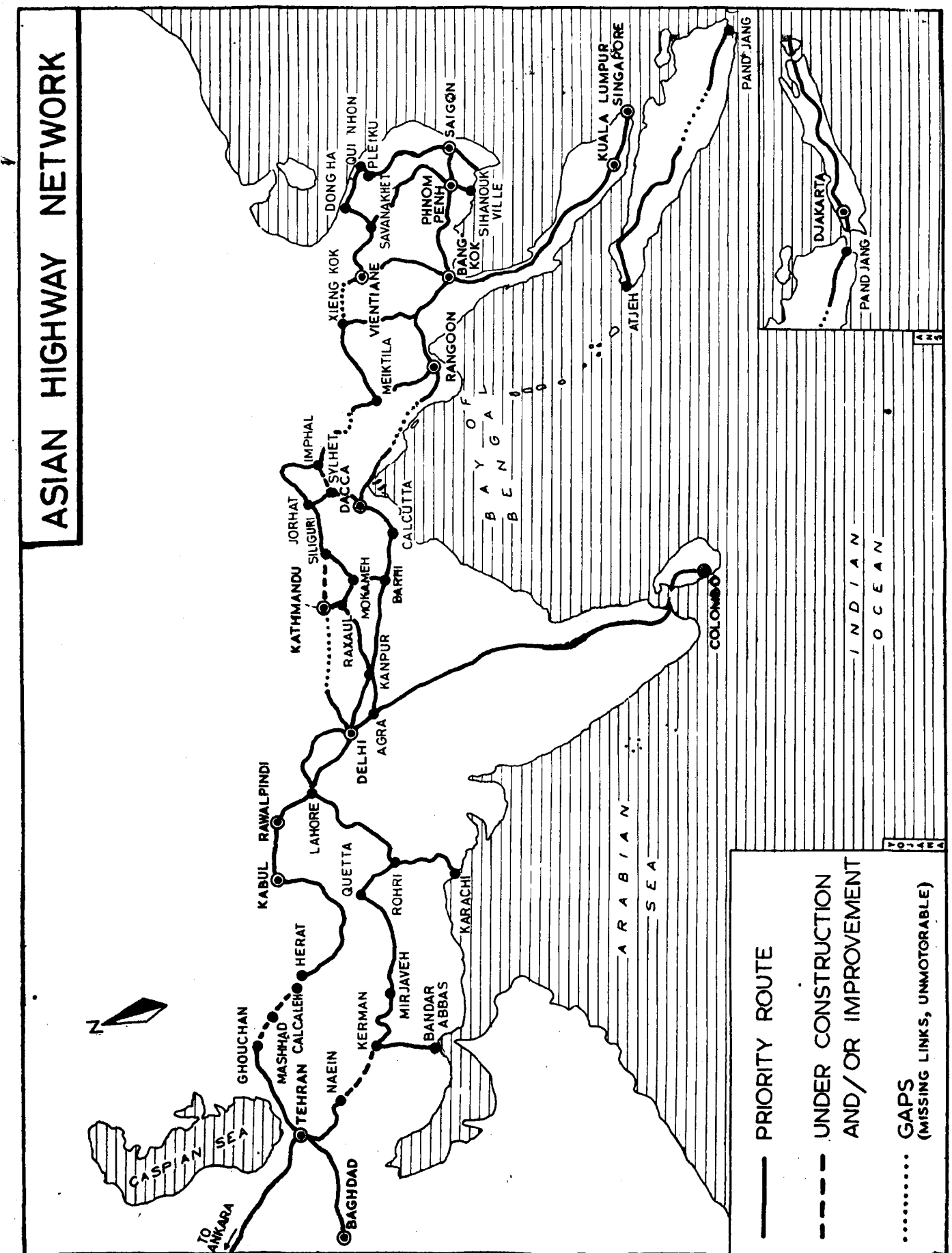
As to the trade development, the consultants pointed out that according to the 1961 figures, a fourth of the total trade in Asia was intra-regional and a third with Western Europe. Part of this trade will flow over sections of the Asian Highway. Trade was likely to develop between the landlocked countries and their neighbours with access to the sea. The report also placed stress on potential tourist and pilgrim traffic. All these developments will follow because the Asian Highway will provide much shorter and more convenient routes than the present circuitous sea routes.

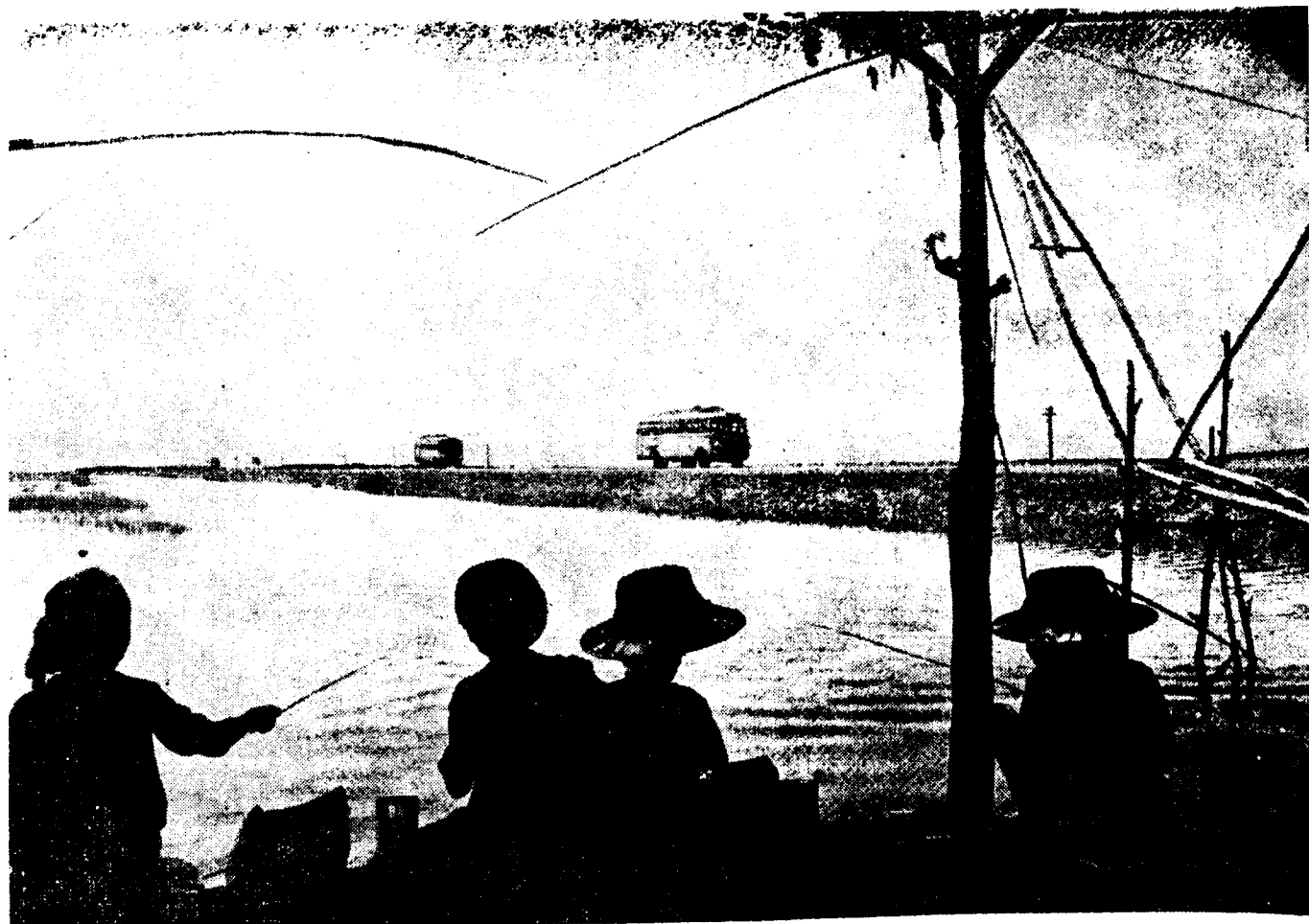
The consultants found that the volume of existing traffic over the Asian Highway system was small except in the case of landlocked countries like Afghanistan, Nepal and Laos. In the case of some other countries both in the West and South-East Asia, the Highway would boost traffic and trade. However, any forecast based on the existing conditions would not give the correct trends in the growth of traffic. There were some missing links in the highway system. Once these missing links were filled in, the traffic potential, it was felt, would exceed even the wildest estimates. The completed Highway will not only help move commodities that could not be moved earlier, but also open up unknown sources of traffic. What was, perhaps, more important, for the first time since the dawn of history, the Highway will enable vast numbers of men and women to move overland from region to region.

By 1965, the preliminary work on the Asian Highway Project had made good headway. The countries involv-



The Asian Highway passing through Delhi behind Red Fort





A Section of the Asian Highway in Thailand

ed in the project set up an Asian-Highway Co-ordinating Committee at the ministerial level to ensure effective co-ordination of all activities. An Asian Highway Transport Technical Bureau (TTB) was based with the ECAFE to assist the 14 member countries in the project and to help carry out recommendations of the Co-ordinating Committee. The project was sanctioned in 1967, a Plan of Operation was signed soon after and to set things going an Asian Highway Five Year Plan was evolved. The Project was officially sanctioned and made operational in 1968.

The Asian Highway network has been divided into 14 priority routes and 25 non-priority routes. In Europe, the routes are preferred with the letter 'E', and for the Asian Highway system, the letter 'A' (Asia) is used. The priority route A-1 (10,842 kms) starts off from Bazargan, on Iranian-Turkish border, traverses Iran, Afghanistan, West Pakis-

tan, India, East Pakistan, India again, Burma, Thailand, Cambodia and Vietnam. The priority route A-2 (12,904 kms) begins from Ghasr-i-Shirin on the Iranian-Iraqi border and passes through Iran, West Pakistan, India, Nepal, India again, East Pakistan, Burma, Thailand, Malaysia, Singapore and Indonesia.

When the project was launched, it was not necessary, though, to construct new super-highways stretching over the whole length of 60,000 kilometres. In fact, about 95 per cent of the priority routes A-1 and A-2 already existed in fairly good condition. What needed to be done was primarily to upgrade the substandard portion and bring them up to the ECAFE minimum standard and to supply the missing links, mainly bridges across rivers.

The work programme, of TTB was reviewed in October, 1968 and it was felt that the volume of work involved

in upgrading even the priority routes to the full requirement of traffic was very large and would take an inordinately long time. It was, therefore, decided to give the highest priority to bringing certain selected routes up to the ECAFE minimum standard within the first United Nations Development Decade ending 1970 and to take up the remaining work later.

By 1970, the target for the Asian Highway Project set for the first Development Decade has nearly been achieved. Eighty-three per cent of the Asian Highway network is now motorable in all weather. It is now possible to travel both east and west of Burma. Where major bridges have not yet been completed, ferry services are available. The missing links on route A-1 are in Burma (120 kms) and East Pakistan where nine bridges are still to be constructed. The substandard sections in Burma and Iran are being improved. Eighty-three per

cent of the A-2 route has reached the ECAFE's minimum standard. The missing links are in Nepal, Burma and in India. The substandard sections requiring improvement are in Iran, Pakistan, Nepal and Burma, while Thailand has recently upgraded its substandard portions.

The European and Middle Eastern High networks have also been linked with Asian Highway system at Bazargan, on the Iran-Turkey border, and at Khosravy, on the Iran-Iraq border. The Turkish Government has shown a keen interest in the Asian Highway Project by giving top priority to the construction and improvement of Turkey's international through link. The centuries-old bottleneck between Asia and Europe at Bosphorus ferry crossing will at long last be broken when a bridge is completed by 1973. Man will put together what Nature had torn asunder.

The upgrading of the many sections of the Asian Highway routes calls for investments estimated at no less than 1,850 million US dollars over a period of about twenty years. To justify such massive investments two pilot surveys are already underway in Iraq and Afghanistan and more will follow in the remaining Asian Highway countries. The Highway will largely replace old circuitous sea routes for serving the land mass of Asia. From now on, men and materials will flow between Asia and Europe over the Asian Highway routes, ushering in a new phase in the growth of the countries in Asia and the Far East.

Route in India

When the Asian Highway project was initiated by the ECAFE in 1958, India already had a well-developed highway system. She was amongst the first to welcome the idea and took up the work on the project with enthusiasm.

By the time the project is completed it will serve a population of over 600 million, of which four-fifth belong to India. Out of the total length of 60,000 kms of the Asian Highway, over 15,416 kms lie in India. Indian roads which form part of the Asian Highway more than meet the minimum standards laid down by the ECAFE. According to these standards, the roads have to be single lane, fully-bridged and black-topped with 38 feet wide formation width.

Depending upon the intensity and variety of traffic, such roads could be further improved and developed.

In regard to the priority in development, ECAFE have grouped roads in two categories. The first consists of main arterial routes joining the capitals of the countries by the shortest route. The second includes some other routes joining main cities and ports with the main arterial network included in the first category.

In India, the international routes under both these categories lie along the national highways. Priority route A-1 of the Highway crosses from Pakistan into India near Amritsar. It proceeds via Delhi to Calcutta and then crosses into East Pakistan. Priority route A-2 also passes into India via Amritsar from West Pakistan, goes through Delhi and crosses into Nepal.

The only missing link on priority route A-1, the Sone bridge in Bihar, was completed in 1968. A section between Silchar and Imphal on this route, which lacked jeepable road, has also been improved. On priority route A-2, there is a missing link on the way to Nepal. This is between Tanakpur and Butwan. But since the national highway in Nepal, which is an extension of the Asian Highway through India, is yet to be completed and since there is a good alternative road from India to Nepal, the construction of the missing link has been kept in abeyance.

(Courtesy : Dunlop Gazette)

Pilot Projects for Farmers

Under the "Small Farmers' Development Agency Scheme" over 150,000 families in Maharashtra will be benefited from three projects for small farmers with land holdings of 1-3 hectares. The projects, covering 19 talukas in five districts, Ratnagiri, Satara, Thana, Nasik and Bhandara with adequate water potential and a strong infrastructure of cooperatives, will help the cultivators by ensuring land development, minor irrigation facilities, and improved agricultural inputs and through provision of subsidiary occupations.

The first and the second project in the region will also promote horticulture, and development of dairy and poultry as subsidiary occupa-

tions. The scheme, which will be given a subsidy of 25 to 33 per cent, will be financed by the local Land Development Banks, Central Co-operative Banks and the primary societies.

400,000 MORE JOBS IN 1969-70

Employment in the organised sector in India increased to 17 million at the end of March this year, as against 16.60 million during the corresponding period last year.

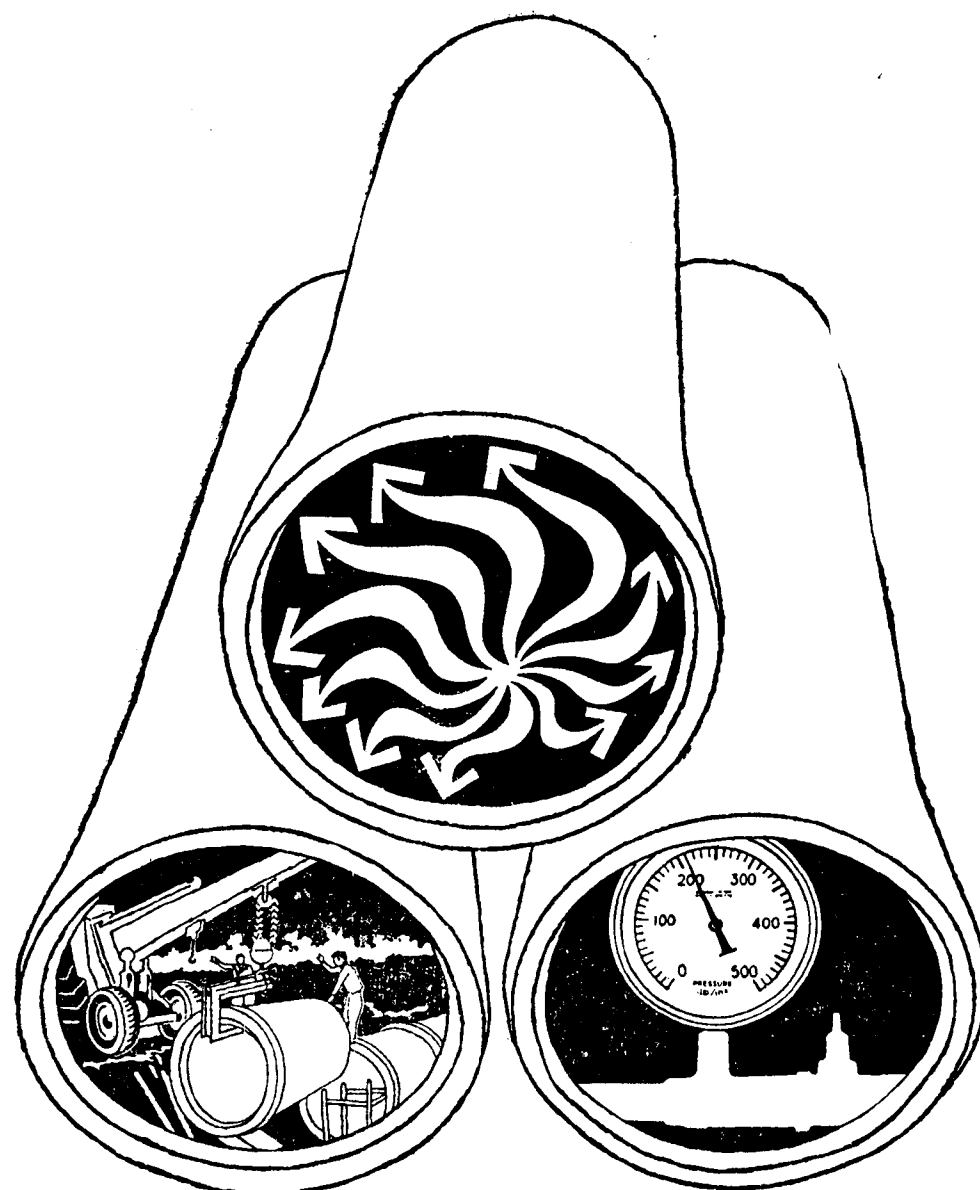
The overall employment growth rate was 2.4 per cent in 1969-70, the highest in the last four years, as against 1.9 per cent in 1968-69, 0.1 per cent in 1967-68, and 0.8 per cent in 1966-67.

Industrywise, the highest increase in employment of 8 per cent—was recorded in electricity generation and distribution.

Employment rose by 3.3 per cent in manufacturing industries, while plantation, forestry, mining and quarrying, construction and transport and communications recorded a marginal increase in employment of about one per cent.

Statewise, Haryana registered the highest employment growth of 8.5 per cent. Employment increased in Mysore by 4.9 per cent, in Gujarat and Punjab by 3.8 per cent, in Uttar Pradesh by 3.6 per cent, in Tamil Nadu by 2.9 per cent, in Rajasthan by 2.6 per cent, in Andhra Pradesh by 2.5 per cent, in Maharashtra by 2.3 per cent, in Madhya Pradesh by 1.9 per cent and in West Bengal by 1.8 per cent. Employment growth was marginal in Bihar and Orissa, while in Kerala and Assam it declined by 2.2 per cent and 0.2 per cent respectively.

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INFRASTRUCTURE FOR AGRICULTURE

K. V. NATARAJAN

A T. Mosher's book* is an important event in the evolution of ideas on agricultural development policy. Several interesting policy measures have been suggested in this book which is a companion volume to his earlier book, *Getting Agriculture Moving*. Mosher lists six activities which need to be planned and organised for getting agriculture moving. Among these, the subject matter of the book under review is *Creating a Progressive Rural Structure*.

There are two basic concepts relevant to an understanding of PRS. One is the effective farming locality and the other is the farming district. Creating a PRS consists of launching off-farm activities which convert farms on reasonably good land into a fully functioning farming locality (p. 4). An effective farming locality consists of five elements which consist of a market centre, rural access roads, local verification trials of new methods and practices, the services of an agricultural extension agent and access to production credit facilities. The farming district, which is the basic unit for creating PRS, is expected to serve farming families in the same way.

REGIONAL CLASSIFICATION

Mosher contemplates the classification of the regions of a country on the basis of the immediacy of their potential for agricultural growth and suggests that there should be separate development programmes for each type of region. Too frequently in the past, planning for agricultural development has considered each facility and service separately and without adequate geographic planning. It is

one of the main themes running through this book that the facilities and services for agricultural development are so inter-dependent that they should be planned together. It is in that type of planning that the farming district becomes the basic unit for creating and expanding a PRS (p. 29).

In assessing the central theme of the book, one must be clear about certain facts. For instance, there is as yet no empirical proof that the predominant factor for the success or failure in the agricultural growth of specified localities is the infrastructure. Broadly, everyone agrees that rural roads are important; that markets for inputs as well as agricultural produce are crucial; that local research and extension activities are absolutely essential; and that production credit should be readily available. But do these constitute such a new combination as to be labelled as a comprehensive PRS? Where does pricing policy figure in relation to the PRS? One may have the best roads and communications and if there is no agency to purchase the harvested produce at the right time, what can PRS do to help the farmer? No doubt, Mosher is careful to say that PRS is only one of six key elements in promoting agricultural growth which include research, an incentive price policy, supply of inputs and equipment needed for a new technology, improving agricultural land and education and training of technicians. The more carefully one goes into the elements of agricultural growth in specific localities and areas, the greater is the confusion about the relative roles of key elements, "essentials" and "accelerators". The identification of the crucial elements has perhaps made some progress as of now, but are we sure about the relative weightages to be given to each and to prescriptive strategy applicable to each area?

*"Creating a Progressive Rural Structure" by A. T. Mosher. Published by the Agricultural Development Council, New York. Pages 172. Price not given.

Mosher significantly omits land reforms and institutional reforms from the listed elements in PRS. Obviously he brings in land reforms as part of the incentives for increased production, an activity listed by him as separate from PRS. Mosher's PRS is more or less involved only in the marketing, communication and extension-cum-research activities. All in all, there seems to be some advantage in following a broader definition of the social overhead capital in regard to agricultural development as distinguished from directly productive activities. It is, nevertheless, in the selection of the relevant components of social overhead capital crucial for agricultural development that presents a difficult choice. Wharton* defines agricultural infrastructure as the physical capital. Analytically, Wharton's definition appears superior to the concept of PRS. For instance, the components of agricultural infrastructure as defined by Wharton will include such items as storage and processing facilities which are not elaborated in the framework of Mosher. Wharton also includes formal and informal institutions of legal, political and socio-cultural nature in the components of agricultural infrastructure. This is again an omission in the framework of Mosher.

After going through *Creating a Progressive Rural Structure*, we come back to the familiar question, how do you determine how much is enough? Techniques through which one could determine the allocation of public funds as between various components of infrastructure are not yet available. The desideratum is evidence on the nature of sequence, timing and lengths among the various alternatives of investment in infrastructure. It is to this area of empirical studies that the developing world has to address itself. One suspects that in spite of his best attempts to give a different connotation to the so-called PRS from the commonly accepted term "infrastructure", Mosher perhaps has left many questions of interest to the development planner unanswered.

Clifton R. Wharton, Jr. "The Infrastructure for Agricultural Growth" in H. M. Southworth and Bruce F. Johnston: "Agricultural Development and Economic Growth", Cornell University Press, 1967.

MEDICAL FACILITIES IN LADAKH

SURAJ SARAF

PROVISION of adequate medical facilities in the far-flung areas is a colossal problem, particularly in a vast country like ours. It could be more acute in the remote trans-Himalayan district of Ladakh. But thanks to the active interest of the Government, of all the districts in Jammu and Kashmir, Ladakh is the best served as far as medical facilities are concerned.

Ladakh is among the highest plateaux in the world. It has an area of 97,783 sq. kms and a population of 100,000 i.e. one person per sq. km. Its extreme cold and lack of sufficient oxygen in the atmosphere result in some specific diseases like rheumatism and rheumatoid arthritis and peptic ulcer. During extreme cold there are more cases of influenza, cold, catarrh and pneumonia. Goitre is also found in some areas. Anaemia and nutritional deficiency diseases are also common in the area. A peculiar aspect of their health is that Ladakhis in their declining age do not generally lose hair, teeth or vision as fast as others elsewhere in the country. Ladakh has more octogenarians and centenarians than in other parts of the country.

A few years earlier medical facilities were few. Now there is one doctor for every 3,800 persons and one bed for every seven hundred. As against three poorly equipped dispensaries a decade ago, there are now two hospitals. The one at Leh has forty beds, an X-ray unit, operation arrangements, dental unit, V.D. clinic and maternity and child health services. The other hospital at Kargil has twenty beds with all other facilities. A TB clinic has also started functioning near Kargil. One primary health centre is working at Drass in addition to a main centre in the district town. Besides, there are three health units, ten dispensaries and eleven First Aid centres in far-flung areas of the district. All these health units, health centres, dispensaries and hospitals are being manned by qualified doctors. Besides these, twenty

Amchi (the local medicinal system) centres are also functioning.

To meet the needs of the population scattered over wide areas, two special features have been introduced for providing medical facilities in Ladakh. First, instead of having more big hospitals or full-fledged primary health centres in a block, preference had been given to dispensaries and first aid centres in the villages. Secondly, each first-aid centre has

been attached to the nearest dispensary, providing for at least one weekly visit to the centre by the doctor at the dispensary. There is also a mobile dispensary van for remote areas.

During the current financial year, Rs 13,00,000 have been allotted for the expansion of health facilities. The expansion programme among other things will include setting up of six first-aid centres and one more

turn to PAGE 50



A Ladakhi peasant family

A Fine Performance

WEST BENGAL FINANCIAL CORPORATION

S. C. BASU

Our Calcutta Correspondent

THE West Bengal Financial Corporation has provided easy credit to the tune of Rs 12.47 crore to 246 industrial units in 11 of the 16 districts in the State, which is no small achievement.

In terms of economic benefits to the industries thus assisted, it meant an increase by five times their average productivity and employment for some 10,000 people. Among the borrowing units no fewer than 70 have grown entirely out of the Corporation's assistance. During the 16 years of its existence, the Corporation sanctioned a total credit worth Rs 16.51 crore.

The Corporation's clientele covers some 24 industries as diverse as engineering and bakery. And its borrowing units included 98 private limited and 73 public limited companies and 39 partnership and 35 proprietary concerns.

The Corporation's investment is concentrated mostly in engineering, jute, tea and textile industries, of which, again, the engineering industries, with Rs 5.32 crore given to 97 units, claim about 40 per cent of the assistance. The textile industry, on the other hand, accounts for 12.55 per cent with Rs 1.68 crore sanctioned to all units. Among the districts, Howrah and 24 Parganas claim the largest concentration of such units, numbering 150, while Midnapore has the lowest, one.

Nearly Rs 9.12 crore, or more than half of the total credit sanctioned, was made available in the Third Plan period as against Rs 2.48 crore during the Second Plan. In the last two years of the First Plan which coincided with the first two years of the Corporation, more than Rs 43.27 lakh had been sanctioned.

Credit is advanced to existing or new industrial units for a variety of purposes, ranging from Rs 10,000 to Rs 20 lakh. The small-scale and medium scale industries are allowed a preferential rate of interest at 7 and 8.5 per cent respectively.

Of late, the Corporation has taken up financing transport. Thirteen transport units have been advanced Rs 8 lakh on easy payment basis at an interest of 9 to 9.5 per cent.

Apart from advancing clean loans on commercial terms the Corporation has since 1963 underwritten shares and debentures worth about Rs 70 lakh in respect of 14 companies, and guaranteed deferred payment of Rs 10 lakh worth of machinery acquired by some other concerns. As a member of the consortium in term-loan finance, in joint participation with the Industrial Development Bank of India, Industrial Finance Corporation, Industrial Credit and Investment Corporation of India and Scheduled Banks etc., the Corporation sanctioned credit aggregating to Rs 1.34 crore to 13 units. It also considers rupee finance and arranges for foreign exchange loans of higher magnitude in *pari-passu* charge with these institutions.

Small Scale Sector

Of the 246 borrowing units, at least 147 or 56 per cent belong to the small-scale sector. However, these claim only 25 per cent of the total volume of loans offered.

To make credit easier for this sector, the terms have further been liberalised. Apart from a preferential rate of interest, the debt-equity ratio has been lowered to 3 : 1 to encourage technician-entrepreneurs to start units in the backward areas of the State. Hand-some relaxations are also allowed for the acquisition of new machinery for expansion and modernisation. Loans

up to Rs 50,000 are allowed on hypothecation. Equitable mortgage is also accepted upon a sanctioned loan of Rs 1 lakh. Repayment terms are easy. And, economics permitting, the first instalment of repayment starts from the third year of the payment of loan. In deserving cases, loans are granted up to 70 per cent of the value of security, and at times, even non-industrial assets are accepted as security.

Ancillary Services

The Corporation also extends ancillary services to the small-scale industries for the proper utilisation of credit. These include proper accounting system, better management services, marketing and equitable distribution of raw materials. Moreover, the Corporation is thinking of opening four branches in districts for an intensive exploration throughout the State for setting up new industries. This will go a long way in enthusing the entrepreneurs to set up industries in the backward areas which in turn will create more employment and improve the local economy.

Till the middle of 1967 the borrowing unit showed encouraging performances. Then the trend reversed. With West Bengal still smarting under two successive droughts, came recession and as a result, domestic demand became deficient, orders declined and sales fell. Most of the industries found it exceedingly hard to maintain their labour compliment and ran into losses. As a measure of help the Corporation further liberalised the terms of credit. It also allowed an advance of loan up to one lakh rupees on hypothecation of plant and machinery to enable entrepreneurs acquire new machines. Adequate relaxation of margin was allowed for industries essential for the State.

Set up on March 1, 1954 under the State Financial Corporation Act of 1951 to promote the growth, expansion and modernisation of medium and small-scale industries, the Corporation started its operations with an authorised capital of Rs 2 crore, out of which Rs 1 crore is at present paid up, subscribed by the West Bengal Government, the Reserve Bank of India and other institutional investors, including banks.

PUBLICATIONS DIVISION

(Ministry of I & B)

NEW RELEASES

(JULY—SEPTEMBER 1970)

		Rs	P
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KERALA'S BACON FACTORY FIGHTING MANY ODDS

Report by ROSSCOTE KRISHNA PILLAI

Our Trivandrum Correspondent

SITUATED amidst sylvan surroundings, India's first Bacon Factory set up under the Central Government's Special Development Programme for poultry, livestock and fisheries in Edayar village near Koothattukulam, 194 kms north of Trivandrum, is fighting many odds to reach its capacity production. And this, despite the many advantages the factory enjoys: a staff with missionary zeal, sophisticated machinery and equipment as well as Government support. But even after two years of production, the output falls far short of its rated capacity of two tonnes or fifty finished pigs a day. At present only ten pigs are converted into meat every day. The reasons for the shortfall are not far to seek. While certain aspects like machinery and manpower have been receiving priority and attention, certain other aspects like publicity and marketing are more or less neglected. Thus a project which could have made much headway by now continues to move forward at a leisurely pace.

The scheme for setting up a pig-breeding-cum-bacon factory at an estimated cost of Rs 30 lakh was sanctioned by the State Government with the concurrence of the Government of India in October 1964. The main objectives of the scheme are: (i) to promote pig rearing on scientific lines in the private sector and to make available sufficient number of breeding stock of exotic origin; (ii) to find a suitable, ready and remunerative market for the pigs produced by the farmers; (iii) to produce wholesome pork and a variety of pork products under hygienic conditions; and (iv) to organise a suitable agency for the production and sale of pork and pork products at a reasonable cost.

The site at Edayar was chosen because the people of the village, the Koothattukulam Panchayat, donated 25 acres of land to the Animal Husbandry Department of the State. Also,

the farmers of the area have a lot of experience and enthusiasm for pig breeding. The construction of the factory buildings began in August 1965 and machines were installed in February 1967. Trial production started in December 1968, four years after the proposal was accepted by the Government of India. The total expenditure on the factory and the farm has gone up from Rs 20 lakh originally envisaged to Rs 35 lakh. This increase, according to the management, has been due to devaluation and additional investment in two new plants for canning and offal utilisation later sanctioned by the Government.

Although the plant was set up by Indians themselves, the process know-how came from the Food and Agriculture Organisation (FAO) of the United Nations. The managerial personnel including the General Manager are qualified veterinarians trained abroad in swine husbandry and pork technology. Of the machinery for the plant costing about Rs 20 lakh, the more sophisticated items have been imported from Denmark.

The quality of pork depends on the breed of the pig, and particular care is taken to buy only pigs of high-yielding exotic breeds reared under strict hygienic conditions. The factory has distributed 1,500 piglings of large white yorkshire and landrace breeds among bona-fide farmers in a Pig Development Block which covers an area of 45 kms radius around the factory. These piglings were bred from a foundation stock of 100 sows and 10 boars at the Pig Breeding Farm established at Mannuthy in Trichur where Kerala's only Veterinary College is also situated. The pigs have been distributed at subsidised prices and loans have been given for the sties. The yorkshire and landrace piglings will attain a weight of about 100 kgs in a year, whereas the indigenous breed hardly comes up to 30 kgs. The foreign breeds litter every six months with an average of 20 pig-

ings per sow. The pigs are bought by the Bacon Factory when they are just one year old, after a thorough veterinary check-up. Older pigs carry more than the permissible limit of fat and are not accepted. Payment is on the basis of weight, at the rate of Rs 2.25 to Rs 2.75 per kg.

Dr George Verghese, the General Manager of the Factory, told me that the pigs are slaughtered by mercy-killing methods. The aorta is cut and the blood is let out after the animal is made unconscious by electric shock. The hair is shaven off, and it is used to make fine brushes (that goldsmiths use) and anchor ropes. Another medical examination is conducted on the animal's liver and also for any sign of tape worm. The tape worm is a dangerous parasite transmitted from meat to man and the pig has to be completely free from it. A section of the meat is examined under a trichinoscope and if there is no trace of the tape worm or liver damage; the carcass is sent for processing into different varieties of table meat. Dr Verghese told me that the factory had not found even a single pig with tape worm infection among those it had bought so far. Only two pigs were found to have liver disease. There had not even been two per cent rejection. The factory is setting up a carcass utilisation plant to process the rejected carcasses and other wastes from the slaughtered pigs into bone meal, blood meal, meat meal and so on. The plant which will have a capacity to process 800 kgs. of waste per single charge is expected to go into production by March next year.

The carcasses found to be disease-free are weighed and kept for a day in a chilling room where the temperature is maintained at 1°C. After thorough chilling, they are taken out and cut into pieces. The middle portion is the most valuable and is called bacon after it is processed in salt solution and dried. Smoked bacon is also made here by subjecting the meat to smoke obtained by burning a particular kind of saw dust which has been discovered by the Factory after research. The leg portion is treated with certain chemicals and salt solution for four days.

After removing the bones it is cooked in steam and chilled for a day. This is called cooked ham. It contains very little fat and is highly recommended for persons suffering from heart ailments. The ham is sliced into thin pieces and is marketed in small 25 gms packets. Ham is also marketed as smoked ham after brine treatment and drying.

The meat from the head and shoulders is minced, cured and mixed with maida, onion and vitamins and processed and filled in coverings made from pig intestines. It is called sausage. Depending on their method of preparation and the ingredients that go into them, sausages are given different names like hot dog, frankfurter, oxford sausage, garlic sausage, salami and so on. A number of preparations that cater to the local tastes, like pork curry and pork pickles are also made in the factory. These are packed in lacquered cans. Other products are packed in butter paper and polythene bags of various sizes.

At every stage of preparation of the meat products, the factory ensures quality control, and maintains a well-equipped food analysis laboratory for the purpose. The products are sold through a network of 27 authorised agents in Kerala and through the Factory's own sales depot in Trivandrum and at Koothattukulam. The Factory also has a refrigerated van which plies between Ernakulam in the north and Quilon in the south.

Even if the fact that "every 100 gms of cooked pork provides about one-fourth of the protein and iron, almost one-half of the thiamine and two-fifths of the niacin equivalent recommended for daily intake by a young male adult" is very widely publicised and there is adequate demand from the people, the factory will not be able to meet the demand unless enough marketing facilities are created over a very wide area. It is perhaps to compensate for the shortfall in the production of pig meat that the management is soon venturing into the production of beef, mutton and chicken.

PROGRESS OF MULTIPLE CROPPING

Indian farmers have adopted multiple farming on a large scale. Farmers of Orissa's Bari Panchayat Samiti successfully grow jute-paddy-

WHO Chief Praises India's Success in Malaria Control and Family Planning

A Yojana Staff Report

DR M. G. Candau, Director General of the World Health Organisation who was on a Southeast Asian tour recently, praised India's active and comprehensive effort in the area of public health, especially in malaria control and family planning. Addressing the Press during his short stay in the Capital, Dr. Candau pointed out that the main effort in health problems has to be made by the countries themselves while WHO could only extend advisory support and expertise. According to him, the shortage of medical personnel was the biggest problem not only in developing countries but for the whole world. He pleaded for a crash programme to train skilled doctors and auxiliary and paramedical personnel. Commending the example of Cameroon, in Central West Africa, where a Central Health Science School has been started with UNDP assistance, Dr Candau said that it would be cheaper to train all medical and health personnel in a single institution than have separate establishments for each one of them. After all, anatomy, physiology and pharmacology that will be taught are a common factor in their curricula. He believed that India was much more fortunate than any other country where the doctor-population ratio was hopelessly low and whatever doctors there were, they were mostly outsiders. If they left, their medical services would collapse.

Dr Candau was very critical of any attempt to cut down the duration of medical education. He jeered at the idea of primary doctors, adding "You cannot have first class, second class and third class doctors."

However, the clinical training in expensive medical establishments in urban areas can be replaced with ex-

groundnut as successive seasonal crops from the same land, which has multiplied their income three-fold per hectare—from Rs 2,000 to Rs 6,000. In 1969-70 the Indian Agricultural Research Institute in New Delhi experimented with four food crops (Moong-Maize-Potato-Wheat) a year from the same land, which yielded about 42.8 kilos of food per hectare

tensive field training in rural areas. He good-humouredly said: "There should be more externship than internship."

Dr Candau pleaded for a dialogue between the modern medical science and the indigenous systems of medicines. He felt that after all the difference was only in therapy. He insisted on extensive syllabic preparation for the practitioners of local systems of medicines.

Talking about family planning measures initiated by Government of India on a campaign scale since 1955, Dr Candau said that reduction in infant mortality alone can be a very positive motivator for the acceptance of family planning. The knowledge that five children will grow into five adults can serve as a warning for parents. Family planning should therefore take on a more social look, Dr Candau envisaged. He praised the extensive work done in India in this direction.

Referring to the recent wave of flu in India, Dr Candau said that the anti-virus vaccine takes 2-3 months to develop. WHO's 60 laboratories operating all over the world are working continuously on viral diseases but the virus itself undergoes genetic changes and develops immunity to the vaccine. That is the reason why no vaccine for this new viral infection has been found.

On the question of pollution, Dr Candau warned that you cannot escape pollution of air, water and land and in certain cases you have to live with it, devising your own immunity. "If you give up DDT, you will be giving up your Green Revolution", he cautioned.

per day. Rotation of crops like maize-grain-oats are profitable. Introduction of multiple cropping is possible in unirrigated areas with short-duration and drought-avoiding varieties, e.g., moong H.B.-45 HB-3-bajra.

About 15.2 million hectares of land will come under multiple cropping by the end of the Fourth Plan.

Bombay Businessman's Successful Venture

Introducing Rubber in Maharashtra

AVINASH GODBOLE

Our Bombay Correspondent

AT Padghavli, a small village about 100 kms from Bombay, an ambitious experiment in rubber plantation is being carried out by a Bombay industrialist, R. G. Ketkar. There are signs of initial success leading to the expectation that someday the whole landscape of the Sahyadri ranges will wear a different hue. An experienced manufacturer of rubber products, Ketkar struck upon the idea of introducing rubber plantation in his village on an experimental basis. India's rubber cultivation is confined mostly to Kerala and to a few hectares in Tamilnadu. Ketkar's inspiration was a newspaper report about Israel's success in producing apples in the desert which could be cultivated only under chilly conditions. Ketkar immediately thought of growing rubber trees in the hilly area of the Ghats where soil, climate and rainfall were broadly similar to those in Kerala. The Indian Rubber Board encouraged him and supplied him rubber tree saplings and technical assistance.

The saplings were planted during the last monsoon in a 12-acre area with the help of trained Kerala labour. In the post-monsoon period, watering had to be done manually. The plants stood the summer well and have grown 5½ metres tall. An expert from the Rubber Board who visited the plantation was satisfied with the progress.

In addition, a nursery of about 6,000 rubber seedlings has also been developed for transplantation during the coming season. The seedlings grown here are expected to grow better than the imported Kerala saplings in the experimental plantation.

The rubber tree starts giving rubber after about 7 years of its transplanting and continues this for at least 30 years. An hectare of rubber plantation would give the planter at least about Rs 2,000. Since tapping is done after the monsoon, the agricultural labour in the neighbourhood will have

employment during the lean period. On Ketkar's success depends the prospect of rubber cultivation on a commercial scale in the Western Ghats.

NEW RICE STRAINS

EIGHT new high yielding strains of rice have been developed at the Rice Research Stations in Maharashtra. These varieties take about 90 to 125 days to mature and yield nearly 3 to 3.5 tonnes of grain per hectare, which is one and a half times more than the normal yield.

One of these strains, KARJAT 184, which is also suitable for hilly terrain, matures in about 100 days yielding a good quality grain.

KARJAT 184, approved by the ICAR, has so far been tried on 400 trial plots and the results have been encouraging.

Another strain specially developed for Rabi crop is KARJAT-87-2. Its crop maturing in 95 days, can yield 3.5 tonnes of grain per hectare. The Shirgaon centre in Ratnagiri district has developed two new varieties: Ratnagiri 185-2 and Ratnagiri 60, which are suitable for cultivation in that area.

These strains were expected to be released for commercial use soon.

FIRST INDIA-MADE STEAM GENERATORS

The first two steam generators to be made in India for atomic power plant have left the Powai Works of Larsen & Toubro Limited. They are on their way to Kandla for installation at the second unit of the Rajasthan Atomic Power Project. The first unit had utilised equipment imported from Canada.

Highly sophisticated and made to exacting standards each of the two steam generators contains a steam drum, heavy water and feed water-heaters and ten heat exchangers. They were fabricated by Larsen & Toubro Limited at its Powai Works.

Education of Trade Union Workers

From Our Bombay Correspondent

THE Workers' Education Scheme, started in 1959 by the Central Board for Workers' Education, is a 3-tier system beginning with the training of education officers. These officers impart education to workers deputed by trade unions and released by employers to become worker-teachers.

The Board also admits trade union nominees to this course so that the unions can themselves carry on this education at a later stage. The Board sanctions liberal grants to subsidise the expenses incurred for this purpose by the trade unions and other institutions.

The first regional centres were set up in Bombay and Nagpur. Their number has now risen to 30 and of sub-regional centres to about 100, covering the whole of the country. Over 19,000 workers have so far undergone worker-teachers' training. They have, in turn, imparted education to over nine lakh workers. In Maharashtra alone, where the population of workers is around two and a half lakh, about 1,000 worker-teachers and over 53,000 workers had been trained by June 30, 1970.

The popularity of the training can be judged by the fact that the 44th course is now being conducted for bank employees deputed by the Maharashtra State Bank Employees' Federation.

Besides, various other courses such as trade union courses, works committee courses, seminars and diversified programmes are also conducted. Modern methods of teaching like flip cards, flash cards and film-strips are also employed.

FERTILIZER PRODUCTION ACHIEVES TARGETS

The production of nitrogenous fertilisers in various units of the Fertiliser Corporation of India in October last was the highest as compared to any other month during the current financial year.

The FCI units at Sindri, Nangal, Trombay, Gorakhpur and Namrup produced a total of 26,400 tonnes of nitrogen which works out to 95 per cent of the target fixed for the month.

To the Moon and Beyond

Our Staff Correspondent

SEA of Tranquility on the moon's barren surface lost its four thousand million year tranquillity when Neil A. Armstrong planted the first human footprints on its "fine powdery dust". That "small step for man" was indeed a "giant leap for mankind". In the stillness that reigns on the earth's mute satellite, the footprints will remain just like that while the Eagle's tripod will continue to stand vigil for at least a thousand years. In quick succession to Apollo 11, was launched Apollo 12, which achieved a pinpoint landing on the ridge of the crater about 1,200 miles west of the Apollo 11 landing site. This time the two occupants of the spidery LEM walked on the moonscape many times longer than the Eagle crew. Its commander Charles 'Pete' Conrad, the third man to step on the moon, performed his Extra-Vehicular Activity (EVA) with the relish of a holiday tourist. Both Neil and 'Pete' were in India recently sharing their recollections of the epic moon-walk with the newsmen at an informal Press Conference at Roosevelt House in New Delhi on November 21 last.

As the two astronauts, escorted by Ambassador Kenneth B. Keating emerged from a rear door at the back of the Roosevelt House, the high bright Indian sun and a battery of news and a cine cameramen greeted the men who had walked on the moon.

"From the moon", Armstrong recalled, "the earth below gained a heightened sense of importance as a place to go back." But he did not feel lonely or isolated, because of the excellent communication system with the ground and the orbiting Apollo spacecraft, remembered Armstrong. He looked at the earth at least fifty times, during his two and a half hour moon walk.

To Conrad the earth looked an arc revealing one-third of the planet with Australia and South Pole visible. The deep blue of the sea, and the white of

the ice-cap, and the red of the land mass were distinctly visible while the green of the earth was almost lost.

Asked about the possibilities of creating conditions suitable for human habitation on the moon, Neil observed that if such conditions could be created, these will last a 1,000 years. But this was only a theoretical possibility. Admiring the success of Luna 16 and Luna 17, Armstrong pointed out that the manned and unmanned space explorations could be balanced, each depending on the programme objectives set forth by the States concerned. The first US space explorations, like the Rangers and Surveyors that were sent to the moon and Mariners that flew past Mars, were unmanned probes which yielded valuable data and made a manned landing on the moon possible. Even after the manned landing, the instrument packages left by the astronauts on the lunar surface are continuing the exploration.

In a jovial riposte, Conrad said, "we will have to take care that our astronauts are not run over by the Russian moon taxi."

Future Projects

Outlining the different aspects of the future space programmes, the astronauts referred to the 'Skylab', to be put up in 1972. It would have a three-man crew at one time and while the Lab would remain stationary in the orbit, the three-man crew would be replaced three times. Thus a total of nine men would work for a stretch of 140 days in the space, revealed Conrad.

However, the most spectacular of the future US space programmes is the Grand Tour of the Planets in 1985. It has to be in that year, for the Tour depends on a particular alignment of the planets of the solar system, which is obtainable only once in 173 years. If this opportunity is not availed of, mankind would have to wait for another 200 years.

The astronauts also mentioned the space shuttle involving to-and-fro ferrying of astronauts, without having to have more rockets on the launching pads. This programme, believed the spacemen, would reduce costs by at least a factor of 10 to 100.

Programmes on Earth

Replying to the criticism that the vast expenditure on space exploration could be diverted to more gainful utilisation by all mankind on the earth itself, the astronauts humorously retorted that they could not find any shop on the moon or in the space where they could buy things in exchange for rupees, roubles or dollars.

Projecting an optimistic picture of the satellite programmes on earth, Armstrong said that weather and communication satellites have helped prevention of calamities in America and Mexico, and an efficient system of space monitoring would be able to 'warn' people to avoid natural calamities, as occurred in East Pakistan or Peru. The space technology again has helped measurement of the earth's resources, temperature and weather conditions, and forecast a number of weather changes accurately with the help of space satellites.

Indicating the scope for coordination of space researches, Conrad referred to an agreement on rescuing astronauts in outer space, and on cooperation in future training programmes. He further suggested that there could be sharing of facilities like docking with the space shuttle.

Asked about the possibility of a war in the outer space Armstrong commented: "I am a poor prophet". However, he added, the "Space is a different place altogether, it tends to make you feel friendly and the more the people go into space the more more friendly they will be." The US moon men later received FAI awards from the President, Mr V. V. Giri at a special function the next day.

LETTERS

CAMPUS CHAOS

I have read your editorial (August 9, 1970) and the two letters that appeared subsequently. I feel it is time measures are taken to arrest the situation from going worse.

If the working of the universities is thoroughly investigated, it will be found that whatsoever happened in the Delhi University campus, is in continuation of the happenings in other universities. The only difference is, that the Delhi Vice-Chancellor, Dr K. N. Raj, cares more for the wider interests of the nation and the society as a whole.

Your plea that students should be better equipped to face the competition in modern life is likely to go unheeded because the youth know that not merit but something else helps to get a job. Hence each and every student today tries to find out that something else, rather than to make efforts for more knowledge.

So long as there is no heart searching on the part of all concerned, well meaning Vice-Chancellors like Dr Raj will have to suffer and quit their offices at the bid of the rowdy elements of the society.

Ranchi

A. N. Rama

INTERNATIONAL EDUCATION YEAR

I have read with interest Mr D. P. Nayar's fine article "India Launches International Education Year" (Yojana, September 7). Surely now is the opportunity to acquire a correct understanding of the concept of education. So long education was considered a gateway to life; but now it has become a part of life. It begins in the mother's womb and ends only when we breathe our last. Hence it is not only children and the adolescents who need education but also the parents and the teachers, the adults and the aged. Education must help us live a fuller life.

In this connection, the Education Division of the Planning Commission has a great role to play by circulating necessary information regarding the progress of education.

Shembaganur, Tamilnadu Albert Pinto

THE OTHER SIDE OF "NEW INDIA"

With the introduction of "THIS I LIKE ABOUT NEW INDIA" feature, the readers of Yojana are getting much valuable and useful information about the country's progress since Independence. Doubtless, our country is going ahead. But it is only one side of the coin. There is the other side of it too, which our politicians and planners should be told by way of constructive criticism. In your editorial (Yojana, January 26) you had rightly remarked: "We believe that free and frank discussion of the various aspects of planning will help in a better understanding of the problem and a more realistic, if agonising, reappraisal of the strategy followed by us in order to make life more meaningful for the people of this great country". I would, therefore, suggest that you also allow criticism of the other aspects of New India. You can, of course, shut out criticism which smacks of personal vendetta and character assassination.

Bombay

R. D. Prabhu

PRE-SCHOOL FOR INDIAN CHILDREN

With reference to Yojana's centenary tribute to Maria Montessori (September 6), no one doubts that Madam Montessori was a brilliant person who did pioneering work in didactic sensory equipment for mentally retarded children, though the same had been developed by two pioneering French men and from them produced a whole system of training for the mentally retarded. Yet not all would accept that a system that worked well for the mentally retarded, would also be good for the normal child. Her system of associating colours with numbers—blue with four, pink with two, etc., is certainly not true in life.

In India the late Gijubhai of Bhavnagar and Tarabai Modak of Maharashtra added story telling as an aid to development of imagination to the Montessori system. This adaptation is to be seen in the *Bal Vadis*. Personally, I believe we would do more for our children with the kindergarten method of Froebel which is based on the realities of life about us. Do not the kitchen "dekchies" demonstrate graded sizes better than the artificial wooden blocks?

Bombay Mrs Kamala V. Nimbkar

PICTORIAL INTERPRETER

"Illustrated interpreter of Medicine", a new Swedish medical book, contains 200 drawings of symptoms and situations for use by patients undergoing hospitalisation abroad.

A sample booklet in 9 languages has been distributed to Swedish hospitals so that a test can be made of its practical utility. Key words have been translated into a total of 25 languages. The highly simplified drawings are universally comprehensible.

Patients can communicate with medical staff and vice-versa by means of pointing to an illustration which depicts a given situation. One picture, for example, shows a small hammer striking a man and producing one star; another shows a bigger hammer doing the same and producing a series of stars. This is meant to ascertain the intensity of pain.

In this way—which partly conforms to the symbols and modes of expression of international cartoons—the patient can point to drawings of objects he wishes to have and to types of treatment he wants to be given. This eases the situation for patient and staff alike and facilitates diagnosis.

The book was devised by Jack Adams-Ray, a Swedish professor of surgery who spent some time in a Soviet hospital following an accident and experienced considerable difficulty in communicating with the staff who spoke only Russian. Illustrations are provided by Swedish artist Claes Folkesson.

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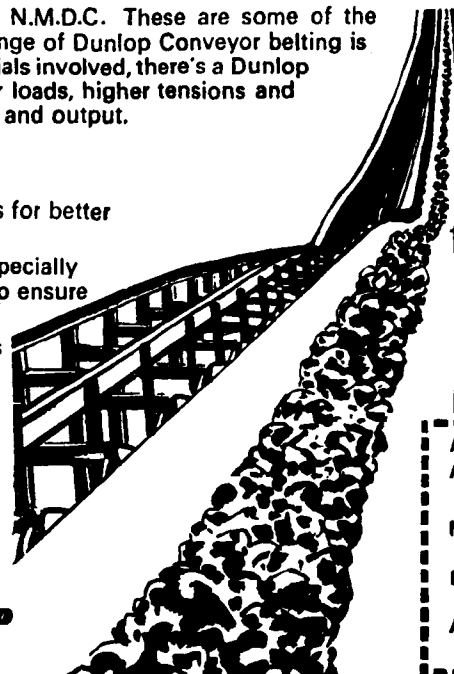
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AGRICULTURE IN TRIBAL AREAS

USHA DAR

THE tribal areas, being remote and inaccessible, have remained tradition bound. Even when conscious attempts are made to introduce new ideas the tribals do not receive them well. This is particularly true in case of agriculture where an increase in productivity has a meaning only if the surplus can be marketed. Ill-served by communications, the produce from the tribal areas cannot easily be marketed in far off "mandies". Hence the effect of isolation on tribal agriculture has been the continuance of primitive methods of agriculture.

The tribal areas also lack irrigation facilities which makes it difficult for the farmers to use chemical fertilisers. There is also the problem of shortage of agricultural labour because the people prefer to work on their own fields and do not work as agricultural labourers.

Individual ownership of land is recognized in certain areas, but this is usually confined to the homestead and settled farm land. In most tribal areas land is owned by the community as a whole. For purposes of cultivation, however, the land is distributed to individual families by the village headman or council. This system of ownership does not create any attachment to the land that is cultivated and therefore there is no interest in the improvement of land for use in future.

The tribals follow both shifting cultivation and settled cultivation.

In the case of shifting cultivation, a field is generally cultivated for one to three years, and this is followed by a fallow period, longer than the period of cultivation. It varies from area to area, depending upon soil conditions.

Thus, there is always a conflict of interest between the forest authorities, who want to prevent the felling of trees, and the cultivators, who fell the trees in order to provide food for themselves. There are some restrictions on shifting cultivation but these only have a negative effect. There are other ways of restraining shifting cultivation like the starting of nurseries for cash crops like cashewnut, black pepper, coffee and cardamom, and distributing the seedlings to the local

farmers; the introduction of horticulture; cultivation of pineapples, oranges and bananas; the induction of the taungia system and the insistence on terrace-cultivation.

But while shifting cultivation continues to be practised, attempts can be made to increase the yield by evolving suitable varieties of paddy and a suitable mixture of crops. It is necessary to prevent fertilisers from being washed away by applying them between rows of fruit cultivation or by digging holes along contour lines before adding the fertilisers.

Settled Cultivation

Settled cultivation implies the introduction of terraced cultivation which, however, is very expensive. There is also the problem of lower yields in the initial period. This will call for some provision to help the cultivators during this trial period. Colonisation schemes often prove infructuous because the land allotted to the tribals is of poor quality and basic amenities are not available. Also, the houses constructed do not suit the socio-cultural needs of the tribals. When tribals from different areas are grouped together, the variance in their manners and customs becomes a hinderance. It was also seen that after moving into the colonies, the tribals lacked the means to support themselves till the next crop was raised.

The 13th annual conference of the Indian Society of Agricultural Economists held at Pantnagar in October last has recommended the following measures for developing agriculture in tribal areas.

* A programme of functional education with an agriculture and production bias should be drawn up. Attempts should also be made to develop local leadership.

* Improved communications linking the tribal areas with the outside world should receive priority.

* While the community system of ownership of land is appropriate for shifting cultivation, in the case of settled cultivation land should be allotted to individuals as this would

create an interest in the development of land. Another section in the Conference believed that individual ownership of land, from the long-term point of view, would lead to sub-division and fragmentation and, therefore, community ownership or cooperative ownership was recommended.

* Prior to extending a cooperation network, an evaluation of the working of the existing cooperatives in the tribal areas should be undertaken.

* Crop varieties suitable to the conditions obtaining in tribal areas should be evolved. The agricultural universities may consider opening of special cells for research in this direction.

* The special nature of extension work in tribal areas needs careful study. It also involves the problem of the selection of extension personnel and their training.

OUR CONTRIBUTORS

ANAND SARUP, Deputy Secretary,
Planning Commission, New Delhi.

MINA SWAMINATHAN, teacher
and free lance writer, New Delhi.

A.P. SEETHAPATHY, Member,
Central Water and Power Commission, New Delhi.

DIPAK B. R. CHAUDHURY,
Journalist, New Delhi.

K. NARSIMHAIAH, Programme
Evaluation Organisation, Planning
Commission, New Delhi.

MANIK KHER, Raipur (M.P.)

C.H. PRAHLADA RAO, Coffee
Board, New Delhi.

G. C. BAVEJA, Joint Secretary,
Planning Commission, New Delhi.

K. V. NATARAJAN, Deputy
Secretary, Planning Commission,
New Delhi.

SURAJ SARAF, Journalist,
Jammu.

USHA DAR, Deputy Director,
Programme Evaluation Organisation,
New Delhi.

Family Planning Consciousness Among Villages of Eraviputhoor

ERAVIPUTHOOR is a small, dynamic village in the Agasteeswaram Taluk of Kanyakumari district, Tamil Nadu, with 316 households, located just about 5 km north-east of Suchindram, the holy place where Lord Indra was purified. The village has a homogeneous population, consisting mostly of vellalas; others—carpenters, goldsmiths, barbers, mudaliars and brahmins—form a microscopic minority of 15 households.

According to the findings of the Planning Forum of the S. T. Hindu College, Nagercoil, Eraviputhoor is a pioneer in the field of family planning. Its population in 1951 was 1,100, and this increased to 1,231 in 1961. The annual growth rate during the decennium was thus only 1.19 per cent. This is much below the average rate of annual growth of population in India. The general trend in the annual births and deaths for the last 3 years shows that the current rate of growth will not be more than the previous rate.

In order to assess family planning consciousness among the villagers, the study was limited to married men below 55 years of age. Out of a total of 126 such men it was found that while 66 actually practised family planning, five were still considering to adopt family planning measures. Thus the actual number of votaries of family planning was 56.34 per cent.

The study also revealed that the rich were more inclined towards family planning than the poor. The chief reason which prompted the people to take to family planning was economic. All the poor and 89 per cent of the rich gave 'high cost of living' as the major cause for adopting family planning measures. Another reason given was health. None seemed to have been lured by 'monetary inducements' given by the Government. Profession had little to do with their choice. Agriculturists and non-agriculturists formed 50 : 50 of this section of the population. However, in a large number of cases, the size of their family prompted men to take to family planning.

Education had made its own impact. Seventy eight per cent of the rich and 50 per cent of the poor respondents or their wives—in certain cases both—did not have schooling beyond the middle stage. It is equally revealing to note that among those who have not adopted family planning, only 40% of the rich had attained this standard, while all the others had lesser qualifications.

As regards methods of family planning, 33 respondents had taken recourse to permanent measures like vasectomy (26) and tubectomy (7). The average age at which the respondents underwent vasectomy operation was 38.5 years for the rich and 32.5 for the poor.

Regarding the source of information about family planning it was found that six respondents got their information from newspapers, five from posters and one from cinema. The rest had no knowledge of any of these sources. 20 persons of this group, however, had attended camps on family planning conducted by the Panchayat Union in the local School. In fact, one respondent attended 5 such camps! Out of the other 33 who adopted temporary methods, 27 belonged to the rich group. The average age at which such measures were adopted was 31 years.

LESS FIVE MILLIONS

As a consequence of extensive family planning drive, over five million births were averted upto 1969-70, yielding a slower growth rate of 2.48 per cent for the year as against 2.55 per cent in 1966-67.

The birth rate which was estimated at 41.7 per thousand population in 1951-60, has declined to 38.3 in 1969-70. Meanwhile, the death rate, which stood at 22.8 per thousand in 1951-60, had fallen to 13.5 per thousand in 1969-70. Up to August 1970, over 2.1 million people had accepted family planning compared to over 1.6 million during the corresponding period last year.

HEALTH IN LADAKH

from Page 40

dispensary and provision of two ambulance vans. Also two blood banks are proposed to be set up during the next year.

Health Education is being provided with the help of film shows, group meetings, exhibitions, short term training courses and distribution of literature. School health scheme has been introduced and school children have been immunised against some fatal diseases. The Red Cross provided about 2.5 lakh Vitamin tablets for children.

Work on the family planning side had, however, not picked up so far in Ladakh. There was only one family planning centre working at Leh. It had only one extension educator and a computer. But this centre was also bifurcated and the computer sent to Kargil. There are hardly any facilities for IUCD insertions and sterilisation. A proposal is now under consideration for starting two full-fledged family planning centres in Ladakh, one at Leh and the other at Kargil.

3,000 MORE RUSSIAN TRACTORS FOR STC

The State Trading Corporation will buy 3,000 units of the new T-25 wheel tractors with 20 horse power engines from the Soviet Union.

The new T-25 model will supplant the earlier Russian-built DT-14B tractors which are widely used in India. At present there are more than 30,000 Soviet tractors in India.

Equipped with a highly economical 20 hp engine, the design of the T-25 ensures easy manoeuvrability. It is designed for agricultural as well as transportation work and can be coupled with implements of either Indian or Soviet origin. Implements designed for the DT-14B can also be used with this tractor. The final design of the T-25 emerged after taking into consideration suggestions from Indian farmers who have been using the earlier model. The T-25 has undergone field tests in the USSR under climatic conditions similar to those of India.

Costing Rs 9,600 per unit, the STC is importing them at a concessional price of Rs. 8,900 per unit, cif. The savings thus effected will be used for setting up a series of servicing units in this country.

FATHER OF COMPUTERISED ECONOMICS GETS NOBEL PRIZE

THE 1970 Nobel Prize for Economics has been awarded to Paul A. Samuelson for "his development of new economic theories and for finding new applications for old theories." In the opinion of the Royal Swedish Academy of Science, which makes the nominations, Professor Samuelson has done "more than any other living economist to raise the level of scientific analysis in the field of economic theory".

The 55-year old American Professor's work has made it possible to place statistics into economic formulas and to analyse them by new methods of mathematical computation. Beginning with "Foundations of Economic Analysis," first published in 1947, Professor Samuelson found the language of classical economics full of contradictions, fallacies and tried to bring order to economic thinking through applying mathematical principles.

Mathematically restructuring each branch of economics like production, international trade, consumer behaviour, business cycles, Professor Samuelson evolved certain formal similarities that could be fitted into a single theory of Economics.

Professor Samuelson's best known work, "Economics: an Introductory Analysis", first published in 1948, has already sold more than a million copies and is awaiting its eighth reprint. Over thirty countries have prescribed this book in the college texts.

INDIA'S SPICE EXPORTS IN 1969-70

THE value of export of spices reached an all-time high of Rs 34.48 crore, contributing 2.4 per cent of India's total export earnings, during 1969-70, as against Rs 25.04 crore, contributing 1.8 per cent in 1968-69. This increase accounts for one-sixth of the total rise of exports

Professor Samuelson's unorthodox approach to Economics has had sensational impact on the accepted economic thinking. He impugned the idea that the price system, if left undisturbed by government, would always restore the economy to balance at full employment.

This eminent economist, who has been teaching at the Massachusetts Institute of Technology since 1940, believes that economists should be concerned with social issues. As a consultant with the U.S. Treasury Department, the Bureau of the Budget (now incorporated into the Office of Management and Budget) the President's Council of Economic Advisers and the National Task Force on Economic Education, he has developed his association with social issues to a point of concern for the entire society.

Recognising unemployment as the major problem of the US economy, Prof. Samuelson believes that expanding labour forces and increased productivity must be geared to a 4 per cent increase in real output to hold down unemployment.

Dr. Samuelson does not believe that one currency is stronger than another. "All Currencies," he says, "are a part of an interdependent system. It is not a sign of defeat when a parity changes. It may actually be the first move towards recovery."

The International Monetary Fund currently proposes to allow small fluctuations in parity in order to promote international economic growth.

worth Rs 54.45 crore during the year. East European countries continued to be the biggest importers of Indian spices accounting for 37.8 per cent of the total export of spices, followed by the Middle East countries with a share of 30.1 per cent, and the American continent with a share of 15.7 per cent.

THINKING ROBOT

The world's first thinking robot, invented by Hitachi Ltd., a Japanese industrial firm, will open a new vista for the operation of unmanned machinery plants. The new robot HIVIP-MKI can 'look' at a blueprint, decide on the procedure and comprehensively assemble an object. A large controlling computer (HITAC—7250) works as the 'brain' of this robot, while it 'sees' through the eyes of two vidicon cameras. These 'eyes' have the capacity of breaking down an image into 76,800 particles, identifying them individually in 32 ways according to brightness as a data for the computer and then undertaking the manual assembly in combination with other memorised data. A handling device, capable of carrying out seven basic motions, work as 'hands' of this inanimate technocrat.

PRINTING BY PHOTOGRAPH

An automatic photo-typesetting system with a high printing speed of 20 characters per second is going to revolutionise printing in Japan. The Cold Type System as it is called (CTS) uses film instead of lead as in the conventional Hot Type System (HTS). The new process combines the automatic typesetting device with an electronic computer, capable of handling Chinese and Japanese alphabets. Under the system, manuscripts and page-by-page layout instructions are fed into the electronic computer. Later an editing tape, made by the computer is put into the photo-typesetting device. The characters are photographed on a film through a lens according to the instructions of the tape, thus completing the plate-making process. The computer can handle 12,000 characters, including the 'Japanese' letters ('Kan') the English alphabet, the numbers and the complicated Chinese characters.

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BIG DEEDS HUMBLE MEN

SMALL SAVINGS BY STUDENTS

A middle school in Coimbatore district has been able through small savings and cooperative effort to raise sufficient funds for the construction of a mid-day meals kitchen and a performance stage at the school premises. With a balance of about Rs 8,000 in the bank, the School Headmaster has now launched a plan to construct yet another building for their institution.

It is the Veerappanchatram Panchayati Union Middle School, one among the 43 elementary and higher elementary and 10 such aided schools being run in the district by the Erode Panchayat Union. It has 1,673 students and 42 staff members on its roll. Situated 1.6 km away from Erode, this school excels in small savings, khadi uniform and mid-day meals schemes.

Last year Veerappanchatram School was declared the best and awarded a shield of distinction.

Gowri, aged 14, had saved Rs 100 when she left the school after completing her 8th standard; Dhanabakiyam, 12, of the 7th standard saved Rs 60 and so did many other students under the Small Savings Scheme started in their school with the initiative of its Headmaster, N. Subramaniam. The scheme benefited about 200 students, who were supplied mid-day meals in the school and Khadi worth Rs 5,000 was purchased for school children.

VEGETABLE GROWING

Mandevada, a village 60 kms from Beshampur, Orissa, which had seen a long period of acute food shortage, is now the largest grower of brinjals, pumpkins and various other varieties of vegetables. Inspired by the publicity and demonstration programmes, the villagers took to the modern methods of cultivation and manure

application. They now get quite handsome return for the money they invest in growing vegetables.

SELF HELP IN IRRIGATION

'Self Help is the best help', and farmers of village Jaipur and the neighbouring villages in the Bankura district of West Bengal have proved it to be right. No longer will they be dependent on the monsoon. Nor the successive droughts would continue to affect them. The farmers of these five villages started digging a canal in last July. They contributed Rs 1,000 from their own pockets, and joined hands in digging the canal from the Kangasabati Sub-canal in Jangal Mahl area. Within 45 days, the canal was completed. The 11.2 km long canal now covers the whole of Solda Mouja, irrigating several hundred hectares of land.

POULTRY-KEEPING IS A FULL-TIME JOB

"If you want to make money from poultry don't treat poultry-keeping as a hobby. Make it a full-time job." This is the advice Joseph and his wife have to give to all prospective poultry-keepers. The Josephs, who hail from Trichur in Kerala, keep themselves informed about the latest developments in poultry. This way they came upon the idea of keeping birds in community battery cages. Joseph built a cage for just 10 layers to try out. It cost him Rs 10. When the experiment proved successful he gradually replaced the deep litter system with the battery cage system. Now they are keeping under the battery system more than 20,000 birds in a shed constructed on just 600 square metres of land.

This system has three-tier cages built with slotted angles, wooden rafters and wire-net. Each tier is partitioned into 16 cages of 3/4 square metre each. One bird is kept in each cage, which has just room for the bird to stand erect and move a bit but not run around. A feed trough and water pipe run in front of the cages for each tier. They are placed in such a manner that the birds can reach for them without spilling. Moveable dropping boards

and slanting egg-laying trays are also fitted suitably. The birds cannot run away as is their habit when somebody enters the shed. One can stand in front of each cage, examine the bird, and spot a sick bird. Birds do not catch cold due to wet feet as in deep litter. They cannot damage the eggs as they roll out of reach as soon as laid. Food wastage is minimum. More poultry manure is also available through this system.

Enkalon Plant

The new Plant of Century Enka Limited which has been recently commissioned is one of the most modern Plants in India manufacturing high grade Nylon 6.

The planning, layout and selection of the electrical equipment in this plant posed many interesting problems. The equipment had to meet the exacting requirements and had to be made very compact. Siemens India undertook the work and designed, supplied, installed and commissioned the Plant in cooperation with Siemens AG.

The transformers were installed outdoor and HT and LT switchboards were made in compact design to fit in the small space specified by the collaborators. Many other complex technical problems were solved pertaining to the heating circuits of the polymerisation columns and the necessity to have uninterrupted high frequency supply in the spinning and winding sections. A high frequency motor generator set for spinning and winding machines to be used only as a standby set, was interconnected through control panels with the existing four sets.

The provision of good earthing connections was somewhat complicated due to the difficult rocky terrain like drill boring to depths upto 1500, all over the factory area. Methods were adopted to meet good earthing results. The complete electricals were installed and commissioned by Siemens in a record period of 18 months.

BOOKS

A RENOVATED APPROACH TO SOCIAL SECURITY

Social Security Measures in India by Dr Vivek Ranjan Bhattacharya. Metropolitan Book Co. (Pvt.) Ltd., New Delhi, 1970. Pages 307. Rs 25.

B. N. Nair

SOCIAL development or social security measures in India represent a Hobson's choice during the Development Decade. The former is a realistic approach and a long drawn-out process, while the latter is in keeping with partial structuralism, a patch-work of reluctant legislative enactments, poorly disseminated and half-heartedly implemented, if not by design, certainly due to inertia and lack of social cohesion as well as awareness. At a time when social and distributive justice are being strongly advocated universally, a new configuration of values is being evolved. This calls for a retrospective view of our statutory enactments on social security measures, their re-examination, and quite ineluctably, of a comprehensive National Labour Code with a new content and the creation of the base for a genuinely welfare-motivated implementation at all levels of administration are well-implied. This appears to be the *raison d'être* of the book under review, based on an earlier doctoral dissertation submitted to the Delhi University.

The author has compressed within the pages of this well-written book a good deal of grist for the Administrative machinery of the Centre and State to act upon, by provoking thought on the existing body of social security measures and by pinpointing their inadequacies, chiefly their lack of standardisation in terms of the prevailing social realities. The limitations of the economic capacity of the State to launch broad-based social security measures on the US or the Scandinavian, or German models have been fully recognised by him throughout and his plea appears to be throughout for a renovated approach

and for taking a second look at the social costs involved. His book is, therefore, timely and a welcome effort, in tune with the *Zeitgeist*.

A basic merit of the book under review is its comparative approach. A large number of problems have been deftly retouched by the author over a broad canvas that conveys a sense of urgency and timeliness. The experience of several advanced countries in Europe, notably Germany, France, Scandinavia and the USSR, not to speak of the USA that has received a fuller treatment, illustrates the background of their problems of social security and the manner in which they have tackled them. These fall under the broad categories of unemployment insurance, health insurance, housing, child welfare, old age pension, etc. The operative legislation has been cited in the book at various stages with pertinent comments or reflections on the Indian state of affairs. The author does not advocate the socialising of poverty but firmly believes in economic development, without any induced political mobilisation, better distributive justice and social security measures that cover the major and most pressing problems that are unfortunately not receiving their due share of attention today.

Under Indian conditions, the author has attached great importance to the weaker sections of the population and their special problems engendered by our social-stratification patterns. Two well-written chapters have been devoted to this important subject as well as to the general problems of rural India and these are packed with very useful material. Yet another important aspect is the treatment accorded to problems of social pathology under which category social deviations such as prostitution or wilful beggary figure. In the treatment of these issues, the author does not stick to the narrowly demarcated areas of social security measures but hovers

over a wider spectrum of social welfare and touches upon many other topical problems that generally pass unnoticed. Overall, it is in the comparative treatment of social security measures that the chief merit of the book lies as it unmistakably conveys to the reader the great importance attached by advanced countries to social welfare. Besides, the national issues of economic planning and reconstruction in these countries are substantially grounded on social values relating to the ultimate goal of social welfare and in this sense it is implied that an entirely new approach is called for in this country during the Fourth Plan period.

Despite the compelling necessity of having to recount the provisions of numerous pieces of legislative enactments and social security measures the author has not departed, in the course of his eclectic meanderings, from the central thesis of his dissertation, ably restated by the Prime Minister recently as being the attainment of the goal of social justice. It is refreshing to observe that the author has carefully eschewed ideological clichés as well as jargon of the technical variety. On the contrary, he has recalled the almost forgotten name of Benoy Kumar Sarkar at a few places in the book, as an Indian economist of great calibre and international reputation in having conceived social security measures of a far-reaching nature over 40 years ago. In place of B. K. Sarkar and others we are today worshipping at the altar of many idols that radiate transatlantic splendour. The treatment of all connected topics has been throughout broad-based, humane and yet pragmatic in terms of the need for extending the scope of the prevailing measures and infusing them with an urgent sense of social realism.

The style of language used is limpid and unpretentious with the factual presentation being given precedence over rhetorical advocacy. The

author has not explicitly laboured the points of any controversy and has in fact restrained himself from projecting his personal views by avoiding the strident tone of official expertise or the mock earnestness of many impatient and puerile Ph.D. degree seekers of Indian Universities. With these characteristic virtues he has also dealt with the subject matter in a spirit of professional detachment, objectivity and earnestness of purpose so that the book may be found eminently suitable for the use of the advanced students of social studies in a world perspective; that is the crying need during the Development Decade.

A useful set of appendices and an exhaustive bibliography are two additional features of the book that should enhance its usefulness to all serious students, while civil servants, administrators, parliamentarians and the common readers who desire to acquaint themselves with the warp and woof of social legislation in India as well as abroad, might find in its pages a good deal of mental pabulum *par excellence*.

COMBINE HARVESTER

The Combining of Various Crops: Technical Fundamentals by Peter Feiffer and Rosemarie Feiffer, Asia Publishing House. Pages 244. Price not given.

J. P. Agrawal

THE book under review presents valuable data and tables with regard to different widths of swath, guide values to plan the use of a combine, optimum setting for different crops, and losses in combining depending upon the width of cutting unit, and grain size of crops. However, a discussion on the cost involved would have given added information which could be of practical utility. Data and tables on combining various crops with tractor-drawn as well as self-propelled combines would have been really useful since economics always figures prominently in such operations.

The description of the methods for determining various kinds of losses in combining operation and of the time of operation as well as harvesting of area for combine is excellent. But a point to remember is that a complete

comprehensive discussion of the merits and demerits of the machinery places a farmer in a convincing position in choosing a machine, particularly a combine. Therefore, it would have been better if the advantages and disadvantages of tractor-drawn as well as self-propelled combines were discussed in this book.

Photographic diagrams have been used in the book to illustrate the setting adjustments and additional equipments. These will, probably, prove to be inadequate and difficult to follow. The use of line diagrams would have been more appropriate and easy to understand.

No machine can serve for long without trouble if adequate care is not taken to maintain it. This underlines the need for clearly defined instruction about the care before, during and after harvesting. Such instructions should include points and frequency of effective lubrication, checking of wear and tear and other pertinent points for proper maintenance of the combine.

The book otherwise is comprehensive and will be useful to the farmers with regard to harvesting and threshing of various crops.

PROVIDENT FUNDS

Provident Funds in India. A Study in Investment Management by Dool Singh. Sponsored by Research Programme Committee, The Planning Commission. Pages 252. Rs 30.

This publication based on an intensive investigation in the affairs of the selected 85 provident funds in India, surveys the working of the institution of provident fund and the salary-earners' attitude and response to it. The concluding chapter sums up the important recommendations including a scheme of Savings-cum-Insurance along with the proposal for Central Provident Fund Schemes in view. The copies of the questionnaires for employees are given as an appendix to the Report.

Essentially, a study in investment management, the publication contains important data and analysis and will serve as a valuable reference guide on the subject.

Development of the Child

A Healthy Personality for Your Child, Adapted by Miss Maya Mehta. Pages 42. 80 paise.

Your Child from 1 to 6, Adapted by Nirmala Kher. Pages 152. Re 1.

Your Child from 6 to 12; Adapted by Dr Kamala Bhoota. Pages 258. Re 1.

All three books published by Vora & Co., Bombay.

S. Prasad

THE three books have been published with the assistance of the joint Indian-American Text Book programme. They have been brought out under a cooperation plan between the SNDT Women's University of Bombay and the United States Information Service, all the three authors being on the staff of the university colleges, who have adapted the series originally written for the US Children's Bureau.

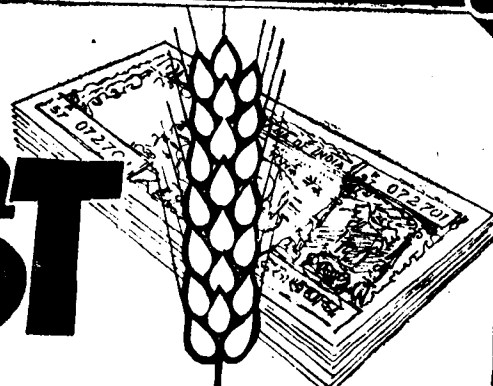
The books have an obvious orientation to make them useful, specially for students of Home Science. Between them, they cover almost all the stages of the development and growth of a child, and, as such, they have a much wider appeal. "The child is the father of Man" is a well-worn cliché. Looking at today's world, it seems the latter does not quite know where he should come in to develop his child's personality. The books try to clear some of the mist surrounding the subject.

Good timing is the key to a healthy personality, they say. You have to read your child's signs rightly and grease the ways so that he gets what he needs. One has indeed travelled far from the times when the power of the rod was supreme, and one spared it only at his own risk.

But this does not entirely preclude the use of the negative, according to the experts. The sensible 'No' is hard to give, they say. One has to seek his or her own compromise between freedom and restraint for the child. Apart from the philosophy of it, the books are full of practical, homely hints for the mother, as she transfers the emphasis from child-bearing to child-rearing.

All the three adaptations provide interesting reading, for a growing child is one of the most exciting things in the world. Written in a simple language, they take care of even minute details like nail-biting and pocket money. And the ubiquitous "comics" too!

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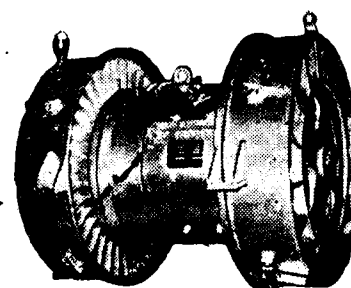
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dep 70/406

ENGINEERING NOTES

Blower Motor for Diesel Electric Loco

High speed blower motors for cooling Dynamic Braking Resistors on 2600/2400 HP BG and 1380/1245 HP MK DE Locomotives of Indian Railways, which were hitherto being imported from the UK and the USA, have now been manufactured and tested successfully by Heavy Electricals (India) Ltd., Bhopal. The motor is rated at 70 HP, 325 VDC, 3500 rpm with class 'B' insulation and is series-wound to suit blower unit characteristics. It is fitted with two end-shield ball bearings (one spring loaded), an axial flow fan at each end of the shaft with a contravene structure on the frame head outside the



motor frame. The motor is connected across a section of the braking resistor and operates only during dynamic braking, the fan speed depending on the braking current through the resistor. The entire motor and blower assembly is mounted as one unit on the locopad.

The motors were subjected to full load tests with and without the blowers including overspread tests at 1.2 times the rated speed. Commutation was checked at all loads. Heat run for full load and for 1 hour run were carried out and the temperature rises were found within limits. The performance figures obtained on tests tally closely with the calculated design values.

HSL Output Touches a New High

THE performance of Hindustan Steel improved significantly during October, this year. The production during the month amounted to 354,200 tonnes of hot metal, 259,300 tonnes of steel ingots and 239,300 tonnes of saleable steel as against the corresponding figures of 341,600 tonnes, 278,200 tonnes and 224,400 tonnes in September.

Despatches of saleable steel, too, increased to 239,100 tonnes in October as against 215,700 tonnes in September, while that of pig iron went up to 116,000 from 71,500 during the period.

Out of these, Durgapur Steel Plant produced 51,200 tonnes of saleable steel by rolling ingots and semi-stocks. The production in the Skelp Mill of 10,190 tonnes and the production and despatches of pig iron amounting to 53,500 tonnes and 59,900 tonnes respectively were the highest on record. In the Bhilai Steel Plant, production and despatches of granulated slag, amounting to 53,853 tonnes and 45,868 tonnes, have been the highest achieved so far. At Rourkela, there was a record production of 4,525 tonnes of electrolytic tin plates as against 3,567 tonnes in August last. The output of the picking line, amounting to 30,140 tonnes, was, the highest ever achieved.

India Exports Tanning Agents

India is likely to become a major exporter of synthetic tanning agents. Introduced only two years ago, this important ancillary for the leather industry is now being manufactured indigenously as "Basyntan" by BASF India in Bombay. Apart from meeting the entire domestic demand, this Indo-German joint venture hopes to export over 30 per cent of its production this year.

The total export orders so far amount to more than Rs. two million. Negotiations are at present underway with the Soviet Union for exports to

that country. If concluded successfully, they would result in large orders from the Soviet Union and most likely necessitate expansion of BASF India's production facilities in Bombay.

Apart from Basyntan, BASF India manufactures Styropor (expandable Polystyrene) and Thermocole (expanded Polystyrene).

Rourkela to Reach its Rated Capacity

During 1970-71, Rourkela is likely to produce 1.1 million tonnes of ingot steel against the target of 1.2 million tonnes. Recently, an Indian engineer has taken over as General Superintendent of the Plant from Dr W. Bading, who is probably the last W. German expert to hold this post. Simultaneously, further "Indianisation" is taking place. With the recommissioning this month of Blast Furnace No. 1, production in the plant is gradually picking up. So far, the best month was March 1969, when the plant attained production equal to the 1.4 million tonnes rate. Plans are afoot to introduce a new product, "cold rolled grain-oriented sheets", a high-grade plate needed for the manufacture of electrical machinery like dynamos.

Hindustan Shipyard's New Dredger

Hindustan Shipyard, Visakhapatnam, has received an order from the Visakhapatnam Port Trust to construct a Diesel-driven Twin Screw Grab Hopper Dredger with two numbers dredging cranes. The Dredger has been completely designed by the Shipyard for operation within the harbour waters and approach channels.

It will be able to dredge various types of soil to a depth of 21.33 metres and fill the hopper with both grabs working, in about 34 hours. The speed of the dredger will be 11 knots in fully-loaded condition and at full power. The hull would be an all-welded construction.

A public address system with a talk-back channel from the wheel house, forward and aft main deck, crew space and casing engine room will be provided besides other modern navigational aids and equipments.

Development Diary

* During the first six months of the current financial year the Minerals and Metals Trading Corporation exported goods worth Rs 50 crore, an increase of Rs 8 crore over the corresponding period last year.

* The Ordnance Cable Factory at Chandigarh has saved over Rs 5 crore in foreign exchange by manufacturing field cables, carrier quad cables and piano wires.

* The Central Mechanical Engineering Research Institute in Durgapur has prepared a novel scheme to promote self-employment of unemployed engineers by providing turn-key project reports for the production of engineering equipment, including agricultural implements. The scheme will be complementary to the government's decision to provide financial support to groups of unemployed engineers for starting new factories.

* The industrial production which rose by 6.4 per cent in 1968 showed a further increase of 7.1 per cent in 1969. Preliminary index figures for 1970 show that industrial production during January to May 1970 has recorded an increase of 5 to 5½ per cent over the corresponding period of the previous year.

* Hindustan Housing Factory, a public sector undertaking, achieved a record out-turn of the value of Rs 1.98 crore during the year 1969-70 as against Rs 1.93 crore in 1968-69. During the year 1969-70, the Factory also made a record profit of Rs 26 lakh as compared to Rs 20 lakh in 1968-69.

* Out of the forty-six projects envisaged under the Small Farmers' Development Agency Scheme, for which there is a Plan provision of Rs 67.5 crore, in the Central sector, thirty-one projects have been approved, fifteen of these have been registered and work has started on ten. Of the 40 pilot projects for assisting marginal farmers and agricultural labour, seven projects have already been approved.

* The Government of India have decided to contribute Rs 2.80 crore or 3.75 million US dollars to the United Nations Development Programme for the year 1971. This represents an increase of 0.25 million dollars over the last year's pledge of 3.5 million dollars.

* In Gujarat, credits through co-operative institutions have gone up from 4 per cent to over 25 per cent of the total credits, in the past two decades.

* Indo-Rumanian trade has increased from Rs 3.8 crore in 1960 to Rs 14.4 crore in 1969. In the first six months of 1970, trade reached a level of Rs 13 crore. India's trade with Hungary has also shown a steady improvement from Rs 4.9 crore in 1960 to Rs 27.3 crore in 1969 and is expected to reach a level of about Rs 30 crore at the end of the current year.

* A small-scale engineering unit in Maharashtra has produced an improved Derrick Crane, with indigenous design and materials. Cheaper and easier to operate, it costs only Rs 1.5 lakh as against the existing price of Rs 4.5 lakh.

* The State-owned Minerals and Metals Trading Corporation exported Rs 8 crore more of minerals during the first six months of this year. Its total exports for the period were about Rs 50 crore.

* The State-owned Heavy Electricals Factory at Bhopal has now entered into a new agreement with a British firm for the manufacture of nuclear turbines.

* India will receive financial assistance of over 2.12 lakh US dollars from the FAO. The assistance, which will include technical advice is for four specific projects towards which India's contribution will be of the value of 6.18 lakh dollars. These projects are Farmers' Training and Extension Service, the establishment of Hatcheries in India, the development of Rural Youth Clubs in Udaipur and Young Farmers' Training Centre at Rakhra, Punjab.

* The Central Mining Research Station, Dhanbad, has developed a process for the preparation of hydrogen sulphide detector tubes. The sealed glass tube contains a granular material impregnated with a chemical which changes colour on reaction with hydrogen sulphide gas and has high sensitivity in detecting and estimating hydrogen sulphide gas in air or gas mixture. The raw materials used in manufacturing the detector tubes are available in the country. At present the detector tubes are being imported.

Regd. No. D-876

YOJANA

The journal of the Planning Commission published fortnightly in English, Hindi, Assamese, Bengali and Tamil

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Editorial Office :

Yojana Bhavan, Parliament Street, New Delhi-1.

Circulation :

Publications Division, Patiala House, New Delhi-1.