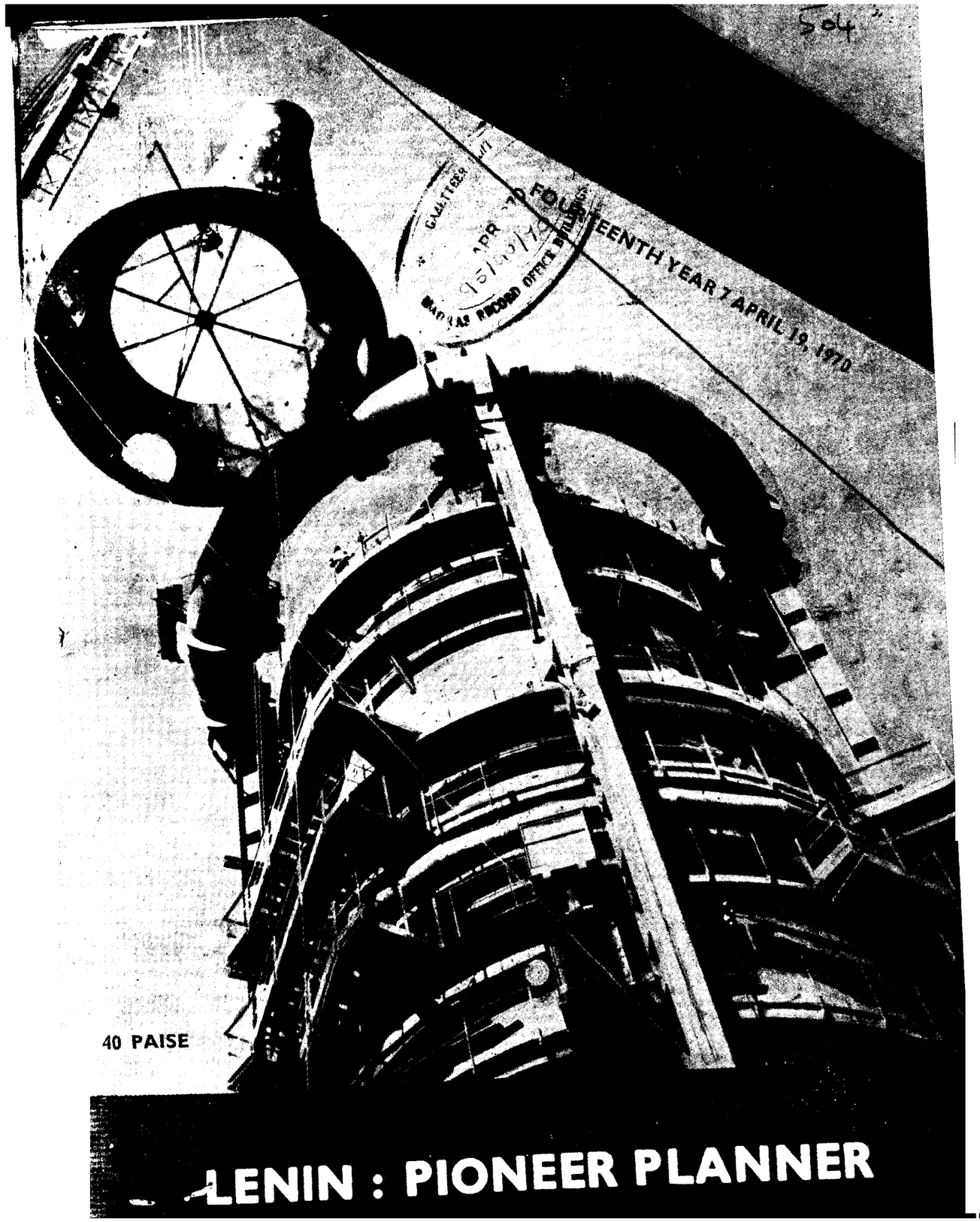
FOURTEENTH YEAR 7 APRIL 19, 1970



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LENIN : PIONEER PLANNER

YOJANA

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

Vol. XIV No. 7

April 19, 1970

Chaitra 29, 1892

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

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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: 15 sh 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

The millions and millions of people of India must have a better piece of bread and a better piece of rag on their bodies. The great question is, how to get that better bread and better rag for these sunken millions.

Swami Vivekananda

IN THIS ISSUE

Editorial

CENTENARY OF A REVOLUTIONARY

IT is the paradox of our times that in spite of the phenomenal advance of human knowledge and skill and the fantastic progress of science and technology, a fabulous increase in productive capacity, the promised Utopia is only a distant dream for most of mankind. For the first time in history conditions for the realisation of the dream of an age of plenty seem almost within human capacity, and yet we have millions of human beings wallowing in poverty and ignorance, condemned to live their lives in filth, squalor and disease.

In the midst of this doubting, fearing world stands the Soviet Union—a symbol of man's triumph over man. Today, the Soviet Union is a nation transformed. In science and technology, in agriculture and industry, in war and peace, the Soviet Union stands supreme. All within the space of less than six decades. What good fairy waved the magic wand that roused the sleeping giant that was Czarist Russia from his slumbers and breathed vigorous confident life into his veins ? Whose was the spirit that inspired an illiterate, backward people to work and strive for a higher destiny ? Who was the man who planned for the regeneration of his people and led them on towards the goal of a just society ?

The man who worked the miracle was Lenin—one of the greatest men of all time. During his comparatively short life, he not only laid the foundations of a new social order in his own country, but sowed the seeds of his philosophy in the minds and hearts of poeple in many other lands. The profound effect of his thinking has changed the course of history to an extent that few men have been able to do.

When one considers the magnitude of his achievements and the impress he left behind in the world, all within a life-span of 54 years, one cannot but stand in awe and reverence to such a man as Lenin. It is important to bear in mind that of the 34 years of manhood, a large proportion was spent in prison, exile in Siberia, or in forced exile outside his country. He had only five years of free activity in Russia before illness weakened his powers and eventually ended his life.

In that short period he had led a revolution vaster than anything known in history, had extricated his country from war, had quelled a civil war within her borders, had fought famine and pestilence, had developed an economic machine to supply the nation's material needs, and established a machine of government on an entirely new model deriving its motive power solely from the working class. In short,out of the debris and dust of revolution, he gave shape and substance to the hopes and aspirations of a people who looked upon him as their saviour.

Stripped of all emotional adulation and ideological polemics, the fact remains that the Soviet achievement in the regeneration of a decadent and effete nation has few parallels in history. Everyone may not accept either the necessity or justification for the methods used for the establishment of the new Soviet State. Indeed, even Jawaharlal Nehru, who was a great admirer of the Soviet system, found in the means adopted by the Soviet rulers something that was unacceptable. Nevertheless, he saw a great deal that India could learn from the Soviet Union, especially in the sphere of economic development.

It is a pity that in assessing Soviet achievements in the quest for a better and fuller life for her people, one is sometimes lost in an unending debate on the relative merits of the Soviet and democratic political systems. Forgetting this for the moment, one has to admit that the achievements of the new Soviet state, launched on its uncertain course by Lenin, are stupendous. It is inevitable that the masses in a developing country like India should look to the Soviet system as the panacea for their economic ills. For these millions, the argument about the comparative merits of the two political systems is irrelevant. But, whatever one's views on this highly controversial subject, Lenin's greatness as a world leader is unquestioned.

There were critical periods in his life when he had to stand alone. Few men who started the course with him were at his side when he reached the end of his journey. For them the pace was too hot, and the sacrifice that Lenin demanded from them was more than what most men were prepared to give. Lenin stood alone among the ruins, labouring day and night, to build a new world for his fellowmen. What kept him going when others failed, faltered and were left on the wayside was his intense idealism. This is epitomised in these beautiful words of Lenin with which Jawaharlal Nehru ends his *Discovery of India*:

> **"Man's dearest possession is life, and since it is given to him to live but once, he must so live as not to be seared with the shame of a cowardly and trivial past, so live as not to be tortured for years without purpose, so live that lying he can say : 'All my life and my strength were given to the first cause of the world—the liberation of mankind."**

History has few men to offer who can bear comparison with Lenin. As James Maxton wrote :..."nowhere is to be found in any single man the peculiar combination of devotion, courage, wisdom, skill and human understanding except in the man Lenin.."

Lenin always emphasised that for effective planning two preconditions were essential : firstly, the nationalisation of all large-scale industry, and secondly, the framing of a long-term plan for economic progress.

LENIN: THE ARCHITECT OF PLANNING

On the basis of his famous formula that Communism is Soviet Power plus Electrification, Lenin initiated the first Grand Plan of Economic Development for any country that the world had ever seen.

MOHAN KUMARAMANGALAM

THE first attempt at "planning", charting out the main objectives for the economic life of a nation over a period, was made in the Soviet Union. Prior to the first Five Year Plan (1928-1934) that laid the basis for the rapid industrialisation of backward agricultural Russia, none had attempted to fix the targets for every branch of a country's economy for a five-year period. Yet today this has become commonplace. Even in the U.S.A., the citadel of free enterprise, targets are sought to be defined. And throughout the world, planning has become an essential part of the work of every Government. Lenin was the father of Soviet planning and, in a sense, the father of large-scale country-wide economic planning that took within itself every aspect of a nation's economic life.

The great October Revolution triumphed in the Soviet Union in November 1917. Hailing this victory Lenin wrote: "This epoch-making change has been made. The era of bourgeois-democratic parliamentarianism has come to an end. A new chapter in world history—the era of proletarian dictatorship—has been started."

But Lenin was conscious of the fact that the capture of political power by the Bolshevik party was only the beginning. In retrospect it might even be said that it was easy for the Bolsheviks to destroy the corrupt reactionary Czarist regime and its ineffective successor, the Kerensky Government. But the task was to build, to reconstruct; Lenin immediately grasped the essence of this and wrote:

> "We, the Bolshevik Party have *convinced* Russia. We have *won* Russia from the rich for the poor, from the exploiters for the working people. Now we must *administer* Russia."

And so immediately Lenin turned his attention to the fundamental task of creating a socialist economy, an economy superior to capitalism; a socialist system that would take Russia forward from a crippled economy to which it had been reduced by the World War and then the civil war, through which Lenin had led the Soviet people victoriously.

Lenin started from the bottom of the economic ladder, with the simplest of directives addressed to the people. The entire economy had collapsed. Traditions of work had vanished. Hundreds of thousands of people, particularly in the cities, had lived for months in the shadier bylanes of life, by stealing, by dubious practices of a thousand kinds. Hence came Lenin's first and the most widely spread solgan: **"Keep regular and honest accounts of money, manage economically, do not be lazy, do not steal, observe the strictest labour discipline."**

Lenin knew that socialism could not be built by tall talk, by boastful words and hence began with the ordinary day-to-day problems, the conduct and behaviour of millions which, at that particular moment of time, was most crucial, if the struggle for socialism was to go forward.

At the same time, he devoted close attention to the major issues of economic development. Under his leadership on June 28, 1918, the Council of People's Commissars passed a decree on the nationalisation of all large-scale industries. Two months earlier, in April, he wrote "the Draft Plan of Scientific and Technical Work", in which he set the country's economic administrative organs and scientists the task of drawing up as rapidly as possible "a plan for the reorganisation of industry and the economic progress of Russia".

Lenin always emphasised that for effective planning two preconditions were essential; firstly, the nationalisation of all large-scale industry and secondly, the framing of a Plan for economic progress. For without the main controls of industrial development being taken over by the state, there could be no question of any

Plan. And without a Plan there could be no question of development of industry.

THE FIRST GRAND PLAN

It was about this time that Lenin advanced his famous formula : Communism is Soviet Power plus Electrification of the whole country. And on this basis he initiated the first Grand Plan of economic development for any country that the world had ever seen. The famous GOELRO (State Commission for the Electrification of Russia) Plan was the first Soviet long-term economic development Plan, covering a period of 10 to 15 years. It was a Plan for electrifying Russia, framed on the initiative and under the guidance of Lenin. It put forward an immense task of building a reliable economic foundation for socialist society, transforming Russia from an agrarian country into an industrial one, and doubling its industrial output of pre-war 1913. The Goelro Plan had put its target of building 30 district power stations of an aggregate 1 million 75,000 kw and with an annual output of 8,800 million kwh. It was planned to begin intensive industrial projects on the basis of electrification of key economic areas, with a stress on decisive branches of heavy industry. In the rural areas, the aim was to go over from small-scale peasant farming to large-scale collective farming.

Lenin commented on it: "If Russia is covered by a dense net-work of electric power stations and powerful technical installations, our communist economic development will become a model for a future socialist Europe and Asia."

PROPHETIC VISION

The main outlines of the first Five Year Plan initiated four years after the death of Lenin in 1928 can be seen in the famous Goelro Plan. And looking back over nearly half a century, one cannot but wonder at the confidence and prophetic vision of Lenin who, surrounded as he was then by an economy that had entirely collapsed with the industrial production not even twenty per cent of the 1913 level, could have the audacity to approve a Plan that put forward a target of doubling the industrial production of 1913, which amounted to almost increasing by ten times the industrial production of 1920.

No wonder H. G. Wells, the famous British writer who visited Moscow in the autumn of 1920, called Lenin the "Dreamer in the Kremlin". He was deeply impressed by him and declared that his meeting with "this amazing little man with his frank admission of the immensity and complication of the project of communism and his simple concentration upon its realisation" had been "very refreshing". He still called Lenin's Plan for Russia's electrification as a "Utopia of the electricians". But Wells also wrote:

"Can one imagine a more courageous project in a vast flat land of forests and illiterate peasants, with no water power, with no technical skill available, and with trade and industry at the last gasp?...I cannot see anything of the sort happening in this dark crystal of Russia, but this little man at the Kremlin can; he sees the decaying railways replaced by a new electric transport, sees new roadways spreading throughout the land, sees a new and happier communist industrialism arising again".

Such was Lenin's confidence in the future because he had confidence in the superior weapon, placed in his hands by Marxism, the weapon of planned economic development which could and would help him to triumph over all the millions of difficulties which the Soviet Union was facing at that time.

The first major article that Lenin wrote on planning was in February 1921, entitled "Integrated Economic Plan". *In it he described the GOELRO Plan in this way:

> "It outlines an integrated economic plan which has been worked out—only as a rough approximation of course—by the best brains in the Republic under instructions of its highest bodies."

And then in his familiar pungent style, he attacks those inside the Party who were criticising this Plan as having been produced by non-political "bourgeois" specialists, writing:

> "We have to make a more modest start in fighting the complacency born of the ignorance of the Grandees and the intellectualist conceit of the Communist literati, by telling the story of this book...and describing its content and success."

GOELRO SUMMARY

Lenin summarised the GOELRO effort in this way:

"We find, first, a summary of these works (the first part of the Volume running to over 200 pages) : (a) electrification and a state economic plan; followed by (b) fuel supply (with a detailed 'fuel budget' for the R.S.F.S.R over the next ten years, with an estimate of the manpower required); (c) water power; (d) agriculture; (e) transport; and (f) industry.

"The plan ranges over about ten years and gives an indication of the number of workers and capacities (in 1,000 h.p). Of course, it is only a rough draft, with possible errors, and a 'rough approxiamation', but it is a real scientific plan. We have precise calculations by experts for every major item, and every industry. To give a small example, we have their calculations for the output of leather, footwear at two pairs a head (300 million pairs), etc. As a result, we have a material and a financial (gold roubles) balance-sheet for electrification (about 370 million working-days, so many barrels of cement, so many bricks, poods of iron, copper, and other things; turbine generator capacities, etc.). It envisages ("at a very rough estimate") an 80 per cent increase in manufacturing, and 80-100 per cent in extracting industry over the next ten years. The gold balance deficit (11,000 million—17,000 million leaves a total deficit of about 6,000 million) 'can be covered by means of concessions and credit operation'.

"It gives the site of the first 20 steam and 10 water power district electric stations, and a detailed description of the economic importance of each.

Lenin, Collected Works. Vol. 32, p. 137

"The general summary is followed, in the same volume by a list of works for each area (with a separate paging): Northern, Central Industrial (both of which are especially well set out in precise detail based on a wealth of scientific data), Southern, Volga, Urals, Caucasion (the Caucasus is taken as a whole in anticipation of an economic agreement between its various republics), Western Siberia and Turkestan. For each of the area, electric power capacities are projected beyond the first units; this is followed by the 'GOELRO Programme A', that is, the plan for the use of existing electric power stations on the most rational and economic lines. Here is another small example: it is estimated that a grid of the Petrograd stations (Northern Area) could yield the following economy (p.69) : up to one-half of the capacities could be diverted to the logging areas of the North, such as Murmansk and Archangel, etc. The resulting increase in the output and export of timber could yield 'up to 500 million roubles' worth of foreign exchange a year in the immediate period ahead'.

"Annual receipts from the sale of our northern timber could very well equal our gold reserves over the next few years' (ibid., p. 70), provided, of course, we stop talking about plans and start studying and applying the plan already worked out by our scientists." (Collected Works, Vol. 32, pp. 139-140).

It is obvious from Lenin's article that this magnificent Plan was given a hostile reception by some leading personalities inside the Communist Party. Hence comes the withering criticism from Lenin of "the bureaucratic and intellectual defects of our apparatus, essentially of its top drawer." And this too in words which only Lenin could use:

> "It is time we learned to put a value on science and got rid of the 'Communist' conceit of the dabbler and the bureaucrat; it is time we learned to work systematically, making use of our own experience and practice"; and again: "The Communist who has failed to prove his ability to bring together and guide the work of specialists in a spirit of modesty, going to the heart of the matter and studying it in detail, is a potential menace. We have many such Communists among us, and I would gladly swap dozens of them for one conscientious qualified bourgeois specialist."

He directed his colleagues to recognise that "their prime duty is to see that they are not carried away by the issuing of orders. They must learn to start by looking at the achievement of science, insisting on a verification of the facts, and locating and studying the mistakes... This calls for modesty and respect for the efficient 'specialists in science and technology'."

Such was the position taken up by Lenin in the darkest days of economic crisis in the Soviet Union. With prophetic vision he saw a future where Russia would have taken a lead in the world in industry and agriculture, on the basis of centralised planning, organised by men who knew industry and agriculture and were in command of the latest achievements of science and technology.

And throughout the developing countries in the world, this in a sense is the central problem—the creation of a centralised Plan that can be successfully implemented on the basis of effective control of the main heights of the country's economy. Lenin emphasised two main preconditions for successful planning: first an effective and determined political leadership, provided in the USSR, by the disciplined and well-organised Communist Party; secondly, a proper balance between industry and agriculture achieved through industrialisation, that is possible because the State controls industry, and advance in agrarian production, that can be achieved because the State controls the sources of credit on one side and the market on the other. These were the two pillars on which was constructed the edifice of Soviet planning, of which Lenin was undeniably the father and genius.

If I had not come to Russia, life's pilgrimage would have remained incomplete...the first thing that strikes me is: What incredible courage!...Here in Russia they have torn it (tradition) by its roots; there is no fear, no hesitation in their minds...It would have been unpardonable not to see the light of the greatest sacrificial fire known in history.

—Rabindra Nath Tagore

...there is no questioning the fact that the Bolshevik ideal has behind it the purest sacrifice of countless men and women who have given up their all for its sake, and an ideal that is sanctioned by the sacrifices of such master spirits as Lenin cannot go in vain; the noble example of their renunciation will be emblazoned for ever and quicken and purify the ideal as time passes.

—Mahatma Gandhi

Since he died Lenin has become a mighty tradition, not only in his own native Russia but in the world at large. As time passes he grows greater; he has become one of the chosen company of the immortals...he lives, not in monuments or pictures, but in the mighty work he did, and in the hearts of millions of workers today who find inspiration in his example and the hope of a better day.

—Jawaharlal Nehru

From the time of the Great October Revolution, the world had begun to hear a new voice—that of Lenin—and begun to stir to new ideas. Our own independence struggle in India developed along somewhat different lines. Nevertheless, we were influenced and deeply moved by the heroic efforts of the new Soviet Government to establish itself and build a new social order on the ruins of the Czarist tyranny and war.

—Indira Gandhi

LENINIST MESSAGE VALID IN THE INDIAN CONTEXT

If our attempts at inducting new technology into agriculture do not promote the cause of additional capital formation, we will be serving the cause of neither social stability nor of rapid growth

SEPARATING THE WHEAT OF THE GROWTH-MINDED PEASANTRY FROM THE CHAFF OF THE PROFITEERS

ASHOK MITRA

ECONOMISTS are rather fond these days of the technological theme, which passes as 'learning by doing'. The operational implications of this concept can go far afield. Almost absent-mindedly, a large corpus of economic literature in recent years has been expended on this area of study.

While planning for economic development, some revolutionaries-come-to-power get exposed to this process of learning by doing; others are deprived of the experience. For example, in the Soviet Union, Stalin had a pretty long spell during which he could experiment with various methods for solving the problem of transition of a nascent economy into full-fledged growth. We need not detain ourselves to discuss whether some of these trials and errors were indeed necessary, or whether the end-product of the learning process was something impeccable. But the fact that at least he could afford—or, if you wish, was forced to—this specific exercise must have influenced considerably the modality of his decision-making.

Lenin had no such luck. Nearly the entire span of his career was filled by his role as full-time insurrectionary leader in exile and part-time interpreter of Marxist doctrine. Death intervened much too soon after he took effective charge of State power; he thus had very little time to test the empirical correlates of the economic models developed by the early socialist theoreticians. Between War Communism and the New Economic Policy, between the Treaty of Brest-Litovsk and tackling the Kolchaks and the Denikins, his opportunities to learn from actual policy experiments in the field of economic planning were severely limited. So far as problems of economic development and the organisation of a post-revolution socialist State go, his enunciations therefore do not proceed substantially beyond what, for example, was already embedded in tracts such as *Anti-Duhring*. No question that he was a magnificent populariser: quite a few abstractions in Marx and Engels are revealed with a pristine felicity in Lenin's pieces. This apart, his extension of Marx's basic economic proposition into the international plane in terms of the theory of imperialism is an altogether new analytical contribution. But if we scan his writings for revelations of empirical judgment on how to build a socialist economy, the net return to our efforts would not be very extensive.

With one significant exception, however, certain major observations on the tasks to be accomplished in the period of transition between capitalism and communism are tucked away in one or two short pieces Lenin had hurriedly put together in the post-October Revolution period. There is much wisdom strewn across these pieces on the tasks of economic planning in an economy which is about to emerge from the state of feudal serfdom. In this article, I would content myself by referring to only one specific aspect of the problem of development which attracted Lenin's attention.

In the immediate post-World War II period, Western economists dilated at length on the concept of the so-called consumption multiplier, the cue to which was provided by authors such as Nurkse. Nurkse sought to link the problem of economic growth for under-developed countries, with a predominant agricultural-pastoral bias, to the availability of surplus grains to be turned over for capital formation. At the source of capital formation is labour. If labour is deprived of its wherewithal, the State is deprived of capital formation. The ability to transfer surplus foodgrains from the countryside to where the potential of capital formation is the greatest is thus the central issue in the development process.

Nurkse came to discover the theme rather late. The theoreticians as well as the practitioners of planning

in the Soviet Union had learnt this basic lesson to their cost by the early 1930's. Lenin grasped the nettle of the matter even earlier. For example, in an incomplete article ("Economics and Politics in the Era of the Dictatorship of the Proletariat", *Marx-Engels Marxism*, Third English Edition, Foreign Languages Publishing House, Moscow, 1947, pp. 442-452) dated as early as October 30, 1919, he has several most interesting things to say about transfer of grain from surplus holdings to where the need is greatest.

The problem of development, he states, is the problem of the organisational reconstruction of the whole social economy, by a transition from 'individual disunited petty commodity production' to 'large-scale social production'. This transition, he added, must of necessity be protracted. It is no use rushing things, the transition will, if anything, be delayed and complicated by hasty legislation and administrative fiats. The process of growth can be hastened only through rendering such assistance to the peasant as will enable him "to improve his whole technique of agriculture immeasurably, to reform it radically".

Straightaway we are introduced to the twin problem in agricultural planning: improve the technique so as to raise productivity, but, simultaneously, reform the general attitude of the peasantry. Here is already implied the crucial issue of technological innovations in agriculture. Lenin is fully aware that the problem of transferring surplus grains cannot be divested from that of increasing the volume of the surplus itself, which, in its turn, is dependent upon technological shifts in the basis of agricultural output.

That, however, is only one part of the problem. The second, and the more difficult part, according to him, is the separation of the good and bad elements amongst the peasantry. As he puts it, "the proletariat must separate, demarcate the peasant toiler from the peasant owner, the peasant worker from the peasant huckster, the peasant who labours from the peasant who profiteers".

He perceives the inner-contradictions that are involved. Since petty commodity production is linked to a low level of technology, the surplus available to a small peasant is meagre in the beginning. This meagreness of the surplus helps him to identify his 'oppressors' and 'exploiters', and compels him to seek an alliance with the workers against the 'capitalist', and against the 'profiteer' and 'trader'. Yet the conditions of petty commodity production tend to turn him too, in a vast majority of cases, into a 'huckster' and 'profiteer'. Since he has so little, each attempt to persuade the peasant to part with a portion of the surplus grain sets up a tremendous resistance. As output expands with the induction of the new technology, the lure of an improved standard of living merely stiffens this resistance.

But, if growth is to be accelerated the surplus has to be garnered and the 'peasant profiteer' has to be isolated from the 'peasant toiler'. Lenin has no doubt about their respective identities :

"That peasant who during 1918-19 delivered to the hungry workers of the cities 40,000,000 poods of grain at fixed state prices, who delivered this grain to the state organs inspite of all the shortcomings of the latter, shortcomings which are fully realised by the workers' government, but which are unavoidable in the first period of the transition to Socialism, that peasant is a toiling peasant, a comrade on an equal footing with Socialist worker, his faithful ally, his own brother in the fight against the yoke of capital. Whereas that peasant who clandestinely sold 40,-000,000 poods of grain at ten times the state price, taking advantage of the need and hunger of the city worker, deceiving the state, everywhere increasing and creating deceit, robbery and fraud—that peasant is a profiteer, the ally of the capitalist, the class enemy of the worker, an exploiter. For whoever possesses a surplus of grain gathered from land belonging to the whole state *with the help of implements in which in one way or another is embodied the labour not only of the peasant but also of the worker* and so on, whoever possesses a surplus of grain and profiteers in that grain is an exploiter of the hungry worker".

The peasantry, Lenin argues, occupies a half-way position even under the dictatorship of the proletariat. At one end, it represents a large mass of toilers united by the common objective of extricating themselves from the oppression mounted by the landlord and the capitalist. At the other, it is made up of disunited small masters, property owners and traders. This delicate economic position causes it to vacillate between the proletariat and the bourgeoisie in the identification of class-interests. This vacillation impedes the generation of surplus, and hence, growth. The objective of a progressive economic policy should be to win over to the cause of the proletariat those sections of the peasantry who are able to cut athwart this contradiction, and combine technological transformation of their fields with rising grain delivery at reasonable prices.

It is this aspect of Lenin's teaching which I find particularly fascinating, and relevant in the Indian context. Not unlike in the Soviet Union on the morrow of the Revolution, in our country too agriculture continues to be dominated by petty commodity production, which keeps down the level of productivity as well as of investible surplus. Despite the widely divergent socio-political conditions, the problems of growth for such a heavily agriculture-oriented economy as ours run parallel to those faced by the Soviet Union in the early 1920's. Surplus grains must be coaxed out of the system despite the resistance of those whom Lenin addressed as 'profiteers' and 'hucksters'; at the same time, the resources of the State have to be deployed to raise the level of technology in agriculture. This is a two-way process: a surplus grain would help the task of additional capital formation, and additional capital formation in its turn would increase agricultural productivity and thereby augment surplus.

If a hiatus develops between the raising of farm productivity and the subsequent extrication of surplus, the process of growth becomes unsustainable. To have efficient economic planning, we too must therefore develop the ability to separate

turn to PAGE 12

How Relevant Is The Soviet Experiment to India

AMLAN DUTTA

SOME classical economists tended to attribute universal validity to their special doctrines. This was perhaps natural, almost excusable, in the atmosphere of intellectual excitement of the development of political economy as a "science" and the confidence generated by the material triumphs of capitalism in those early decades. But Marx and the German Historical School rightly criticised the tendency to over-generalise from historical experience. Unfortunately, this did not save some twentieth-century socialists from committing a comparable error.

The Soviet way of economic development came to be invested by some of its admirers with a wider validity than could be plausibly sustained. This was wrong, even when excusable; and it is to be hoped that the error would be discarded before long. Whoever says today that there are two ways of economic development, capitalist and socialist, is, perhaps unwittingly, counting up two wrong generalisations, sometimes with the best of misguided political intentions. Unless he proceeds at once to qualify his statement so thoroughly as to render the original act of counting otiose, he helps keep error alive. It is the determination to stay bound to this dichotomy which has produced the absurdity of some critics claiming that the Soviet Union is reverting to the "capitalist" way. Was Lenin's New Economic Policy capitalist or socialist? To the pragmatist, which Lenin himself was to the extent that his ideological affiliation would permit him to be, this is not a tremendously important question.

In some respects, conditions in Russia in the early part of this century were so fundamentally different from those in India after Independence that problems as well as solutions as they presented themselves to the Soviet Union are hardly relevant to us. In other respects, there are positive lessons we can draw from the Soviet experiment. I shall illustrate the first with reference to agriculture, and the second with reference to education and scientific research.

Whoever says today that there are two ways of economic development, Capitalist and Socialist, is, perhaps unwittingly, counting up two wrong generalisations, sometimes with the best of misguided political intentions. It is the determination to stay bound to this dichotomy which has produced the absurdity of some critics claiming that the Soviet Union is reverting to the "Capitalist" way.

The conditions in Russia at the time of the Revolution were, as far as agriculture is concerned, fundamentally different from those in India after Independence; but in education and scientific research, the conditions were remarkably similar. India has to evolve its own way in agriculture. But in education and science, India can draw one of the greatest of all lessons from the Soviet experiment of using science as a practical instrument of change, carrying out a massive programme of scientific and educational development and forging strong links between science and industry.

In the 1920's, collective farms accounted for only a small fraction of the total cultivable land in the Soviet Union. A fierce controversy developed in the middle of that decade on the question of agrarian policy. Lenin had all along advocated a firm alliance between industrial workers and peasants. Soon after the Revolution, he had stressed the importance of passing to the new social relationships "as gradually as possible". It was realised by the leaders of the Soviet Union that wholesale collectivisation could not be introduced without a severe turmoil in the countryside, a grave risk of widespread destruction of property, and the estrangement of a large section of the peasantry from the Soviet state. Eventually the Stalinist leadership decided to take this risk. There was a complex of considerations lying behind this decision, but the main economic argument was quite simple. As the pace of industrialisation accelerated, the need was felt to extract a substantially increased surplus from agriculture. Collective farms seemed to offer the appropriate form of agriculture to facilitate the raising of surplus. The attempt to force the pace of collectivisation led to a sharp decline in grain production in the transitional period. But the Soviet government nevertheless managed to secure from the farmers a substantially increased surplus.

It is unprofitable to discuss if Lenin would have lent support to this change of policy had he been alive. But something else is extremely relevant to us. In 1913 and on the eve of wholesale collectivisation, the Soviet Union produced on a per capita basis more than twice as much foodgrain as India at the beginning of her planned development. The kind of risk that the Soviet Union could afford to take then would be intolerable to India now. India lives much nearer the line of bare subsistence, so that the amount of shock that the Soviet economy could absorb in the 1930's would be enough to shatter the economy and polity of India today.

I may add incidentally that a similar kind of reflection is equally relevant when we compare India and China. Even in 1949, when the Chinese economy lay shattered after a period of prolonged civil war,

China produced substantially more foodgrains than India. In normal years, both before and after the communist seizure of power, Chinese grain production has been at least twice as high as the Indian. This means that China has all along had a bigger reserve to fall back upon and a greater capacity, therefore, to come out intact from major set-backs. No responsible Indian statesman would expose this country to the risks of an agricultural crisis of the magnitude that China suffered after the Great Leap Forward.

But we cannot collectivise (or communise) agriculture once we have decided to avoid the methods and attendant risks which the Soviet Union (or China) accepted. Whoever is unprepared to accept these methods and yet recommends collectivisation is pleading for the impossible. Economics, like politics, should be concerned with the art of the possible, particularly on institutional questions. I myself believe that, given a certain amount of village-level planning and consolidation of scattered holdings, a good deal of agricultural improvement is possible in India on the basis of small farms. But there are those who consider large farms to be essential for economic development and yet want land to be redistributed among poor peasants and landless labourers in the hope that this would be a step towards collectivisation. This is how one is entangled in contradictions and practice is subordinated to unrealisable theory by a failure to take into account historical differences.

Let me now turn to the problem of education and scientific research.

There are some important similarities here between the Indian situation and conditions that existed in pre-revolutionary Russia. Some of these are well known, and I do not want to expatiate on them. For instance it is common knowledge that the extent of literacy was severely limited in Russia before the Revolution as in India till now. There is a deeper similarity in the matter of cultivation of science to which I wish particularly to draw attention. At the beginning of the nineteenth century, science was well-established in Russia in the academies and the universities, thanks largely to the example and leadership of Lomonosov. Russia before the November revolution produced a number of individually brilliant scientists such as Jacobi, Lobachevski and, the best known of them all, Mendeleyev. But the link between science and technology was weak, and the great work of the Russian scientists in the nineteenth century did not make much impact on the material environment of the country.

The similarity with the Indian situation is obvious. During the last half a century of British rule India produced some very distinguished scientists such as J.C. Bose and C.V. Raman. But the practical application of science remained severely circumscribed. Russia after the Revolution adopted a powerful programme of scientific and educational development, wiped out illiteracy, strengthened technical education and forged new links between science and industry. In all these respects, our performance after Independence leaves much to be desired. Lenin had a burning faith in science as an agent for transforming the world. In India the scholastic tradition is still strong. One need not be a communist; but without a greatly heightened appreciation of science as a practical instrument of change, we cannot achieve much by way of modernising and strengthening the material foundations of India. This is the greatest of all lessons we should draw from the Soviet experiment.

The Soviet Union served to draw the attention of the whole world to the importance of centralised planning as no other country did. Not unlike in the Soviet Union on the morrow of the Revolution, in our country, too, agriculture continues to be dominated by petty commodity, production, which keeps down the level of productivity as well as of investible surplus. Despite the widely divergent socio-political conditions, the problems of growth for such a heavily agriculture-oriented economy as ours run parallel to those faced by the Soviet Union in the early 1920s.

I would now make a few general observations on planning. It is not much use debating whether the Soviet Union was the first country to put forward in a practical form the idea of centralised national planning. E.H. Carr has persuasively argued that Lenin himself got the idea and the example from neighbouring Germany. Carr also quotes Larin who, in an article published in April 1915, observed: "Contemporary Germany has given the world a pattern of the centralised direction of the national economy as a single machine working according to plan". (Carr, *The Bolshevik Revolution* 1917-1923, Vol. II, p. 316) But the question of historical primacy is not all that important. The Soviet Union served to draw the attention of the whole world to the importance of centralised planning as no other country did.

Now, the idea of planning has an instant appeal of a kind that is difficult to resist and which must nonetheless be treated with caution. At one level, the superiority of centralised planning is so obvious that it seems strange that there should be much argument about it. A Plan is, as it were, economic rationality writ large. On such a view, "planning" is a synonym for "rational" conduct of the economy and superior to what is sometimes called "the anarchy of individualistic production".

The Soviet economy has demonstrated how powerful the role of a Plan can be. But it has also drawn attention to a few other things which might have escaped theorists had they been confined merely to drawing inferences from abstract cogitation. In the first place, a Plan realistically speaking, is not after all the voice of reason translated into figures. It is the resultant of political and administrative pulls and pushes. In this sense, "socialism" means the primacy of politics over economics. A different kind of politics (such as Chinese or Yugoslav) means a different kind of "socialism" and planning.

Secondly, the fact that a Plan has been centrally adopted does not necessarily mean that managers in individual productive units are genuinely motivated to work according to the Plan. A target is a complex

of quantitative and qualitative indices. From the very beginning, Soviet achievements have usually diverged widely from targets, these being on the whole overfulfilled in quantitative terms while products have fallen short of desired standards of quality. In India, some critics tend to blame the divergence between plan and performance on the "mixed" character of our economy. There is a point to the criticism. But even a "totally" planned economy is so planned only in the intention of the planners and not in actual fact. A system of central commands provokes evasions, and the cost of supervision can be high.

This leads us to the next point. It is not enough that a Plan should be logically consistent, nor that it should be accepted outwardly, but it is necessary that those who work, or supervise performance at the base, should feel inwardly committed to or identified with the Plan. A Plan which is perfect on paper may still produce poorer results than one that is imperfect, if the latter can create a more active sense of involvement in those who work it. This is a reason for allowing decisions to be taken closer to the base. However, no hard and fast rules can be laid down as to how far decentralisation should be allowed to go. It all depends on the nature of the economy and the particular industry in question.

Some people attach an enormous importance to the form of ownership of the means of production. There are those who are apt to attribute most of the ills of Soviet society to the fact that it does not provide for the private ownership of the means of production; and others who attempt to explain most of the ills of the Indian economy to the fact that it permits the existence of a wide private sector. I do not think that this is the best way of looking at the matter. The question of ownership must be viewed in proper perspective. It provides a mould within which incentives at the individual level can be combined with appropriate social control. The mould itself is not invariant, but permits of an indefinite range of variations or balancing of the rights of the individual, the state and other intermediate groups. For the rest, problems of the Indian economy and requirements of future development should be stated in terms of such basic factors as attitude towards labour and science, the nature of the Indian bureaucracy, and the constraints arising from what is, by and large, one of the poorest agricultural economies of the world. We have to learn from the rest of the world and evolve our own way; and we must stop imagining that we could perhaps have done better if we had imitated some other country more faithfully.

LIVESTOCK IN INDIA'S ECONOMY

A balanced diet consisting of milk, eggs and meat still evades an average Indian. While 284 gms. of milk per head per day and at least 180 eggs per head per year form minimum nutritional requirements, the per capita per day availability of milk in India is only 105 gms. with 4.2 gms. of protein content, and per capita annual consumption of eggs is only 10 compared to 320 to 400 eggs consumed in the U.S.A., Australia and Denmark.

The role of livestock in Indian economy is comparatively small. Only 8% of the country's total national income comes from livestock products. The level of milk production in India is 157 kg. per cow and 504 kg. per buffalo per year compared to that of 3920 kg. in Denmark, 3860 kg. in the U.S.A., 3760 kg. in the U.K., 3410 kg. in Switzerland and 2930 kg. in New Zealand. With 21% of world's bovine population, contributing to only 6% of the total milk supply of the world, the milk production in India is a meagre 20 million tonnes, expected to increase to 25.86 million tonnes by the end of the Fourth Five Year Plan. The average production of other products like wool and mutton is also low, being 0.7 kg. and 10 kg. respectively, compared to the average of 4 kg. of wool and 20 kg. of mutton in developed countries.

Exports of wools, hair, carpets, and skin, however, earn a handsome foreign exchange of Rs 40 crore annually.

Tourist Arrivals In 1969

The total number of tourists who visited India during 1969 was 2.45 lakhs—a record. This represents a 30 per cent increase over the 1.89 lakh figure for 1968.

The highest number of tourists came from the United States, followed by the United Kingdom and Ceylon.

There was an increase of 44.2 per cent in the number of tourists from Germany and 38 per cent from France.

Tourist arrivals from Europe went up as a result of 'Operation Europe', a tourism promotion campaign launched jointly by the Department of Tourism and Air India. During 1969, continental Europe sent 57,110 tourists to India, showing an increase of 26 per cent over the preceding year.

The campaign is part of the new market-oriented strategy to promote tourism to India. From primarily an information and servicing agency, India's tourist offices have started assisting actively all agencies directly concerned with the actual marketing operation.

In the United States, which supplies over 20 per cent of our total traffic, the new marketing strategy has succeeded in countering the setback received in 1968 as a result of travel curbs announced in that country. In addition to the usual traffic, the introduction of special low cost tours has helped to broaden the base of the market.

India's Tourist Offices in London, Tokyo and Sydney have likewise adopted the new strategy for a more aggressive promotional campaign in co-ordination with important tour promoters. All these efforts are supported by a steadily expanding hospitality programme in which the Tourism Department invites as its guests well-known foreign travel agents, travel writers, photographers and television film producers.

LENINIST MESSAGE

from Page 8

the wheat of the growth-minded peasantry from the chaff of the profit-oriented 'hucksters'.

This is no easy task, especially in a society where the level of literacy is low and there is a multi-party structure combined with adult suffrage. On the other hand, since capital funds are strictly limited, it is necessary to ensure that resources are invested in agriculture in a manner as would evoke the optimum generation of surplus. If our attempts at inducting new technology in agriculture does not promote the cause of additional capital formation, we will be serving the cause neither of social stability nor of rapid growth. For most underdeveloped countries, this message from Lenin's writings will continue to have a relevance till the threshhold of self-sufficiency in capital accumulation is not crossed.

RICH CROP OF HYBRID MAIZE

C Thimmah Gowda of Basoralu village in Mandya Block, Mysore State, has earned a net profit of about Rs 1,600 from growing hybrid maize on 0.41 hectares of land. He used pre-treated, certified seed at the rate of 6.5 kg. per 0.41 hectare and gave a spacing of 60 centimeters from row to row and 30 centimeters between plants. The crop was irrigated at about 10 days' intervals. Weeding was done twice and plant protection measures were also undertaken.

Gowda supplied manure to the crop by applying a basal dressing of 10 cart-loads of farmyard manure, 100 kg. ammonium sulphate, 150 kg. superphosphate and 50 kg. muriate of potash per 0.41 hectare. The fertilisers were placed 7 to 10 centimeters deed. He also top-dressed the crop with ammonium sulphate 25 days after sowing and again after 15 days. For each top-dressing 100 kgs. of ammonium sulphate was used. The cost of fertilisers was Rs 265 and that of farmyard manure was assessed at Rs. 100. That is, about half the amount of the total cultivation cost of Rs 695 per 0.41 hectare was spent on manuring.

ONWARD BARAUNI

BARAUNI Refinery's crude throughput of 1,89,000 tonnes in January is a new record. The progress of this public sector undertaking in recent months has not been limited to this. Its coking unit has processed 73,400 tonnes of short residue in January and the L.P.G. production reached 770 tonnes.

In a period of 11 months beginning from April 1, 1969 the production achieved in the Barauni Refinery was 19 lakh tonnes. By the end of the present financial year, the production is expected to exceed 20 lakh tonnes.

FARMING IN OIL TOWNSHIP

A bumper crop of wheat is expected this year in the land managed by the Barauni Refinery Consumers' Co-operative Stores. On a modest estimate, the produce at site alone is expected to be 800 mds. this year.

The stores took up farming three years ago on the advice of Maj. Gen. Sarda Nand Singh, the Managing Director of the Refinery. While inaugurating the Stores in 1967, he had wished that the Stores start their own farming in the Refinery land.

While at the site, only wheat has been sown this year, cultivation of wheat, pulse (arhar), potato, and vegetables have been taken up at the Township. The produce, including the vegetables, will be sold to the employees through the co-operative.

LPG BOTTLING

A three-fold increase in LPG bottling capacity is envisaged when the modernisation of the LPG bottling plant will be completed.

Under the original project design, the Barauni Refinery had been provided with facilities for filling LPG in cylinders without any automation. All jobs involved in the filling are being handled manually with the result that the number of cylinders that can be filled is only about 750-850 in an eight-hour shift.

Wih the provision of essential facilities like conveyor systems, painting and testing of cylinders and automatic filling machine, the plant will be able to fill 2500 LPG cylinder in an eight-hour shift. These facilities are likely to be commisioned shortly.

The contract for modernisation of this plant has been awarded to Engineers India Ltd. on a turn-key basis and will cost about Rs 22 lakh.

COKE CALCINATION

AMONGST Barauni's host of petroleum products is petroleum coke. This is now being sold as raw petroleum coke. However it is not easily marketable and therefore poses a disposal problem for the refinery. If, however, raw petroleum coke is calcined, it finds a ready market because in that form it has several applications. Calcined coke is in short supply in the country. Therefore it was decided to set up a Calcination Plant at the Refinery.

Construction of the plant started in April last year and is now in full swing. It is scheduled for commissioning in July this year. The plant has a designed throughput of 60,000 tonnes of raw petroleum coke a year and the yield of calcined petroleum coke will be of the order of 40,000 tonnes a year.

The responsibility of designing, engineering and construction of this plant has been assigned to the Engineers India Ltd. on a turn-key basis.

FOODGRAINS DONATION

Some landless Harijan labourers of the Terai area in Nainital district donate regularly to the Prime Minister's Relief Fund. They have formed an association called 'The Tarai Harijan Krishak Mazdoor Sangh' which makes an annual donation of 200 quintals of foodgrains to the Fund.

The Sangh has resolved to continue this practice for the next five years.

FLOWERING OF INDO-SOVIET AMITY

Between two such States there can be amity or enmity; there is no question of indifference, said Jawaharlal Nehru. The indifference that existed between the two governments before 1947 is no longer there and there is utmost co-operation.

Mutual Understanding Forms a Firm Basis

K. P. S. MENON

TO take a broad look at history, Indo-Soviet Cultural Relations are, to some extent, a development of Indo-Russian Relations. These go back to the middle of the 15th century when a Russian, Afanasi Nikitin, came to India, fifty years before Vasco da Gama, settled in Golconda and Bijapur, wrote a fascinating account of the customs, manners and politics of that period and even fell in love with an Indian woman. And this culminated in the famous correspondence between Mahatma Gandhi and Leo Tolstoy, in which Gandhiji described himself as "your devoted disciple" and Tolstoy praised the world significance of the work on which Gandhiji was engaged in South Africa. In between, there were intermittent contacts, such as the despatch of two elephants by the Emperor Aurangzeb as a present to the Czar (a precedent for Jawaharlal Nehru who sent two baby elephants as presents to the children of Russia in 1956) and the issue of instructions by Peter the Great to his officials to give special protection to the Indian traders settled on the Volga. In fact, during the 18th century and the first half of the 19th, Indian merchants took a prominent part in the trade through the Persian Gulf to the Caspian region and beyond.

With the establishment of British rule in India, all such contacts came to a standstill. This is not surprising because "the Russian bogey" was one of the cardinal factors in British foreign policy throughout the 19th century. It was in order to keep this bogey at arm's length that the British Government waged three wars against Afghanistan. And when the Russian bogey put on the red garb of communism, it looked the more terrible. By the end of the 19th century a veritable iron curtain had descended between India and Russia and this was riveted the more firmly when Russia became Bolshevik.

Yet, across this iron curtain communicated such kindred spirits as Mahatma Gandhi and Leo Tolstoy. Some Indians of international status even penetrated the iron curtain and visited Moscow. Among them were Rabindranath Tagore and Jawaharlal Nehru. Tagore was greatly impressed by the spread of education and culture within the short span of 12 years after the Revolution. Hitherto, said Tagore, civilisation was like an oil lamp which mainly sent its light upwards. The upper tenth of the lamp was aglow, but the lower nine-tenths, representing the so-called lower orders, remained in darkness. Now, for the first time in history, said Tagore, the entire lamp was getting illumined. It was this simile which prompted the title of my latest book on the USSR, "The Lamp and the Lampstand".

Jawaharlal Nehru who attended the tenth anniversary of the Revolution was also impressed by the many-sided progress of the Soviet Union. At a time when the Soviet Union was treated almost as an untouchable by the U.S.A. and other countries, Nehru stressed the necessity for friendship between India and Russia. India, he said, was an Asian power ; and the Soviet Union was a State sprawling over Asia and Europe. "Between two such States there can be amity or enmity. There is no question of indifference."

These words were written in 1927. But it was only in 1947 when India became independent, that the indifference, if not worse, between the two governments began to vanish. This indifference, be it said, was not shared by the people. The people of India saw in the Soviet Union a tower of strength in their struggle for freedom. And the people of the Soviet Union gave their moral support to the people of India who were trying to break the bonds of foreign domination.

The establishment of diplomatic relations between India and the USSR did not result in the immediate development of cultural and economic relations. Some Indians still suffered from the fear, a relic of British days, that the USSR was out to turn the world red by hook or crook ; and many Russians thought that though India was nominally independent she was economically bound hand and foot to the chariot of western imperialism.

Twentieth Congress

With the development of Indian, as well as Soviet, policy in the fifties such doubts and fears began to disappear. In the United Nations and elsewhere, India demonstrated that her policy of non-alignment was a

truly independent policy ; in Korea and in Indo-China, she proved to be a factor for peace ; and in her relations with the two blocs, she showed her anxiety to lessen world tensions. At the historic 20th Congress in 1956 the Soviet Union declared peaceful co-existence to be the main plank of its foreign policy. Lenin had said so too : he had stressed the necessity for peaceful co-existence between states following different social systems. The alternative, he said, was for the USSR to fly to the moon. There followed, however, a phase, when ideological rigidity reduced the idea of peaceful co-existence to little more than churlish co-endurance. But the 20th Congress modified Marxism so as to adjust it to the realities of the nuclear age. It was declared that there was no fatal inevitability about war and that violence was not essential for the transformation of society. All this gave greater content to the doctrine of peaceful coexistence. This is best reflected in the relations between India and the USSR.

Gandhi As A Liberator

Between India and the USSR there has since been a great efflorescence not merely of political and economic but of cultural relations. Mutual understanding, or at least a genuine desire for it, is the only firm basis for these relations. That the Soviet Union cherishes this desire was shown most markedly in the revised Soviet attitude towards Mahatma Gandhi. No longer was he regarded, as he was described in the Great Soviet Encyclopaedia in the latter part of Stalin's regime, as a reactionary ; he is now acclaimed as one of the great liberators of humanity. The manner in which his centenary was celebrated in the USSR was fully in keeping with the status which he now enjoys in Soviet eyes, even as the preparations which are a foot in India for the celebration of the Lenin centenary show the high esteem in which he is held, regardless of all ideological distinctions, by the Government and people of India.

Russian writers such as Leo Tolstoy Dostoevsky, Chekhov, Turgenev and Maxim Gorky have had a powerful influence on our writers and intellectuals. So had Tagore in Russia. Our classics, too, were well-known and the Ramayana and the Mahabharata were translated into Russian. After the Revolution the literary contacts between India and the Soviet Union assumed far greater dimensions. India's classics were translated and published in millions of copies not merely in Russian but in the other languages of the USSR. Among contemporary books Mahatma Gandhi's "Experiments with Truth" was translated into Russian and a new edition was issued on the occasion of his centenary. Jawaharlal Nehru's *Autobiography* has also been translated into Russian.

Five years ago the Soviet authorities in India introduced certain awards known as the Nehru Awards which are given every year on the occasion of Nehru's birthday to those Indian writers who have best promoted the cause of peace, international understanding and Indo-Soviet friendship. The Government of India has reciprocated this gesture by introducing similar awards in the Soviet Union for Soviet writers. The eight highest awards carry a free trip to the USSR or India as the case may be and a fortnight's stay there.

Between the Indian and Soviet Governments there is an agreement for cultural exchange, which is revised and renewed every year. There is hardly any field of human activity, with which Governments are normally concerned, which does not fall within the purview of this agreement. Side by side with this governmental exchange, there is a scheme, on a necessarily more modest scale, between the Indo-Soviet Cultural Society in India and its counterpart in Moscow for promoting the visits of scholars, writers, scientists and cultural troupes between India and the USSR.

From Dehra Dun in the north to Neyveli in the south, and from Ankleswar in the west to Barauni in the east, many mighty projects have arisen as monuments to Indo-Soviet Co-operation. Among them are some cultural projects as well. One is the Indian Technological Institute in Powai near Bombay, set up with Soviet assistance. Another is The Indian School of Russian Studies, the best in the East, which has just been affiliated to the Jawaharlal Nehru University.

Now, indeed, Jawaharlal Nehru's words uttered in 1927 have come true. No longer is there any question of "indifference" between India and the USSR. On the contrary there is perfect "amity" which is reflected as much in the cultural as in the economic and political fields.

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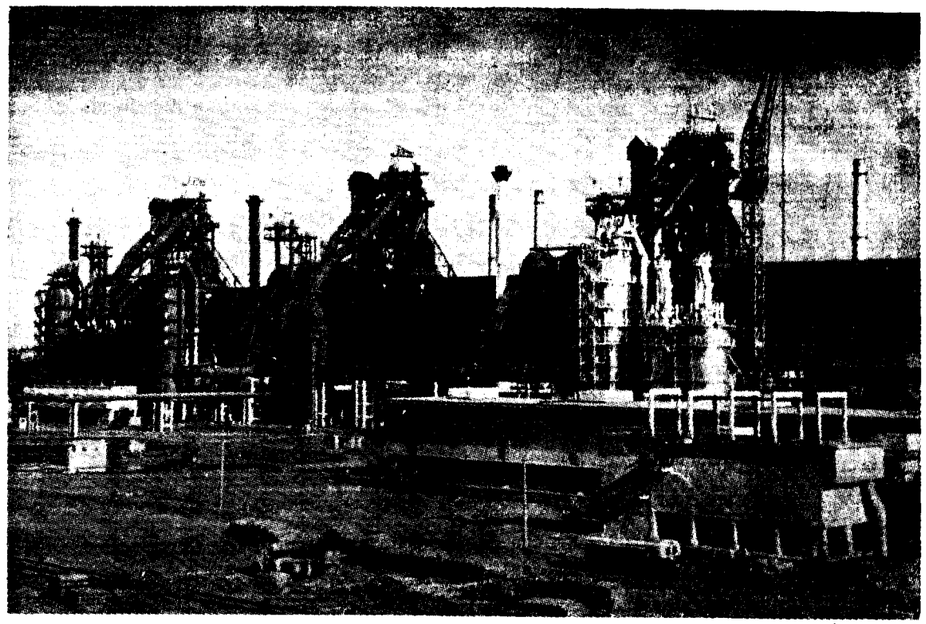


BHILAI : India's Biggest Steel Giant

F. M. TAHILRAMANI

THE Bhilai Steel Plant, the biggest in India, has been built with technical and economic collaboration of the Soviet Union. The site for the plant was selected on March 14, 1955, and the detailed project report was finally accepted 360 days later. The mechanised iron ore mine at Rajhara and limestone quarry at Nandini were also established as a part of the steel plant with Soviet technical and economic assistance. The bulk of the machinery and equipment for the steel plant and the ore mines and quarries were supplied by the Soviet Union. Russian experts provided technical guidance during the various stages of construction, commissioning and operation, which was done entirely by Indian personnel.

The first sod of earth for the Steel Plant was dug in May, 1956, and Coke Oven Battery No. 1, the first production Unit, was commissioned on January 31, 1959. This was followed by the Commissioning of Blast Furnace No. 1 on February 4. The Open Hearth Furanace No. 1 went into operation on October 12 and the Blooming Mill on November 7. Several other units of the Plant were also commissioned in 1959 ; and by February 1961, all the major units of the 10 lakh tonne capacity Plant had been commissioned.

Although the production of pig iron began in February 1959 and that of steel in October 1959, integrated production started only in February 1961, with the commissioning of the sixth Open Hearth Furnace ; and the Plant started working at its rated capacity in January 1962. The Plant includes three Coke Oven Batteries, three Blast Furnaces, six Open Hearth Furnaces, and four Rolling Mills (Blooming Mill, Continuous Billet Mill, Merchant Mill and Rail and Structural Mill) besides the ancilliaries.

While the plant was nearing completion, it was decided to expand its capacity to 25 lakh tonnes of ingot steel per year. This was to be achieved with technical and economic collaboration of the USSR. The Project Report for expansion was accepted by the Government of India in November 1961, and the work of expansion began on August 15, 1962. The entire work of expansion was completed in five years increasing the capacity of the plant to the 25 lakh tonne stage. The main Units of the plant comprise six Coke Oven Batteries, five Blast Furnaces, ten Open Hearth furnaces and five Mills including a wire Rod Mill.

Second Expansion

To meet the diversified requirements of steel, further expansion of the Plant to 32 lakh tonne capacity is in hand. The expansion is phased out in two stages : (i) Coke and Iron Making facilities, and (ii) Steel Making and rolling facilities. The first phase of the expansion programme is expected to be completed by the middle of next year.

The second expansion programme has some unique features. Progressively there has been a reduction in foreign exchange component as well as in the number of foreign specialists employed for designing and construction. The foreign exchange component was 48 per cent for the 10 lakh tonne stage ; 42% for 25 lakh tonne stage, and it will be 30% for the present expansion. It may be added that the percentage would have been still less, but for the devaluation of the Indian rupee in 1966.

Another feature of the second expansion programme is that 60% of the equipment, 100% of structures and 90% of refractories for the 6th Blast Furnace complex will be of Indian origin. The corresponding figures for the 25 lakh tonne expansion were 23, 29 and 44 per cent, and for the 10 lakh tonne construction these were 12, 22 and 7 per cent. Similarly, there has been steep decline in the number of Soviet specialists employed at various stages. It was 908 in the 10 lakh tonne stage, 247 in the 25 lakh tonne expansion, and less than 50 during the present expansion.

Another significant point to note is that the entire structural erection work for the sixth Blast Furnace Complex is being done departmentally. This is in addition to the erection of equipment which is also being carried out departmentally. Apart from the supply of material by the Heavy Machine Building Plant at Ranchi, all the remaining fabrication, constituting 46% of the total structures, as well as all non-standard equipments are being fabricated in departmental workshops.

Raw Materials

The Bhilai Steel Plant is primarily an ore-based plant. The plant owns and manages fully mechanised iron ore mines at Delhi-Rajhara and limestone mine at Nandini, both in Durg district of Madhya Pradesh. Besides, the plant has its own mines and quarries for dolomite at Hirri, manganese ore at Balaghat, fireclay at Katni, bauxite at Tikaria, quartzite at Balod and Fluorspar at Chandidongri, all situated in the State.

Bhilai is the only plant which is self-sufficient in fluorspar—an item that is usually imported. There is a flourspar beneficiation plant with one tonne per day capacity, which has also supplies beneficiated fluorspar to sister steel plants, railways and defence establishments.

An inside view of the Structural Mill of the Bhilai Steel Plant

SALES OF BHILAI PRODUCTS

(Rs. in crore)

1958-59	—	0.14
1959-50	—	10.20
1960-61	—	23.8
1961-62	—	38.32
1962-63	—	57.79
1963-64	—	67.63
1964-65	—	70.33
1965-66	—	86.20
1966-67	—	103.72
1967-68	—	116.48
1968-69	—	128.20

The cost of the one million tonne stage of the Plant worked out to Rs 202.34 crore including Rs 96 crore in foreign exchange. Of this Rs 64.7 crore represented the 12-years credit from the Soviet Union and the balance on deferred terms (3-year credit) or cash payment. The revised estimates for 25 lakh tonne expansion works out to Rs 159.11 crore, with a foreign exchange component of Rs 65 crore. The cost of expansion for 32 lakh tonne is estimated to cost about Rs 41.80 crore. These include the expenditure on the township and ancillaries.

Special Steels

The Bhilai Steel Plant can take pride in the fact that it has been able to successfully manufcture special steels to meet the special needs of the Defence Ministry, Railways, Machine Tools and Engineering Industries. Most important among these special steels are shell bar steel, high tensile weldable quality steel, electrode core wire quality rimming steel, steel for wire rope industry, spring steel, gear cutting steel etc.

Exports

Apart from meeting the internal demand for steels, which were to be imported, Bhilai is earning valuable foreign exchange. An all time record of despatches of about 754,000 tonnes

of pig iron, billets and other saleable steel products for Export was achieved in 1968-69. This was valued at Rs. 36.10 crore. The plan for 1969-60 envisages a still higher volume of exports.

Particular mention may be made of the export of rails to Sudan, Malaysia, Ghana, Iran, Turkey, New Zealand and South Korea, and ribbed sole plates exported to the U.A.R. after fabrication by an Indian firm in Calcutta. The countries to which Bhilai has exported its products also include Japan, Pakistan, the Soviet Union, U.S.A., the United Kingdom, France, Italy, Yugoslavia, Jordan, Iraq, Bahrein, Kuwait, Afghanistan, Singapore, Hong Kong, Australia, New Zealand, Burma, Ceylon, South Vietnam, Indonesia, Thailand, Kenya and Columbia.

Spare Parts Self Sufficiency

To maintain an integrated steel plant of the magnitude of Bhilai, about 90,000 tonnes of spare and changeable are required annually. To meet the bulk of these requirements, Bhilai has well equipped auxiliary shops. Special emphasis has been laid on the manufacture of mostly those items which were either being imported or are of intricate nature and thus difficult to be procured indigenously. The manufacture of spare parts is also stimulated through indigenous sources, like the Heavy Engineering Corporation, Ranchi. At the same time, under a programme of import substitution, there has been a steady reduction of imports of spares from the U.S.S.R. For example, the quantity of spares obtained from Russia has fallen from 3,000 tonnes in 1964 to only 400 tonnes last year.

Plant Maintenance

Bhilai has developed a meticulous system of planned preventive maintenance for repairs/overhauls of all metallurgical units and other equipments. There is a history sheet for each equipment, where the condition of the equipment and various repairs conducted are logged. From these history sheets engineers at various levels pre-determine future defects and repairs and prepare yearly schedules for preventive maintenance. This has resulted in considerable reduction in sudden breakdowns.

turn to PAGE 33

PRODUCTION AT BHILAI PLANT

(Unit : '000 tonnes)

Year	Hot metal	Ingot steel	Ingots rolled	Saleable steel
1958-59	37	—	—	—
1959-60	448	92	75	54
1960-61	736	402	402	332
1961-62	1014	789	762	551
1962-63	1182	1060	1010	803
1963-64	1296	1143	1121	886
1964-65	1257	1131	1138	916
1965-66	1632	1371	1322	1028
1966-67	2052	1852	1753	1328
1967-68	2080	1785	1727	1252
1968-69	1935	1735	1748	1381

EXPORTS FROM BHILAI SINCE INCEPTION
(Tonnes and Value)

Year	Pig Iron	Billets	Finished Steel (Rails)	Bye-Products	Total I & S	Total value (In Rs. FOB)
1959-60	28927	—	—	—	28927	5525778
1960-61	72342	17075	—	—	89417	24124931
1961-62	40425	6552	337	78	47354	13028802
1962-63	16530	—	—	6819	16530	5413294
1963-64	—	—	13779 (12388)	6146	13779	8675362
1964-65	—	—	7404 (3925)	3173	7404	
1965-66	—	—	23824 (15440)	1041	23824	10452515
1966-67	158228	—	29765 (10925)	483	187993	56598436
1967-68	394876	66388	170541 (40710)	717	631805	246852446
1968-69	369713	62627	321794 (52845)	—	754134	319611720
						694232531

A DECADE OF SUCCESS

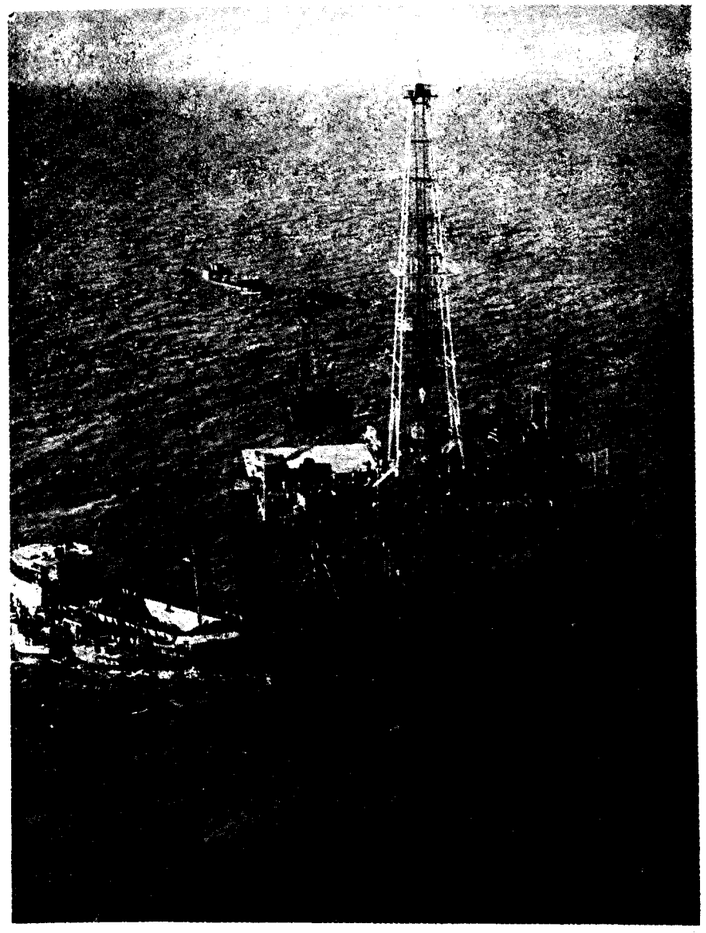
Off - shore Drilling at Aliabet

O. P. MEHROTRA

THE inauguration last month of drilling work at the first off-shore well at Aliabet in the Gulf of Cambay marks a turning point in the development of India's oil industry. It may be termed as a "risky" step in the field of oil exploration. But it is a "risk" which every country desirous of becoming economically independent has to take.

It was in 1955 that Government of India decided to explore oil with Soviet assistance. In 1960 the country's biggest oil-field was discovered at Ankleshwar. From Ankleshwar to Aliabet is the story of a decade during which our puplic sector oil industry has traversed a long and glorious path. The Oil and Natural Gas Commission has built an inventory of 136 million tonnes of oil reserves. In all, twenty oil deposits have since been discovered. From the Ankleshwar oil-field alone more than 11 million tons of crude oil has been mined resulting in the saving of crores of rupees worth of foreign exchange. Following these successes in oil exploration, the country has been able to build a number of refineries, including those at Baruani and Koyali with three million tonnes capacity each.

The first test well which yielded oil at Ankleshwar was called Vasudhara- "fountain of prosperity". It might be said that the Ankleshwar oil-filed has justified that name. What about Aliabet ? One may ask. The exploration and exploitation of off-shore oil bearing structures call for large capital investments and, therefore, must be justified on techno-economic grounds.



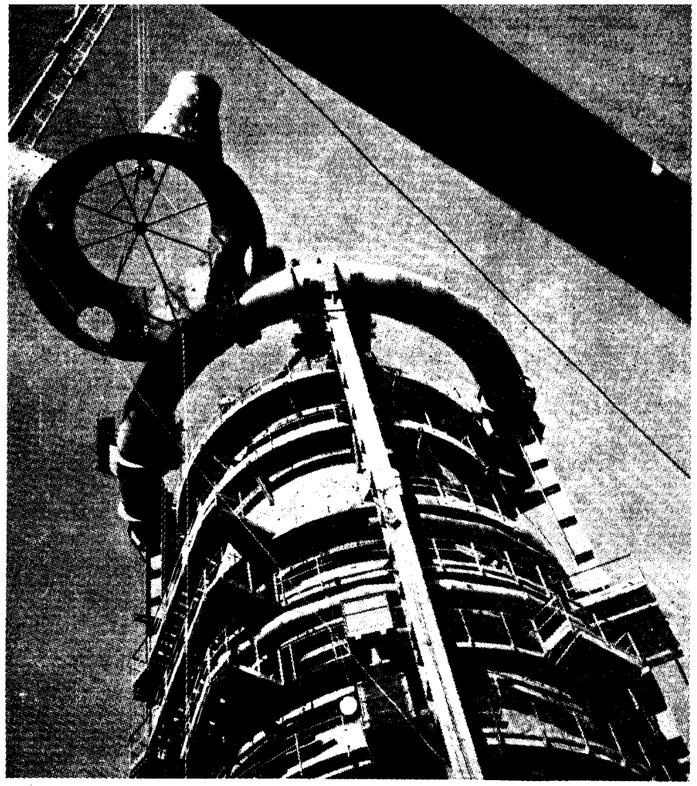
A derrick at work in the Gulf of Cambay

Results of the seismic surveys carried out in the Gulf of Cambay during the years 1963-67 encouraged the ONGC to venture into exploratory drilling of the Aliabet structure. Several promising oil bearing structures have been located in the Gulf area.

The prospecting work in the Gulf of Cambay has to be carried on in several stages. Although one cannot be one hundred per cent sure about results of drilling operations at a particular site, it can be said that the chances of achieving success at Aliabet are reasonably bright.

The drilling platform is nearly 72 kilometers away from the nearest land point. Transporation of various requirements for drilling operations like water, mud, chemicals, cement, tubulars and other materials, is to be done by a self-propelled vessel, with a 30-tonne crane mounted on it. Men and material are to be transported to the site from Bhavnagar, which is the headquarters for the operation. For emergency operations a helicopter has been hired and a helipad provided at the drilling site.

The erection of the platform at the site, where the tidal waves are very high, is regarded as an engineering feat. Fabricated from indigenous material by Indian engineers, according to the first drawings supplied by Soviet Institute "Gipromorneft", the drilling platform is the first of its kind in the Indian waters.



Blast furnace of the Bokaro Steel Plant under construction

BHILAI TO BOKARO

Off-springs of A Fruitful Partnership

ROSSCOTE KRISHNA PILLAI

THE birth and remarkable growth of industry in India under public ownership is, to a great extent, the result of co-operation between India and the Soviet Union. If today in this country the public sector stands at the commanding heights of the economy, as a bulwark of the people's growing control over the means of production, it is because of this Indo-Soviet partnership, dedicated to the building up of a self-reliant Indian economy and growing intimate and stronger over the years.

The off-springs of this united endeavour stand out in the Indian panorama like giants with nerves of steel and muscles of power. They are names to conjure with and even in any off-beat references to India's industrial progress, these names get reeled off first: Bhilai and Bokaro; Barauni and Koyali; Ankleshwar and Cambay; Bhakra and Neyveli, Ranchi, Durgapur, Hardwar, Kota and Korba. The list lengthens with every passing day and new names appear on India's industrial horizon as a result of this abiding international partnership.

The year 1955 signalled the birth of the first child of this bilateral relationship : Bhilai. It was on February 2 of that year that the representatives of the Governments of India and the USSR signed an agreement for setting up a one million tonne steel plant at Bhilai. Under this agreement the Soviet Union granted to India a 12-year credit of Rs 101.96 crore at an annual interest of 2 1/2 per cent. This also marked the first step in the realisation of one of the basic goals of India's Industrial Policy Resolution of 1956 of bringing within the public sector all the strategic points of economic development. Industries in the public sector have grown from 2 per cent to 25 per cent of the total, bringing within the range of the State's employment several thousands of workers.

And the Indo-Soviet example was soon followed by other countries in participating in the building up of the country's public sector industry. Today under the Indo-Soviet banner of friendship alone are 66 key industrial projects grown over the last fifteen years which account for a large share of the country's national income. These projects cover a wide range of industries : steel, oil, coal, power, heavy machines aircraft, instruments, pharmaceuticals, metallurgy and mining. These projects now produce more than 30 per cent of India's steel output, 50 per cent of petroleum and 25 per cent of electric power.

In public sector steel-making, Bhilai and Bokaro have carved out their niches of distinction ; Bhilai as the first and the biggest among those already built and Bokaro designed to be the doyen in the next few years.

A harvester at work in Suratgarh

Bhilai's growth has not been by fits and starts. Its has been an unbroken chain of progress on every front. In the last 10 years it has produced more than 10 million tonnes of steel and 46 per cent of the country's total pig iron output. With a production capacity of 2.5 million tonnes, Bhilai now produces almost 30 per cent of the country's total steel output.

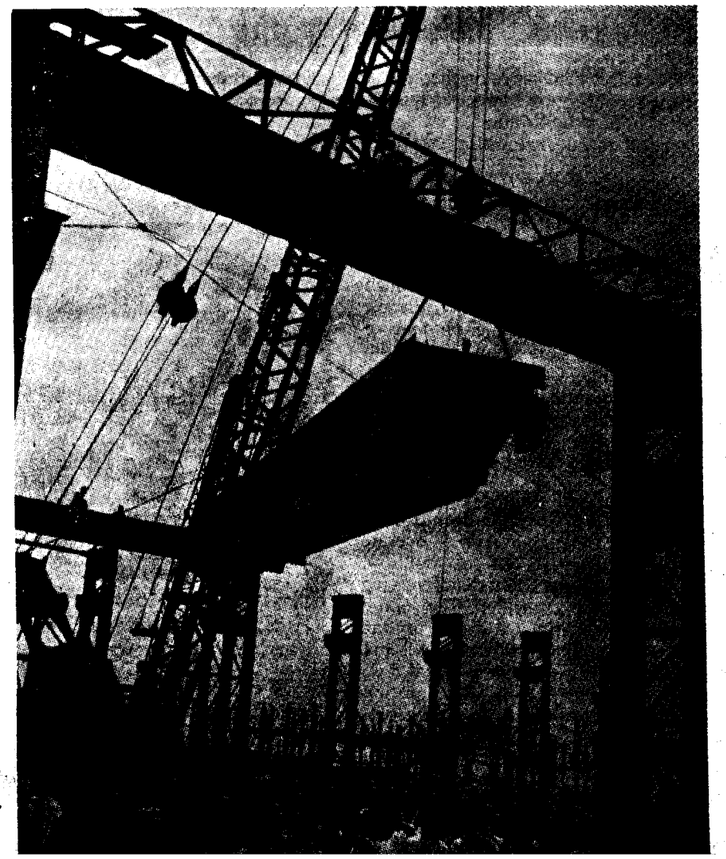
The specialities of Bhilai are rails and structurals. Rails accounting for 63 per cent of India's total production in this category and structurals for dozens of electric stations have met not only the country's demands for them but have also gone abroad to 37 countries including the U.S.S.R. the U.K., Japan, the U.A.R., and Turkey. The value of total exports of Bhilai products has come to Rs 100 crore.

Bhilai's performance has built up confidence in Bokaro's success. The agreement to set up Bokaro was signed on January 25, 1965, a decade after the one for Bhilai. And now the 24,000-acre project area is a scene of unremitting and co-operative endeavour in which about 40,000 skilled and unskilled workers, technicians and engineers vie with one another in building up a giant 1.7 million tonne steel plant in the first stage. They are determined to meet the technical challenge of building the "most sophisticated" steel plant, almost equal to the three public sector plants built earlier".

One remarkable fact about Bokaro is that it is being built with more than 80 per cent of India's own resources in terms of materials, equipment and technical skill. The Soviet participation is limited to the financial resources amounting to a little more than Rs 166.66 crore, supply of heavy structurals, refractories and a few other specialised items, and the skills of about 160 experts. Out of the 240,000 tonnes of structurals to be used here, 223,000 tonnes are to be supplied by indigenous industries. And, about 80 per cent of the total requirement of 200,000 tonnes of refractories is to be met from within this country.

However, the progress of Bokaro has not been as unhampered as that of Bhilai. Delay in the deliveries of structurals, refractories and other requirements has upset construction schedules ; rise in steel price and in labour and transportation costs has

Erection of a 50-tonne crane at the Heavy Machine Building Plant, Ranchi



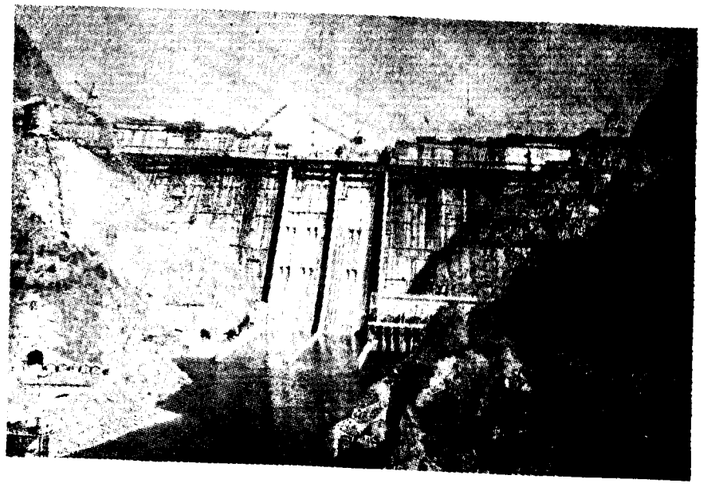
pushed up construction estimates. But these may perhaps be the birth pangs of a giant plant. Once it is on its feet, Bokaro is sure to grow ultimately into its 5.5 million tonne capacity, marking another milestone in the history of Indo-Soviet co-operation.

If in steel-making India had some capacity, at least in the indigenous private sector, in oil, another vital basic industry, she had practically none. The only refinery in Digboi was an exclusive foreign-owned preserve. And pre-Independence India was a market for oil imported from the Persian Gulf and the Middle East. Oil prospecting in India had been written off by colonial rulers as impractical and futile.

Again it was Soviet co-operation that opened up the phenomenal prospects of a thriving oil industry in this country. A three-man Soviet team of geologists, which conducted preliminary investigations, estimated a recoverable reserve of 400 crore tonnes of oil and 200,000 crore cubic metres of gas. The team visualised the prospects of producing 15-20 crore tonnes of oil a year. The report of this team sparked off tremendous enthusiasm among geologists in India and threw light on the riches of dark gold in the bowels of India's earth. The era of Indo-Soviet collaboration in oil exploration began.

An outlay of Rs 30 crore was made in the Second Plan and drilling started in several areas with the help of Soviet experts. Within a few years, 20 oil and gas deposits were discovered. Successes came in such quick succession that several new places appeared on the oil map of India within less than a decade: Jwalamukhi, Cambay, Ankleshwar, Rudrasagar and Kalol. A flourishing oil industry was soon taking shape in the public sector, thanks again to Indo-Soviet co-operation.

The work of drilling started with one rig in 1957. Now 43 deep-drilling rigs and 25 work-over rigs operate in different parts of the country. In Gujarat alone, 536 wells of varying depths have been drilled. The failure to success ratio in India is among the best in the world. It is 2.3 :1 whereas the world average is 4.5 :1. In almost all the States, exploration for oil is going on apace ; 50 geological parties are at work. Over a dozen hydro-carbon-bearing structures have been discovered.



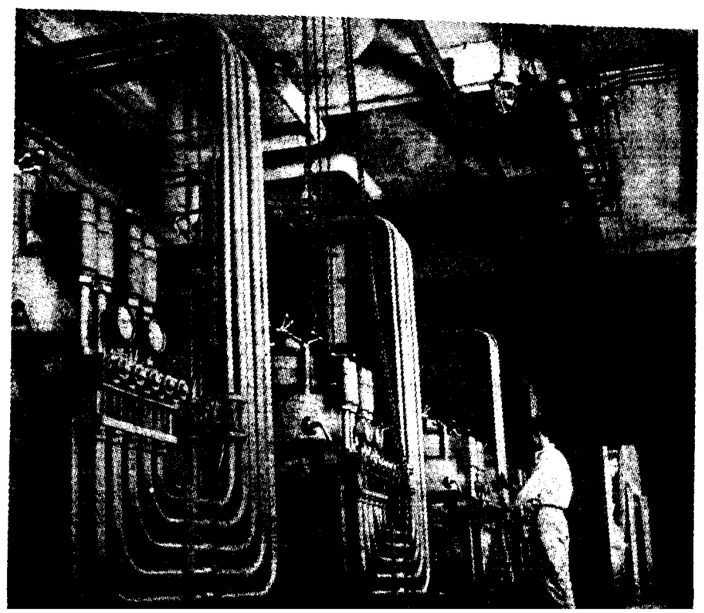
A view of the Bhakra Dam

The remarkable growth of India's oil industry has silenced even the most diehard cynics. ONGC's production of crude reached 3 million tonnes in 1968-69 and was expected to reach 4 million last year.

The entire commercial production is spread over six fields : Ankleshwar, Cambay, Kalol, Nawagam, Lakwa, Rudrasagar. The bulk of it, however, comes from Ankleshwar which was discovered in 1960. The production started in September 1961 in the Test Well named "Vasudhara" (Fount of Prosperity) by Jawaharlal Nehru. The total daily production of Ankleshwar has risen to 8,300 tonnes of oil and about 8 lakh cubic metres of gas. The gas produced at Ankleshwar and at Cambay is supplied to power stations and industries.

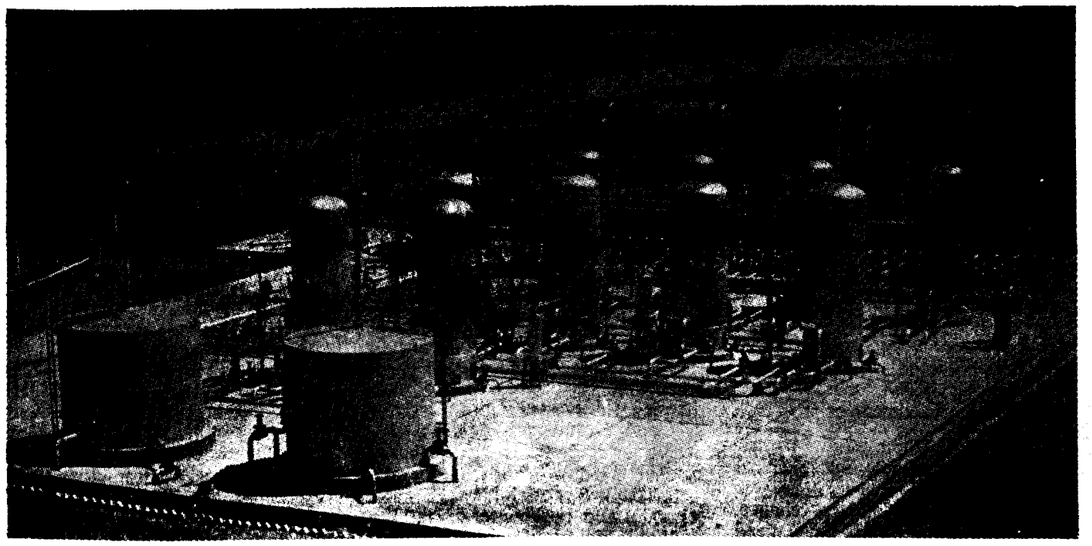
The Ankleshwar oil is refined at the Koyali Refinery, which also has been a child of Indo-Soviet cooperation. Another refinery at Barauni, also built with Soviet assistance, processes the crude produced from oil wells in Assam. Both these refineries have an annual capacity of 3 million tonnes each. They produce all varieties of petroleum products : petrol, kerosene, diesel fuel, lubricants and aviation petrol, which had not been produced at the foreign-owned private sector refineries. These refinery products save for the country Rs 20 crore of foreign exchange every year.

Indian Drugs and Pharmaceuticals, Rishikesh



With the success achieved by the projects and the expertise gained by working them, the Oil and Natural Gas Commission has drawn up a programme to push up the annual production from 3.6 million tonnes to 14.5 million tonnes in 1978-79 at a cost of Rs 1,200 crore. Even then it will be far short of our estimated requirement of 34 million tonnes in 1975. It is as a part of this huge programme that ONGC has boldly taken up the challenging task of drilling an off-shore well (the first in the country) in the Gulf of Cambay with Soviet help.

The remarkable production is not the only bonus of the oil industry. It gives employment to over 56,000 workers. And it has on its rolls about 3,800 geologists, geophysicists, self-



Oil installations at Ankleshwar

reliance can be well imagined from the fact that it is capable of turning out every year technological equipment for a one-million tonne steel mill. A very large portion of the heavy machines required for Bokaro is being manufactured here. Large machine components weighing over 100 tonnes can be turned out from this plant. Already it has made more than 80,000 tonnes of heavy equipment and intricate structures. This includes all the equipment needed for the sixth blast furnace complex of the Bhilai Steel plant.

Designing and fabrication of heavy machines which will, in turn, produce engineers, technicians and drilling operators, trained by Soviet experts ; they design and fabricate and assemble drilling equipment, production installations and sophisticated instruments and equipment. Soviet expertise has also played a considerable part in setting up the Hind Oil Designs Institute which is the premier institution for designing oil installations and conducting research and training.

India took another tremendous stride with Soviet help in her journey towards economic independence when she launched her first Heavy Machine Building Plant at Ranchi. The great significance of this plant for India's industrial heavy equipment for blast furnaces, coke oven batteries, rolling mills, mining equipment like cutters, loaders, electrical platforms and so on require an army of trained designers, technologists, metallurgists and operators. With the launching of the HMB Plant at Ranchi, India has built up with active Soviet assistance a very large cadre of qualified engineers and technicians who have mastered the skill of heavy machine building.

A sister industry of the Heavy Machine Building Plant is the Mining and Allied Machinery plant at Durgapur, also built with Soviet help. The MAMP which was opened in 1963 has been in full swing since then and has been manufacturing highly modernised machines and equipment for India's coal mines and for mines other than coal. The machines cover all fields of activity at the collieries and other mines, namely mining, loading, underground transport, raising, ventilation and dewatering. They range from tiny face pumps weighing 150 kgs to huge winding machines weighing about 150 tonnes.

The plant was originally planned to make diverse types of coal mining machines of the latest Soviet designs adapted to Indian conditions and was set up with a 45,000 tonne

capacity to meet the high coal output during the Fourth and Fifth Plans. However, in view of the revised lower targets of coal production, it has now taken up the manufacture of coal washeries and material handling plants like belt conveyors, stackers, wagon tipplers, earthmoving equipment, components for bulldozers and tractors and pumps. The Durgapur Plant, which is run by the Mining and Allied Machinery Corporation, (MAMC) has also been entrusted with the jobs of designing and fabricating a big workshop structure for Bokaro and of completely mechanising the Haldia port. It is the first time that mechanisation and construction of the handling system of any Indian port are entirely undertaken by an Indian industry.

The MAM plant built at a cost of Rs 29.3 crore has a capacity of turning out machines worth Rs 38.8 crore every year. It serves a large number of industries in the public and private sectors and has already saved for the country several crores of rupees in foreign exchange.

The HMB Plant at Ranchi and MAMC Plant at Durgapur have together produced till 1968 more than 95,000 tonnes of machinery and equipment valued at over Rs 32 crore.

Heavy Electrical Machines Crucial

Independent India realised early enough the crucial role that machine-building capacity plays in laying the base for industrial self-reliance. Therefore she has rightly gone ahead in building her capacity to meet all her heavy machine requirements for various kinds of basic industries like steel, coal, oil and power.

India has been importing a considerable portion of heavy electrical equipment required for her thermal, hydro-electric and atomic power plants. With the demand for power growing fast with every Plan, the import bill for heavy electrical machinery has also been rising enormously. The efforts to set up a heavy electrical industry gathered pace in the Second and Third Plans. Thus have come up the heavy electrical industries at Bhopal, Tiruchirapalli, Ramachandrapuram and Hardwar. The last named is yet another link in the chain of Indo-Soviet heavy industry projects in the country.

The Heavy Electrical Equipment Plant (HEEP) at Hardwar with an annual cpacity of Rs 62 crore worth of products is considered one of the biggest in Asia. Its production is expected to be more than the combined output of Bhopal and Hyderabad. The Tiruchi plant produces heavy boilers. When completed, it is slated to produce turbosets of 15 lakh kw., hydrosets of 12 lakh kw. and electrical motors of 515,000. The plant, which is being built at a cost of Rs 86 crore, will thus make a remarkable contribution to India's electrification for which, again, Soviet assistance has come in a liberal measure.

Power Generation

The Soviet participation in power generation began at Bhilai with the construction of a thermal power station there. The two-nation partnership has witnessed the building up of thermal and hydro-electric power stations with a total capacity of over 3 million kw. Among them is the country's largest thermal station at Neyveli with a planned capacity of 600,000 kw and with a special feature, that of using lignite, a low-calorific fuel produced there.

Other power stations built or being built with Soviet co-operation are thermal stations at Obra (250,000 kw) and Harduaganj (100,000 kw) in Uttar Pradesh, Korba (200,000 kw) in Madhya Pradesh, Patratu (400,000 kw) in Bihar, Bokaro (112,000) and hydro-electric stations at Bhakra right bank (600,000 kw), which is the biggest of its kind in India, and Lower Sileru (720,000 kw) in Andhra Pradesh. Among these the stations already commissioned generate nearly 19 lakh kw. These stations are operated and maintained entirely by Indian personnel.

Coal Mining

As in steel, oil, and power, Indian know-how has been built up or improved by co-operation with the Soviet Union in the coal mining industry also. Two major coal projects in the country owe their genesis entirely to Indo-Soviet co-operation : the coal minig complex at Korba in Madhya Pradesh and the country's largest coal washery at Kathara in Bihar. The Soviet Union provided a credit of Rs 59.53 crore (pre-devaluation) in 1957 for developing two mechanised coal mines and a mechanised quarry with a total annual capacity of 2.7 million tonnes and a Central Mechanical and Electrical Workshop for the repair of coal mining machinery. The industrial potential of Korba coal has brought immense benefit to the backward region. The coal produced here not only feeds industries fast coming up in the area but travels far to feed the steel mill at Bhilai and various railways. A fertiliser project based on coal is a welcome off-shoot of this mining industry.

The Kathara coal washery, one of the biggest in Asia, will wash 3 million tonnes of coking coal from Bokaro-Kargil area and supply half of it to steel plants and the rest to thermal power stations and other industries. A number of other quarries with a total annual capacity of 6.5 million tonnes of coking coal are being developed with Soviet assistance at Ramgarh, Pundi, Teping and Kedlya. They are expected to meet the requirements of Bhilai, Bokaro and other industries.

Indo-Soviet co-operation has embraced diverse fields and key sectors of the Indian economy. Apart from the monumental projects of steel, coal, oil, power and heavy machine building, it has also moulded for the first time in the country a few comparatively small, nonetheless significant, industrial and agricultural projects. Among these are the precision instrument plant at Kota in Rajasthan, the Antibiotics Plant at Rishikesh, the Synthetic Drugs Plant at Hyderabad, the Surgical Instruments Plant in Madras and the Suratgarh and Jetsar State farms in Rajasthan.

The plant of the Instrumentation Ltd. at Kota with a capacity to produce 138,000 instruments valued at Rs 11.5 crore annually is meeting the highly sophisticated needs of defence and atomic power projects, besides those of a number of industries. These instruments are called the "brain and nerves" of modern industry because they detect even the slightest malfunctioning of highly complex machines.

turn to PAGE 32

INDO-SOVIET ECONOMIC TIES

B. NATARAJAN

SOVIET economic assistance to India began in 1955, when the Soviet Union offered technical assistance for the construction of the first steel plant in the public sector at Bhilai. Since then, the Soviet Union has, under various agreements, provided long-term credit amounting to Rs 1,022 crore. This is repayable in rupees, which the Soviet Union uses for the payment of goods which it imports from India. Also, the amount borrowed from the USSR was repayable over a period of 12 years with interest at the rate of 2.5 per cent, which is considerably less than that charged by some other countries.

The Soviet Union can take pride in the fact that it helped India to strengthen her industrial base, which is essential for any newly independent country seeking to achieve economic independence. But, however important it was to lay the foundation for heavy industries, it was equally necessary to ensure that the new industries were able to achieve their production targets. In this context, the training of technical personnel capable of handling unfamiliar and sophisticated Soviet machinery became immensely important. In view of this, the Soviet Union offered help in setting up scientific and technical institutions to train cadres in the country as well as in the Soviet Union. For the Bhilai Steel Plant alone nearly 800 Indian specialits were trained in the Soviet Union, while more than 10,000 workers were trained by Soviet specialists during the construction of the plants at workshops as well as at the Bhilai Technical Institute. About 1,000 workers have been trained in oil technology and construction at the two oil refineries at Barauni and Koyali. Another example of Indo-Soviet co-operation in this field is the Indian Institute of Technology at Bombay, which trains students in 32 branches of industry and engineering. Uptil now, nearly 20,000 skilled workers, technicians and engineers have been trained at Soviet-aided projects in the country, and about 2,500 Indian specialists have been trained in the Soviet Union.

Soviet economic relations with India are equally important in the field of trade. Today India is one of the largest trading partners of the USSR. One important characteristic of trade between the two countries is its rapid development. The volume of trade between the two countries has increased from Rs 180 lakh in 1953-54, to Rs 21,761 lakh in 1967-68. In 1953-54, when the first rupee-trade agreement was signed, Indo-Soviet trade accounted for a mere 0.2 per cent of India's total trade, which rose in 1968-69 to as much as 10.4 per cent. Similarly, among developing countries, India is the biggest trading partner of the USSR.

The Soviet Union is buying goods from India, not only under the usual trade agreements, but also by placing orders at times when we were finding it difficult to sell our goods in the world market. For example, during the period of recession (1966-67), the USSR placed an order for 100,000 tonnes of rolled metal and 600,000 tonnes of steel. The Soviet Union also expressed the desire to buy railway wagons from India on a long-term basis.

In the next five years India's exports to the USSR are expected to increase to Rs 325 crore. This may include, not only traditiohal items like tea, jute, etc and non-traditional items like shoes, handicrafts, and ready-made garments, but also sophisticated items like machinery and equipment manufactured at the Soviet-aided projects. During the 'seventies, India might also enter into joint ventures with other countries and she can aspire to share these markets with the Soviet Union for the supply of machinery and equipment for development.

Soviet aid has played a positive role in the development of Indian economy and it will be in the interests of both countries to strengthen the existing economic relations between them, How far this will be possible will depend on the plans which the USSR has for seting up new ventures, for supplying the necessary raw materials, spares and components for the existing plants and for fabrication of machinery for the more sophisticated branches of Indian industry.

Of late, India has started exporting to the Soviet Union leather footwear, fruit juices, garments, tanned and finished leather, fans, air-conditioners etc. The production of these items sometimes requires import of raw materials and components for which payment has to be made in foreign exchange. Thus, barter trade with the USSR at times involves repayment of Soviet aid in foreign exchange. Indirectly, this also implies that less goods are available for export to other countries.

As development in countries like India is tied up with the expansion in trade, we have to make every effort to expand trade with the Soviet Union. Any expansion in trade in future will require a change in the composition of the trade. On the imports side, as India has alredy built up adequate capacities in heavy industries, the Soviet Union can help by supplying machinery for heavy chemicals and pharmaceuticals, alloy and special steel, fertilisers, etc. On the exports side, there is not much scope for expansion of traditional items. Hence, India should try to export more and more of newly-manufactured items like steel, fans, refrigerators, electric bulbs, electrical wires and cables, chrome footwear, woollen and cotton garments, tea, coffee, fruit juices and some fruits like bananas, etc. The Soviet Union has already indiciated that there is considerable scope for import of these items from India. In an agreement concluded for the period 1966-70, the Soviet Union had indicated that 40 per cent of its imports from India would consist of manufactured items.

The rapid development of trade between the two countries can be attributed mainly to the fact that Indo-Soviet trade is based on long-

term bilateral trade agreements. These are of great help to India as they facilitate imports from the Soviet Union by exporting to it an equal volume of Indian goods and settlement of all accounts in rupees instead of foreign exchange. A large part of the imports from the USSR is in the form of foreign aid shipments, which consist mainly of machinery and equipment. Other items of import are fertilisers, non-ferrous metals, newsprint, sulphur, oil products, chemicals for the manufacture of medicinal products, dyestuffs, pulp and paper, etc. On the other hand, India's exports to the USSR, which are utilised for repayment of the aid received, consist mainly of traditional goods, tea, jute goods, spices, cashewnuts etc., the demand of which tends to be relatively inelastic. India finds it advantageous to trade with the Soviet Union as the latter, being a socialist economy, is in a position to project the consumption needs in advance. Absence of tariffs on goods imported by the Soviet Union from developing countries combined with the above factors assure India of a more or less stable demand and stable prices for its goods.

Fertiliser Corporation Earns Profit

THE Fertiliser Corporation of India made a profit of about Rs 15.56 crore during 1968-69. After providing for depreciation and interest on loans the net profit of the Corporation stood at Rs 4.42 crore.

Production of nitrogen and P_2O_5 fertilisers in the five units of the Corporation was of the order of 2,64,316 tonnes and 21,195 tonnes respectively.

As in the previous year, the Nangal Unit topped in performance by producing 77,310 tonnes of nitrogen which was over 96 per cent of the rated capacity of 80,000 tonnes. Production of heavy water slightly exceeded the rated capacity of 14,000 Kg. But for the cut in power imposed by the Bhakra Management Board from December, 1968 to May, 1969, performance would have been even better.

The Corporation has five Units functioning in different parts of the country. These are Sindri in Bihar, Nangal in Punjab, Gorakhpur in Uttar Pradesh, Trombay in Maharashtra, and Namrup in Assam. Two more units, one at Durgapur in West Bengal and another at Barauni in Bihar, are under construction. In addition, the Namrup Unit is being expanded and the plant at Sindri is being improved and rationalised. When Durgapur and Barauni plants go on stream and the expanded units at Namrup and Sindri are commissioned by 1972, the installed capacity of FCI will rise to 854,000 tonnes of nitogen. Blueprints for the expansion of Trombay and Nangal units are ready. The former will be based on ammonia feedstock, and the latter wil utilise low sulphur heavy stock which is the residue left after refinery operations.

Naphtha Production

Since naphtha is likely to become scarce and costlier over the years, the Government have decided to add to the FCI family three more fertiliser plants based on coal as feedstock. These plants will be set up at Ramagundam in Andhra Pradesh, Talcher in Orissa and Korba in Madhya Pradesh each with a capacity of 228,000 tonnes in terms of nitrogen. Each plant will produce 900 tonnes of ammonia and 1,500 tonnes of urea per day and will have all the advantages of large-scale production. In fact, they will be the largest coal-based fertiliser plants put up anywhere in the world. A fertiliser plant at Haldia with a capacity of 152,000 tonnes each of nitrogen and P_2O_5 has also been approved and will be put up by the FCI. These plants are likely to go into production by 1975-76 and will increase the production capacity of FCI to about 20,00,000 tonnes in terms of nitrogen and 4,70,000 tonnes in terms of P_2O_5. All the new fertiliser plants will be designed, engineered, erected and commissioned by the Planning and Development Division of FCI.

●

WORLD SPOTLIGHT

SOVIET UNION

100,000 MILLION KILOWATT-HOURS OF ELECTRICITY

V. MASOLD

By January 29, 1970, the power station had produced 100,000 million kwh of electricity. This is quite a figure. This means huge quantities of steel and diversified kind of machinery, cars, lathes, all sorts of industrial installations and the like. This means more consumer goods, more farm produce. Ever greater number of homes were provided with electricity. In a word, it is hard to give an exact estimate. But here I would like to furnish some data which have a direct bearing on the activity of the station's personnel.

Volga Waters

Our station spans the Volga, whose water brings into motion our turbines. In the past few years 2,000 cubic kilometres of water went through them, with 2,500 cubic kms being made use of by its entire hydraulic complex. Taking into account the fact that the Volgograd reservoir contains 32 cubic kms of water, the amount of water used by our complex over the last 11 years turns 80 times as much.

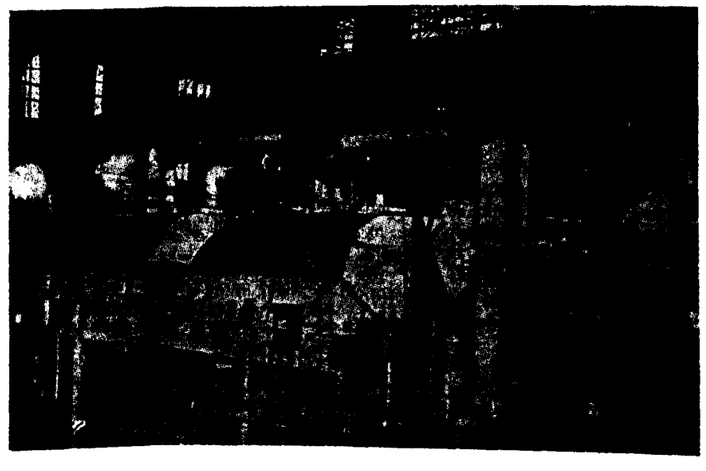
At present the cost of one kwh of electricity generated by the station amounts to 0.0947 Kopecks. In other words, ten kwh of our electricity costs less than a match box.

The commissioning of the Volga power station made it possible to raise the level of the lower reaches of the Volga, from Saratov down to Astrakhan, and thus improve navigation. It became possible to irrigate fertile but arid land in the area. The cheap current produced by the station stimulated the growth of the Volgograd aluminium plant and other industrial units. The workers of the Volga hydraulic complex having tackled their principal job—construction of the station—put up quite a few industrial enterprises in the town of Volzhski. The latter has become a major industrial centre and is going through a period of boom.

The world's biggest rotary-blade turbines were installed at this power station. The station was also the world's first in the transmission of the current at 500,000 volts. The same applies to the experimental transmission of the direct current at 800,000 volts.

Despite the huge capacities of the complex and the enormous amount of power that it generates, the personnel seek to make use of even certain "minor" things to boost the efficiency of the station. Thus the streamlining of the operation of the generators gave an additional 60 million kwh of electricity a year. This was achieved through the introduction of the optimal hook-up of the turbines, as well as through the alternate schedule in the exploitation of the hydro-units on the basis of synchronous compensator.

In 1969 more than 288 million kwh electricity above the plan was produced. The amount of power consumed for our own needs went down by 6 per cent. Productivity of labour marked an upward trend. Gross output of energy per worker was up by 8 per cent. A quantity of 2,200 million kwh of electricity is slated for the first three months of the current year.



A steam turbine being fested at the Kharkov Turbine Plant

AN ATOMIC POWER GIANT

YAKOV SHNEE

ACCORDING to forecasts made by scientists at the seventh World Power Conference in Moscow, world's power generation by atomic plants will account for about 2 per cent of the total in 1970 and for 25 per cent in the year 2,000.

The world's first atomic power plant built in the Soviet Union in 1954 ushered in a new era in the development of power engineering. These stations are no novelty today and their network is expanding all over the world.

A 220,000 kw turbine has been developed for the power-generating plant. It has been manufactured at the Kharkov Turbine Plant which is the USSR'S basic enterprise for the production of turbines for atomic power plants. The first turbine made here for the Novo-Voronezh Atomic Power Plant (APP) had the capacity of 70,000 kilowatts.

The latest model of the steam turbine is, naturally, more perfect. It operates on saturated steam with the pressure of 45 atmospheres. Due to the low parameters of the initial state of steam, the turbine for the APP has a number of design features distinguishing it from turbines of conventional thermo-power plants. It has a larger transit cross-section for steam supply to the turbine and special devices for doing away with excessive moisture.

The complex design involving changes in control automation required additional expenditures. However, the operation of the APP has the chief advantage that it operates on economically efficient nuclear fuel. This is why the expenditures will soon be repaid. Thus, at the first Soviet APP for 5,000 kw, the daily fuel consumption was 30 grams while a conventional thermal power plant of the same capacity consumes 90 tons of fuel.

The APP with a 220,000 kw turbine will be economically more efficient than the first. With a lower consumption of nuclear fuel in the atomic pile, this unit will generate 22.5 million kwh of electricity more than several earlier steam turbines of the same capacity did.

Kharkov scientists and designers are evolving now a new design of turbine for 500,000 kw with the initial steam pressure of 65-70 atmospheres. It is to be put out in 1970 in two modifications: for 1,500 and 3,000 revolutions per minute, in the first version the turbine blade reaching the length of 1,400 mm. Designed for high initial steam parameters this turbine will ensure still better techno-economic showings of power generation.

The Volga hydro-electric power station (named after the 22nd Congress of the CPSU) is the biggest among those built along the Volga and the Kama. It is one of the basic links in the Single Power Grid of the European part of the USSR.

More than eleven years have passed since the station's first hydro-unit went into commission. Annually the station generates about 10,000 million kwh of electricity, transmitted to the key economic regions of the USSR: the Central part (including Moscow), the Volga Area, Donbas, etc.

Stone Dressing Without Silicosis

A stone-dressing rig which can eliminate the hazard of silicosis has been developed by a Swedish manufacturer of compressed-air equipment.

When the compressed-air rig-called SDR 2—is in operation the stone dust is sucked away from the treated surface *via* a channel in an interchangeable carbide-tipped bush-hammer. It then passes through a suction head and hose into a dust collector.

The rig features a slightly modified rock drill, which is mounted onto a sturdy beam by means of two tie rods. The movable beams between rollers set in a bracket which is welded on a tube swivelling in the stand. This permits the operator, using the conventently placed handle, to raise or lower the rock drill, move the beam horizontally to a radius of two metres from the pivot stand and turn it through 360°.

The working pressure can be adjusted by a compressed air regulator. An exhaust hose acts as a silencer. The whole equipment has a total weight of 90 kg (198 lbs).

QUOTATION BOX

Many friends have complained about the treatment they receive from Ministers of Government and their flunkeys (*chamchas*—feeding spoons)...Often a four-berth railway compartment is reserved for the pleasure of one V.I.P. Let them take comfort in the reply given by a British Minister of Transport to a request for a list of those entitled to the privilege of a whole railway compartment to themselves.

He replied: "Cabinet Ministers and lunatics; His Majesty's Judges of Assize and verminous persons; and corpses."

—*From The Editor's Page in "The Illustrated Weekly of India"*

It is common knowledge that the upper brackets are filled with five-ulcer executives and stroke-prone vice-presidents.

—*From an editorial in "The Times of India"*

Crossing the floor is an ancient game. Its origin antedates Parliamentary democracy itself. When women did it, it was called elopement and there was murder, marghem and war ..In India, Vibhishan made the first floor-crossing famous.

—*Mrs Tarkeshwari Sinha in "Political and Economic Review"*

China is known for her austerity drive. I particularly liked the latest directive on "Practice Economy." "Everyone should do everything possible to save every drop of oil, every grain of rice, every unit of electricity, every inch of cloth, every sheet of paper, every lump of coal, every piece of timber and every inch of steel."

—*From the Editor's Notebook in "Commerce"*

The demand for sex novels (in the U.S.A.) is so great that a writer can be paid $ 100 a day, often writing a book in three days, receiving $ 700. Authors are told to keep humour out of the stories, because it "takes the sex out".

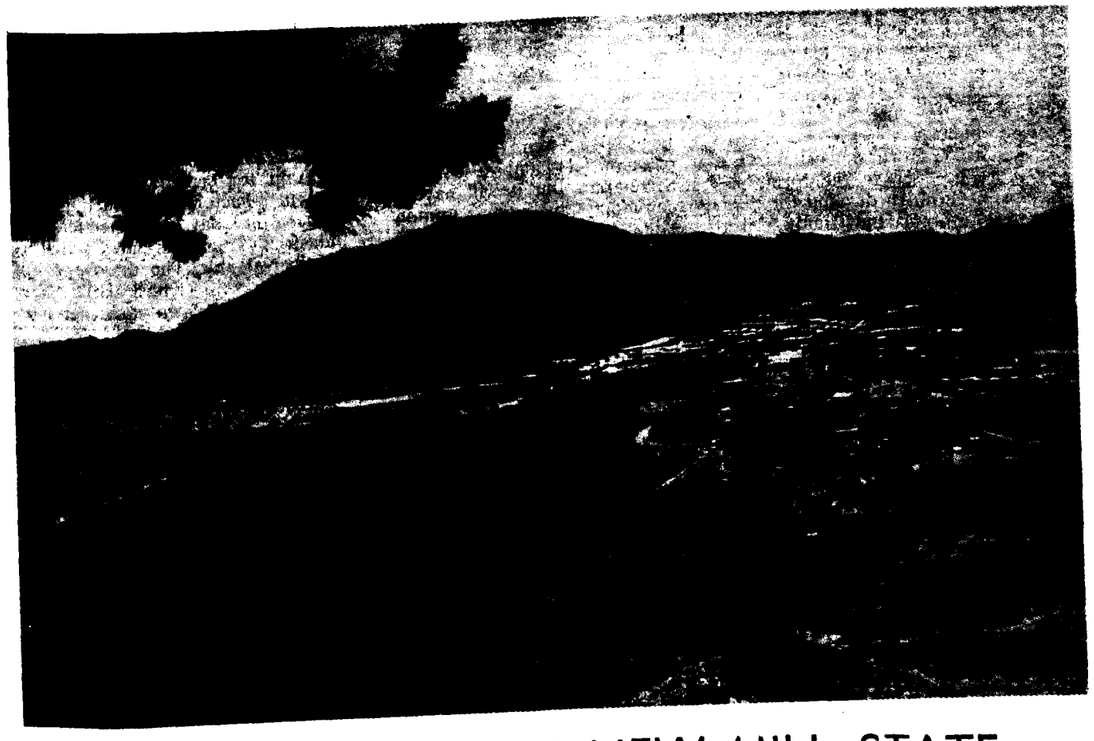
—*From "Link"*

Police in Jerusalem have prevented a French fakir from crucifying himself in a park. A police spokesman commented: 'crucifixion is no longer allowed in Jerusalem.'

—*Anthony Howard in London Diary of "New Statesman"*

Politics of 'Operation Topple' can prove more disruptive than open and bloody wars.

—*Morarji Desai, M.P.*



MEGHALAYA: THE NEW HILL STATE

Although endowed with tremendous natural wealth, the area, now called 'Meghalaya', was economically very backward prior to India's freedom. It was only after Independence and the launching of the Five Year Plans that special attention was focussed on the socio-economic development of the Hill areas. As a result of the efforts of planning, Meghalaya, with its vast economic potentials, is poised to march forward rapidly.

D. N. CHAKRAVARTY
Our Shillong Correspondent

MEGHALAYA, the new autonomous hill State within Assam comprising the districts of United Khasi and Jaintia Hills and Garo Hills, covers an area of 22,549 sq. km, about 18.4 per cent of the total land surface of Assam. Its present estimated population of nine lakhs, pre-dominantly tribals, constitute 6 per cent of Assam's total population. The district-wise break up of population was 46,2152 in United Khasi and Jaintia Hilis and 307,228 in Garo Hills, according to 1961 census. In spite of a high rate of population growth of 2.7 per cent per year during the decade 1951-61, the density per sq.-km was only 38 in Garo Hills and 32 in United Khasi and Jaintia Hills.

The total area under foodgrains in 1967-68 in Meghalaya area was 59,000 hectares in Garo Hills and 46000 hectares in Khasi and Jaintia Hills. Most of the people are engaged in agriculture. And though at present cultivation is not scientific, there are immense agricultural potentialities with an organised agro-based industrial network. Banking upon her abundant supply of oranges, pineapples, plums and peaches Meghalaya can develop a number of fruit-processing industries. Expansion of soil conservation programme, discontinuation of Jhum method of cultivation and adoption of scientific methods can make Meghalaya not only self-sufficient but also surplus in food. Poultry and livestock farms and dairy schemes may be expanded as well. There is scope for modernisation of traditional industries like weaving, cane and bamboo works, blacksmithy and cutlery and new cottage industries like carpentry, tailoring, leather works and bakery, which may give a boost to the rural economy of Meghalaya.

Forests with an abundance of valuable sal, pine, gurgra, haldu and bamboo have been playing an important role in the economic life of the local people. The forests not only solve the fuel problem but provide important raw materials for industries. Sawn timber of sal, mostly to be used in the form of sleepers, is in high demand for the Railways. Gurgra and Haldu, valuable as plywood timber can be used for potential development of plywood industries in Garo Hills and Khasi and Jaintia Hills. A variety of wild animals like elephants, tigers, buffaloes, bear, wild pig, wild dog and bison render grandeur to these forests.

With its diversity and richness of some of the rare minerals this small region of Meghalaya can claim an important place in the mineral map of India. It is fortunate to possess vast reserve of coal deposits, a large tract of land containing limestone, and clay and rocks of numerous varieties.

Political Set-Up

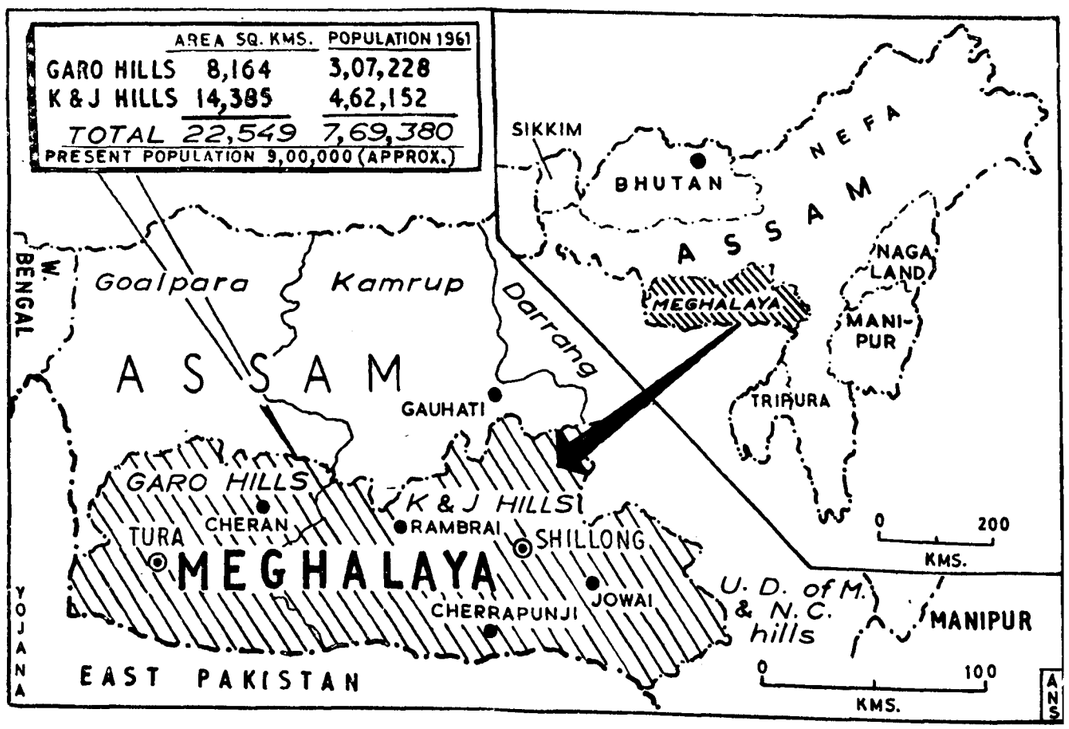
Meghalaya has a separate Legislative Assembly, a Council of ministers and a separate Secretariat. But it will have a common Governor, common High Court, common Public Service Commission and common Capital with Assam.

In respect of only certain subjects of common importance including State highways, major industries, and hydro-electric projects, Assam Government will have certain powers over the region. Meghalaya will have its village and town police and other powers among the subjects in its State list and Concurrent list. The separate status given to these hill areas is likely to help fulfil the hill people's aspirations.

In the production of sillimanite, mined at Nongstoin in Khasi Hills it holds a virtual monopoly. Well-known for its high natural qualities and very useful as a refractory material this mineral is a good foreign exchange-earner. Limestone is used as input for cement in Cherrapunji Cement Factory, producing 230 tonnes every day. For chemical and industrial purposes also this is equally valuable The discovery of kaolin rocks in Khasi Hills may enable Meghalaya to start her own ceramic industry.

Besides cement, the potential industries in Meghalaya are calcium carbide, ceramic and glass Industries, refractory, abrasive and coal chemicals. Soda ash, synthetic rubber, gasoline, carbon black and basic chemicals may also be produced from minerals available inside the region or from plains of Assam.

The hydro-electric potential of Meghalaya has been only partially harnessed so far in the hydel projects of Umiam and Umtru in Khasi



Jaintias of Meghalaya performing Laho dance

Hills.[F] But there is immense scope for building up more projects.

A Tourists' Paradise

With her magnificent scenic beauty, Meghalaya, the abode of clouds, is truly a tourists' paradise. Its majestic hills, the grandeur of luscious forests, the waterfalls and slender streamlets in winter turning into vast roaring rivers in rainy season can attract hosts of tourists to this place. The provision of the modern amenities like good hotels, convenient transport and arrangement for rowing, fishing and swimming in the lakes and rivers is likely to bring for Meghalaya a handsome earning from tourism itself.

FOUR TIMES THE NORMAL YIELD

Durgapada Dey, a village teacher in Murakata village near Midnapore, has succeeded in obtaining 34.13 quintals of paddy per 0.41 hectare from the high yielding *Jaya* seed. Initially, Dey faced strong resistance from his aged father. But he followed expert advice and prepared a seed bed in the first week of August.

He used foliage spray of urea and carried on trnasplantation when the seedlings were 16 days old.

The soil, however, contained lot of sand and had no irrigation facility. Dey improved it by ploughing and cross-ploughing several times and then applying farmyard manure, superphosphate, muriate of potash and urea as basal doses. Finally, he brought water from a drinking water well across the village road to irrigate his field. Dey made the first top-dressing on the 20th day and the next on the 52nd day, by using urea each time, followed by inter-culture operation by hand hoe. Crop-cutting was done at the end of November. The estimated yield of 34.13 quintals per 0.41 hectare is about four times the best yield of the local varieties of the area.

HIGH YIELD THROUGH SELF-HELP

The entire cultivable land of Dhengan-Jaypur in Jhargram Block of Midnapore district in West Bengal remains under the plough throughout the year and produces high-yielding varieties of paddy and wheat.

The people of this area used to grow normal varieties of *aman* once a year till 1967, when they experienced a major crop failure because of drought. A natural spring, a perennial source of water supply, lay a few miles away but was never utilised through these long years. A *bund* was then erected by the villagers. The elders of the village came forward to dig canals. The result was that the Block harvested a crop at the rate of nearly 22.50 quintals per 0.41 hectare.

BHILAI TO BOKARO *(from page 24)*

The two plants that produce antibiotics, sulpha-drugs, vitamins, chemical intermediates and alkaloids and the surgical instruments factory are managed by the Indian Drugs and Pharmaceuticals Ltd. They have laid the basis of a state-owned pharmaceutical industry. They have helped in reducing the country's dependence on foreign markets for drugs and surgical instruments and also in meeting the needs of a growing public health service. Like other projects in the public sector, they have laid emphasis on maximum use of indigenous raw materials and building up technical know-how and research.

The Soviet aid in agriculture has been, to a large extent, confined to farm mechanisation and setting large model state farms and seed farms. It is said that one out of four tractors operating in India is Soviet-made. A factory at Loni in U.P. being set up with Soviet collaboration in the private sector will produce 10,000 tractors of 14 to 20 hp every year.

The 30,320-acre Central Mechanised Farm in Suratgarh has shown how scientific methods of farming aided by mechanisation could convert arid wastelands into smiling granaries. The farm which was organised 14 years ago with a Soviet gift of machinery worth Rs 75 lakh has not only set an example to innumerable small farms in Rajasthan but helped them produce bumper harvests by suppyling them with quality seeds. Suratgarh's inspiration resulted in the opening of another 30,000-acre State farm in nearby Jetsar. This too has been supplied with Sovitet agricultural mahinery.

On surveying the wide spectrum of Indo-Soviet co-operation in the field of industry and agriculture, two features stand out : it has set a new pattern of economic relations between developing and developed countries and it has provided the launching pad for social ownership of the means of production in cerain key sectors of the country's economy.

LETTER

YOJANA IN MORE LANGUAGES

A million cheers to you on the birth of the fifth member of the YOJANA family. Not only 1970, we too herald the coming of "Payobhara" with a jubilant heart since it is 'one more feather to your cap'.

But I cannot understand the rationale behind your proclamation of a "planned parenthood" for the YOJANA family. Indeed, it has got to multiply in numbers by procreating multi-lingual offsprings, so that the message of planning can be carried to every nook and corner of this sub-continent. I presume that even the members of the YOJANA family will not grudge any additions to their number. Will they ?

Madurai M. Kannan

TO THOSE WHO DESERVE

STATE BANK HELP TO FARM GRADUATES

THE State Bank of India has a new scheme of financial assistance for the technically qualified farm graudates who have sound projects of agricultural development. To begin with, projects which will not need financial assistance of more than Rs. 1 lakh will be considered. The quantum of assistance will depend on the cost of the project and the resources available with the borrower. Under the scheme, loans will also be granted for purchase of land upto a maximum of Rs. 25,000 or one-fourth of the total assistance.

Graduates in agriculture, veterinary science, animal husbandry, agricultural engineering or other graduates with a year's training in agriculture and owning land either individually or as a member of a joint Hindu family or as a tenant or lease-holder or in partnership are eligible for aid under the scheme. The applicants should have a worthwhile project of agricultural development and/or allied activities and technical ability to run the farm.

The period of the loan will be 10 years for medium-term loans and 5 years for medium-term instalment credits extended for the purchase of machinery. Working capital loans are repayable on demand. Generally, recoveries will be so made as to coincide with the harvesting of the produce.

BANK LOANS BOOST FARM YIELD

OVER 300 farmers of Cumbum valley in Madurai, have received about Rs 15 lakh from the Indian Overseas Bank to construct irrigation wells and to instal pumpsets. Progressive farmers of this region, for long, were affected by consecutive draughts. Now water supply through small irrigation scheme, financed by I.O.B., has given a boost to farm production in the valley. With the assistance from IOB, even the small village of Chinnavollupuram achieved a four-fold rise in production of tomatoes, 50 per cent increase in groundnut and 43 per cent rise in onion, apart from reviving banana cultivation.

In the Seppalakottai area also with the Rs two-lakh loan to 53 farmers to develop well-irrigation, the cropped area rose almost five-fold from about 15 hectares to about 72 hectares and farmers' incomes are anticipated to increase six-fold, from about Rs 50,000 to over Rs 3.5 lakh.

HELP TO RICKSHAW PULLERS

THE poor cycle rickshaw pullers will be able to increase their earnings by purchasing new rickshaws, instead of paying exorbitant interest for the hire of the vehicle. United Commercial Bank's helping hand is behind this.

This scheme for the rickshaw-pullers, the most important among the Bank's loan schemes to different transport-operators, will provide 80% of the price of a new cycle-rickshaw, directly payable to the manufacturer.

The loan with a 9% interest, payable in monthly instalments not exceeding two years will considerably improve the poor rickshaw-pullers' economic condition.

DOCTORS, TECHNICIANS BENEFIT

Doctors, jointly opening a nursing home or a polyclinic, will get loans from the Syndicate Bank for the purchase of equipment, furniture, X-ray plant and other requirements. The loans are repayable in 30 to 50 monthly instalments, with a 9 1/2 per cent rate of interest and a rebate of 1/2 per cent for prompt payment. In these cases of partnership, loans will be granted without any margin or hypothecation of equipment.

Engineers, artisans, craftsmen and other technically qualified people will be equally benefited. They will receive loans not exceeding Rs 50,000 from the Syndicate Bank to set up new small-scale units.

The Scheme also covers cost of acquisition of machinery, tools and equipment, construction of factory-type sheds, besides working capital needs.

BHILAI

from page 18

The need for spares required for conducting repairs and overhauls is done two years in advance for imported items and a year in advance for indigenous items. Recently an attempt has been made to assess the needs for a five-year period in respect of major units, in order to enable indigenous manufacturers to work out technology of manufacture of these items, which should go a long way to cut down imports.

About 60 to 85 per cent of the total requirements of spares, in terms of tonnage, are being manufactured in the plant's engineering shops. Greater emphasis is laid on developing import substitute items in a planned way. Material specifications have been changed in some cases and modifications have been made so that these items can be manufactured in the plant's engineering shops. At the same time, emphasis is laid on the reclamation of old parts on a mass scale. Accordingly, over 1,200 tonnes of spares and subassemblies are being reclaimed every year.

BOOKS

PERSONNEL MANAGEMENT IN INDIA

Personnel Administration Practices in India by M. N. Rudrabasavaraj, Vaikuntha Mehta National Institute of Cooperative Management, Poona. Pages 457. Rs 30.

K. V. Iyer

PERSONNEL management itself being in an infant stage in India, there is a dearth of literature on this subject. It is therefore commendable that Mr Rudrabasavaraj has taken pains to attempt a systematic study in the public, private and cooperative sectors. The author has collected data from personal visits and discussions with senior officials of 32 leading organisations in the country. In the concluding chapter, a comparative analysis has been made of the general patterns and trends on different aspects of personnel management practices in the three sectors.

In the area of recruitment and selection of staff, the common pattern noticed is the policy of extending preference to the 'sons of the soil', upto a point. While the prevailing practice in the private and cooperative sectors is, by and large, to recruit relatives and friends, the same is not encouraged in public sector undertakings. The trend is towards increasing the sophistication of selection practices in all the sectors and using up-to-date manpower planning techniques. As regards manpower training and development, the public and private sector units have provided better training facilities; systematic evaluation of the effectiveness of the training methods is, however, yet to be attempted in all the three sectors. The general trend is the policy of promotion from within, based on merit or seniority or both, and restricting transfer of employees to the minimum. Sophisticated systems seem to be in vogue in public and private sectors, but not to the same extent in the cooperative sector. In the area of communications, the general pattern is top-down communication. Surveys and studies on employee morale are found to be lacking in all the sectors; this drawback needs to be rectified.

As regards wage and salary administration, the general pattern of compensation appears to be satisfactory, though some companies in the private sector adopt a policy of 'wage leaders' on a region-cum-industry basis. Wage policies of Government, recommendations of Wage Boards, Tribunals, and Commissions influence considerably the compensation structure. Wage payment systems based on job evaluation are generally in vogue in the public and private sector organisations rather than in cooperative organisations. By and large, most of the firms studied provided welfare measures and services for employees well above the statutory minimum, the public sector taking the pride of place and private sector coming next. While employee welfare programme in the private and cooperative sectors is based on employee needs or management initiative and capacity or both, it is provided as a matter of policy in the case of the public sector, regardless of capacity or business consideration.

Cordial Union-management relations prevailed in the cooperative sector units studied, due to an informal give-and-take atmosphere. In the private sector it was due to mature and sound collective bargaining, joint consultation, grievance redressal machinery and attempts to ensure harmonious industrial relations. The public sector orgisations studied were, however, plagued by inter-Union rivalry, political influence on trade unions, multiplicity of unions, etc., rendering smooth labour-managment relations a difficult task.

Whereas elaborate and sound personnel organisations with well-defined duties and objectives are found in private undertakings, personnel departments are still in the stage of evolution in the public sector. The Cooperative sector does not have much of a personnel organisation, though there is a trend towards setting up such departments. The personnel administrators enjoy better status and emoluments and are assigned increasing responsibilities in the private secor, where the top executive is generally in charge of the personnel department. An encouraging trend in both the public and private sector undertakings is the supervisors, managers, officers and executives are increasingly coming within the purview of personnel administration; another trend is the increasing decentralisation in personnel administration.

Based on the experience gathered from the study, the author has suggested some guidelines for helping the establishment of proper personnel policies and programmes. The soundness of personnel administration is obtaining within the organisation. Personnel administration is more effective with top management support, interest and commitment. There should be a diversified and effective personnel programme involving scientific selection procedures, manpower training and developmental programmes, opportunities for advancement, a proper communications system, job evaluation and incentive schemes and welfare programmes. Personnel administration is sound and effective where the personnel expertise is given the freedom to formulate sound personnel policies and programmes and where their advice is heeded by the top executives in the organisation.

This publication is no doubt a pioneering attempt quite useful to students and executives in business and Government. The author deserves compliments for bringing out a useful piece of work based on conditions prevailing in the country.

IMPACT OF CORPORATE TAXATION

Effect of Corporate Income Taxes on Methods of Financing by Mohammad Mohsin. Commerce Pamphlet-23. Pages 32. Rs 1.50.

R. C. Saxena

BUSINESS prospects and business outlook are so much intertwined that the corporate management is constantly on the lookout for a 'financial mix' which could provide them with a cut-off point for accepting alternative investment proposals. For investment decision in any firm, cost of capital function offers a wide range of options between debt and equity and/or a relative choice between internal or external financing. However, the ultimate choice for a particular component of such a 'mix', among many other considerations, depends upon the firm's dividend policy, its size and age, its growth prospects, the demand for its product at a particular price level and the inter-relationship between the various *cash-flows* of the firm. *Walter's model* suggests that if the internal profitability rate of a firm is substantially greater than the market rate, the firm would retain earnings.

In the above pamphlet, it is argued that tax induced debt financing has advantage over equity as, in the case of the former, the firm has to pay simply the cost and charges but in the case of latter, apart from the implicit cost, the taxes on the use of capital. Further, because of the interest on debt being deductible as a cost for tax purposes and the dividends on preferred or common stock being non-deductible, a shift from equity to debt is observed in the capital structure of companies. The validity of this argument is substantiated by a few exercises in the relative growth of ordinary and preferred stock vis-a-vis debentures and declining trends are witnessed, in the new issues of common stock relative to a spectacular rise in debentures.

The above findings do not seem to be altogether new, as both the *'Traditional business finance theory'* and more recently the *'Modigliani-Miller Thesis'*, among other things, already admitted that corporate income taxes provide an advantage to debt but the above analysis happens to miss some other basic formulation of these theories. That is why the corporate income tax is singled out to be responsible for the above shift. Further this analysis seems to dismiss totally the difference in expectations that lead to transactions in business and financial markets. In this connection a reference to *Alchian-Kessel thesis* is rather necessary. It states that in price levels rise in future, the net monetary debtor firms would gain and net monetary creditor firms would lose. Traditional business finance theory after generalising the above thesis states that if creditors under-estimated the future earnings of the firm, equity owners, on the average,will gain. Conversely, if compared to the creditors the equity holders, as a group, are over-optimistic the creditors will gain, because yields on debt would be higher and effective yields on equity lower than at equilibrium conditions. This aspect does not seem to have been examined at all.

Also the other observation of the author that except debt financing no other method of financing including the preferred stock offers tax advantage does not seem to be acceptable as the firms' internal savings do certainly offer tax relief in so far as they avoid the personal income taxes by stock holders. However, the role of internal savings seems to have been dismissed very casually by observing that "it is far from reality to say that the Indian Joint-Stock Companies have reached or are on the verge of maturity. A majority of the companies are still at formative stages..... *That is why* (italics mine) the companies do not have internal savings at present to replace external finance and it will take some time before they reach a stage of self finance". Probably this faulty conclusion emanates from the fact that the author considers all the 1,133 companies of his sample as one entity implying that every unit of his sample has the same size, life, production and financing pattern. It appears that he is quite unaware of the industries/firms having life cycles, i.e., the stages of *introduction, growth, maturity* and *decline*. Actually it is the second stage—the stage of growth—where *growth firms* predominate, growth rates range between 7 to 20 per cent, profit margins are at their peak and consequently the internal savings. At maturity stage, however, the profits begin to decline due to the growth rates usually levelling off because of the high profit margins of the growth stage having attracted resources to such an extent that sales to capacity relations became much less favourable. The rise of substitute products sets in the next stage of decline for the industry when profits are often negative. Therefore, the declining internal profitability of the firms can be explained only if all the firms of his sample are in the stages of *maturity* and/or *decline* rather than by their *formative* stage as the author observed above. Again, the stages of maturity and decline seem to block the process of shifting the tax forward.

In regard to the *'backward shifting,* of taxes specially on labour it has been argued that the same is not possible due to the trade union resistance. However, the *wage-lag hypothesis* maintains that inflation causes real wage rates to decline and this loss of labour is the gain for the owners of firms. This implies that under inflationary conditions the firms ought to generally gain and the labour intensive firms ought to gain much more than the capital intensive firms. In case the sample of his analysis would have been broken down further into capital and labour intensive firms the evidence of 'backward shifting' would have been noticeable in both the categories of firms and a high order of shifting in labour intensive firms, unless, of course, the suggested analysis indicated that during inflationary conditions the stock of capital of these firms decreased and the supply of labour increased.

Caste and Social Change

Caste and Social Change—An Anthropological Study in Three Orissa Villages by N. Patnaik. Published by National Institute of Community Development, Hyderabad, October 1969. *Pages* 77. *Rs* 10.

Krishna Dutt

IN this book the author seeks to analyse the impact of community development on rural life in Orissa. Three villages included in the study are Manicpur, Badapur and Sasanpadar, in Rangailunda Block of the Ganjam district. These were selected on the basis of their proximity to a town. Thus, according to the author, Manicpur is a *poor* communication village, Badapur *average* and Sasanpadar a *good* communication village.

Mr Patnaik has depended mainly on face-to-face interviews with villagers to study the social structure with reference to caste, social stratification, ritual pollution, rural politics, occupational mobility, receptivity towards modern living and adoption of modern agricultural practices. The impact of community development was studied not so much as these affected material standards "as with the resultant changes in the social structure in and reaction for adjustment of people to certain changes".

In describing caste heirarchy the author states that what is generally a symbol of superior status is adopted by the higher castes first and the lower castes then try to emulate them. Often the model to which the high castes refer are really the modernity of city life. But as a result of industrialisation the lower groups are also easily able to have access to modernity and it is through these lines that modern ideas percolate to the lowest groups. As an example, he quotes the case of *Bauris* who are traditionally carpenters, considered untouchables, but now own bicycle and earn their living mostly as rickshaw-pullers in nearby towns. Consequently practise of untouchability against them has been relaxed.

In Chapter IV, the author has dealt with changes brought about in these three villages through Panchayati Raj and C.D. programmes. He observes that though improved agricultural methods, education and other programmes are being accepted by the villagers, changes in caste heirarchy are negligible. The Harijans at least seem not to be satisfied with their lot and are striving to improve their standards. They are not only trying to overcome the handicap of being landless labour but are also taking keen interest in panchayati politics to gain social position.

In concluding his thesis, the author says that the villages seem to be in transition ; neither the arbitrary leadership and segmentation of the community have completely gone nor democracy and egalitarianism are in full force", and that the present political set-up has raised "caste consciousness" and "groupism and regionalism have developed". On the whole, the book makes interesting reading and gives a vivid description of the process of change in a part of the rural India.

Mixed Fertilisers

Mixed Fertiliser Industry—An Economic Evaluation by R. T. Doshi. Popular Prakashan, Bombay, 1969. *Pages* 177. *Rs* 25.

Puran Singh Sangwan

REGARDLESS of, the essential role of P and K, the N fertilisers still continue to be the main source of plant food. The capacity and production of N fertilisers envisaged in the draft Fourth Plan are 3.7 million tonnes and 3.0 million tonnes respectively for 1973-74 ; though its actual performance has yet to be watched. At present 8 projects in the public sector and 5 projects in the private sector are in operation with a total production capacity of 1.1 million tonnes. In addition, 6 projects in the public sector and one in the private sector, which are now under active implementation, will add another one million tonnes per annum. The current consumption (1968-69) of N, P, K is of the order of 1.2, 0.4 and 0.2 million tonnes respectively and the envisaged targets of consumption in 1973-74 are 3.7, 1.8 and 1.1 million tonnes (though likely to be reduced). This is a measure of importance attached to fertiliser input in agriculture. And this book dealing mostly with cost-economics of mixing the fertilisers, rather than the extension side of mixed fertilisers, is of significance, though of limited utility. Moreover, precise data on soil testing is still wanting and the manurial recommendations are mostly based on broad soil types or on fragmentory information limited to field experiments. Manurial schedules in Madras are based on soil test-crop response studies. In Gujarat, the crop response is the only criterion, while most of the other States follow general type of schedules. As such, the mixed fertiliser industry has to change the formulations freqeuntly before a set pattern on zonal basis is evolved.

The author, an economist by profession, has very ably brought forward various problems of mixed fertiliser industry *ab inito*. The book consisting of 14 chapters deals with various aspects of the industry from an economic angle, like manufacturing processes and economics, raw-materials costs, quality control, distribution system and expenses and packing and storage. The author has meticulously collected the information from the mixed units spread all over the country, mostly in the private sector. The Chapter on 'Bulk Blending' seems to be quite interesting and may have somedirect relevance to our future attempts. But mixed fertilisers some times tend to be adulterated unless some strict control is exercised like Fertiliser Control Order. Metric system has not been uniformly used in the book.

*** The third generator of the Dhalipur Power Station has been commissioned and connected to the UP Power System at Dehradun.**

*** A Rs 4.50 crore project for rural electrification through Farmers' Co-operatives has been undertaken in the Lucknow district of Uttar Pradesh.**

*** The production at the Bhilai Steel Plant during 1969-70 was 2.14 million tonnes of iron and 1.86 million tonnes of steel. This was the highest annual output ever recorded.**

ECHOES OF GREEN REVOLUTION

Two Goan Farmers Experiment with High-Yielding Varieties

Bhajaro S. N. Goakar

BHAJARO Shaha Naik Goakar of Agonda in Canacona Taluka is 59 and lame. Neither age nor the handicap could deter him. He owns five acres of land, two of them under the high-yielding variety of paddy—IR-8, one acre under MTV ; half an acre under the local variety during the current *Rabi* season.

Three years ago, he took to the high-yielding varieties and reaped 24 quintals of IR-8 per acre in the first crop. Successive attempts proved more rewarding and during the last Kharif season Naik harvested 37 quintals of IR-8, 20 quintals of MT-20 and 28 quintals of Taichung per acre. The yield of IR-8 was three and a half times more than the average yield of the local variety, *Pandio*. But with better inputs the yield of the local variety increased by one and a half times.

Naik invested Rs 550 per acre on harvesting the IR-8 crop and earned Rs 2,000 per acre leaving a profit of Rs 1,450. For this achievement he earned the best paddy cultivator prize of Rs 400 in his Block.

Encouraged by these results Naik decided to bring his entire holding of five acres under IR-8. His success has inspired other farmers to follow his example.

In Loliem, a priest has taken to farming with a love for the land equal to his love for his lord. He is Vishweshwar Ragunath Tengse, 55, the priest of the local Keshav temple. Priest Tengse has been responsible for spreading the message of the high-yielding varieties in the area. He brought his five-acre paddy land under the high-yielding varieties, IR-8, PTV,-10 and *Padma*.

In the last season, he harvested 35 to 38 quintals which was more than double the yield of local *Patni*. The yield of IR-8 from one acre fetched him Rs 2,240.

"Higher yields per acre, higher margin of profit and above all the moral responsibility as a farmer to increase food production to ensure regular supplies to fellow countrymen" prompted Tengse to take to the high-yielding varietes.

Vishweshwar K. Tengse

LENIN : THE PATHFINDER

LENIN'S imprint on the 20th century has been decisive and indelible. The history of the world, especially of Europe, is largely the legacy of an epochmaking event—the 1917 October Revolution in Russia—in the making of which Lenin played a spectacular role. What germinated from the socio-economic philosophies of Marx and Engles found a dynamic and militant embodiment in the person of Lenin who transformed history from an epic of the ruling class into an account of the movement of forces of production.

Also, in the arts and sciences, Lenin's ideology brought about a whole series of epochal changes. In the realm of sciences it worked

towards the break-up of monopoly acquisition; and, in the field of culture, it reconciled the cravings of the millions with the strivings of a few. As a result, a new Soviet culture came to the fore in the formulation of which the humble and the lowly played as much a catalytic role as the few who assumed and discharged the creative responsibilities.

The regeneration of folk arts, music, ballet, opera, stage and literature in the Soviet Union and its subsequent impact on these arts in every other country bear testimony to the inner vitality of a new system of values thrown up by a new social order. Most extraordinary, indeed, was Lenin's use of the Press and Film as instruments of change and persuasion. Imbued with a new sense of social responsibility and called upon to lead mass thinking in a guided direction, the employment of these two media in the Soviet Union brought about the most far-reaching developments in social contact and miscegenation.

However, by far the greatest contribution of Leninism to our times is the philosophy, evolved and implemented by him in the Soviet Union, of centralised planning for economic development. Based on a collectivistic approach at reconciling individual needs with the needs of Society as a whole, the Leninist system of planning used the government as the instrument for the execution of the will of the State. The State owning the means of production and distribution and also assuming the authority for their regulation according to preconceived goals was the first practical attempt in entire human history at levelling all distinctions in the larger interests of every citizen of the country. Just as in his later years of power Lenin himself weaned away from the doctrine of the inevitability of a global revolution, it is possible that, had he lived longer, Lenin would have modified the basic ideological approach to planning by the State down to the lowest unit of society. But, all the same, the concept of society's productive and distributive needs being treated as a unified mechanism capable of lending itself to unified, centralised reorganisation was a marked advance on all theories of State organisation and public administration.

In the developing societies, especially those liberated from foreign yoke, such an approach appealed intuitively and naturally. When India became independent, the Soviet experiment already had gained stability and acceptance and lent itself as an inspiring model to the chief architect of modern India—Jawaharlal Nehru. It is a tribute to the innate strength of the concept of planning as much as it is an expression of India's own genius that the Soviet system was accepted, not by treading the same political path but by adjusting it to the system we had adopted for ourselves. The Indian experiment has shown that the process of planning can bring about socialistic regeneration of society without necessarily leading to socialistic regimenation. Had Lenin lived today he would have certainly seen in the Indian experiment a true transplantation of his philosophy in total harmony with the temperament and tradition of a people and a country he both admired and loved.

IGNORAMAN

Wants to Know

If
President's Rule
is not the cheapest
form of democracy

THIS INDIA

With this issue we are discontinuing "This India", which has been a regular feature of **YOJANA**. *We propose to start a new column for Readers called "***This I Like about New India,***" for which contributions are invited.*

Chief Editor

Regd. No D-876

Development Diary

* The Rs 80-lakh onion dehydration plant at Nasik has gone into production. Set up with West German technical and financial collaboration, the plant has a capacity to dehydrate 10,000 tonnes of fresh onion. It is expected to export 80 per cent of its production to West European markets and earn Rs 60 lakh in foreign exchange annually.

* Huge deposits of high grade iron ore have been discovered in the Chandardinga area of Goalpara district in Assam. The reserves are estimated to be about 10 million tonnes. Deposits of felspar and quartz have also been discovered at Pancharatna, in the same district.

* India concluded record import and export contracts with East Germany valued at Rs 10 crore at the Leipzig fair. Of the contracts, orders worth Rs 6 crore are for exports, comprising mainly non-traditional items like textile machinery, batteries and knitting machines

* The export of iron ore through Mangalore port during the current season has crossed the one lakh tonne mark,

* The Andhra Pradesh Small-Scale industries Corporation has launched a scheme to provide assistance to unemployed engineering graduates and diploma holders to set up small-scale units. The Corporation will build factory sheds and allot them to the engineers on a hire-purchase basis.

* The Fertilizer factory at Gorakhpur has achieved its production target of 1.56 lakh tonnes for the current financial year.

* Molybdenite has been struck near Palani, in Madurai district of Tamilnadu. Molybdenite is an important mineral used in the manufacture of special steel.

* The Rural Electrification Corporation has sanctioned twelve schemes costing about Rs 6 crore submitted by six State Electricity Boards. These aim at extending electricity to 707 villages and energising more than 20,000 pumping sets besides supplying power for some village industries.

* A spinning and weaving mill set up in the co-operative sector at a cost of Rs 1.20 crore has been inaugurated at Pusad in Maharashtra. The mill has 12,000 spindles and has a maximum production capacity of about 18 lakh pounds of yarn.

* The lubrication oil blending plant of the Indian Oil has been formally inaugurated at Tondiarpet near Madras The Rs one crore plant which has already started production has been designed, constructed and commissioned entirely by Indian experts. It will produce 1.40 lakh tonnes of various lubricants every year.

CALLING ALL READERS

Yojana Invites Contributions to A New Feature

Yojana begins a new column, **THIS I LIKE ABOUT NEW INDIA**, with its next issue. It will replace **This India.** The picture that New India presents before our eyes twenty-three years after Independence is not one of gloom and despair but one of hope and cheer. But more often than not the voice we hear is the strident voice of frustration and anger in Parliament, from public platforms, in the Press, day in and day out. And the voice of pride in New India's achievements, of confidence in her glorious future gets stifled. We throw open this column for the expression of that voice.

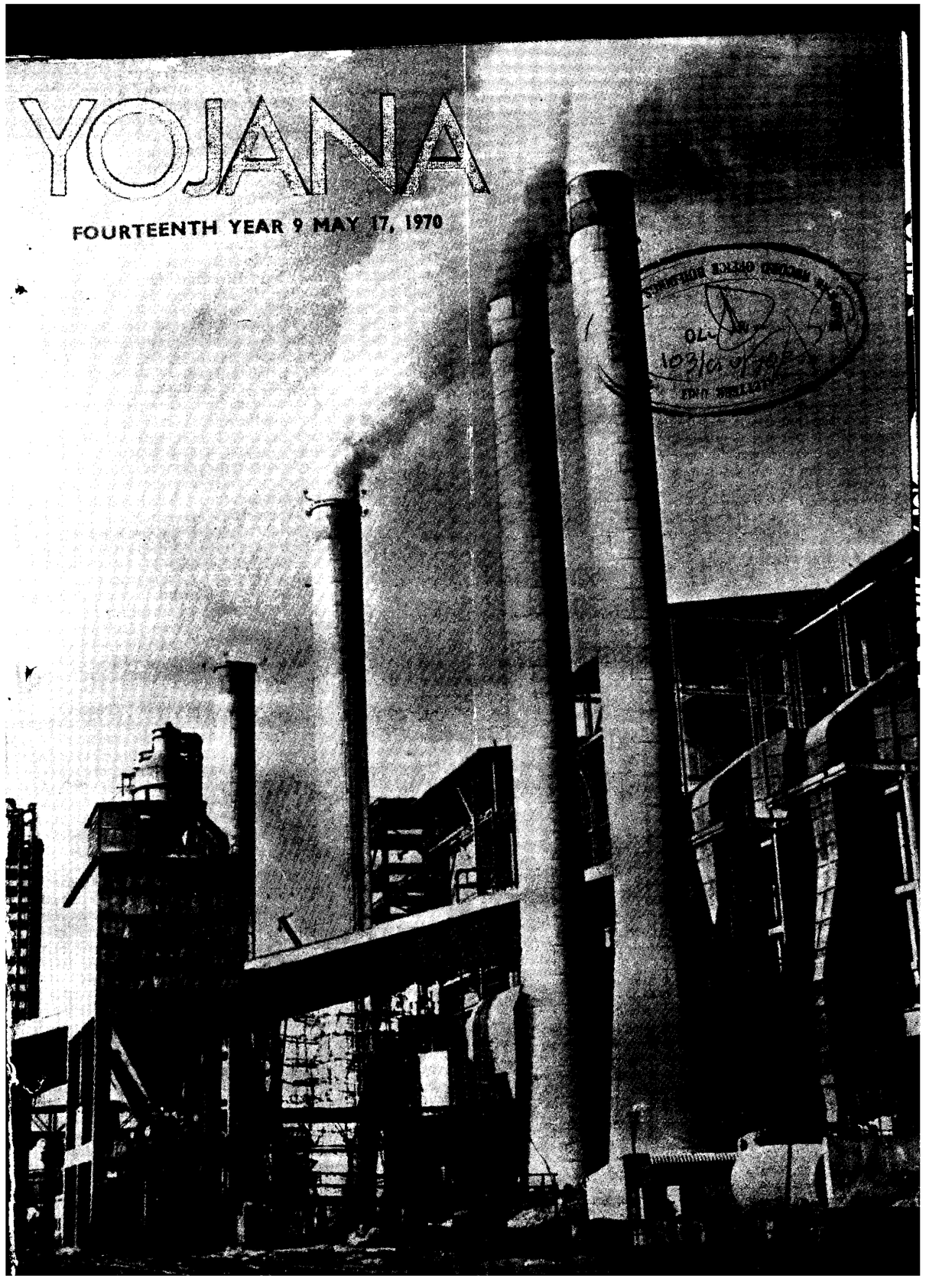
There is something about New India that you certainly like. You feel personally happy over something that New India has done for you, for your kith and kin, for your friends and you feel proud to speak about it to others. Please tell that through this column.

This is Your Own Column. Please write in 300 words what you like about New India. All accepted contributions will be paid for.

Contributions, stating age, may please be addressed to :

Chief Editor, **Yojana,** *216, Yojana Bhavan, Parliament Street, New Delhi 1.*

Printed at Navin Press, Delhi-6 and Published by the Director, Publications Division, Patiala House, New Delhi



YOJANA

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

Vol. XIV No. 9

May 17, 1970

Vaisakha 27, 1892

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

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Cover :
Thermal power plant at Durgapur. Power from this U. S.—assisted plant has helped transform the countryside into an industrial area employing more than 30,000 persons. *Courtesy* : USIS

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: 15 sh 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

The future of the country will depend more on engineers rather than administrators.

Jawaharlal Nehru

IN THIS ISSUE

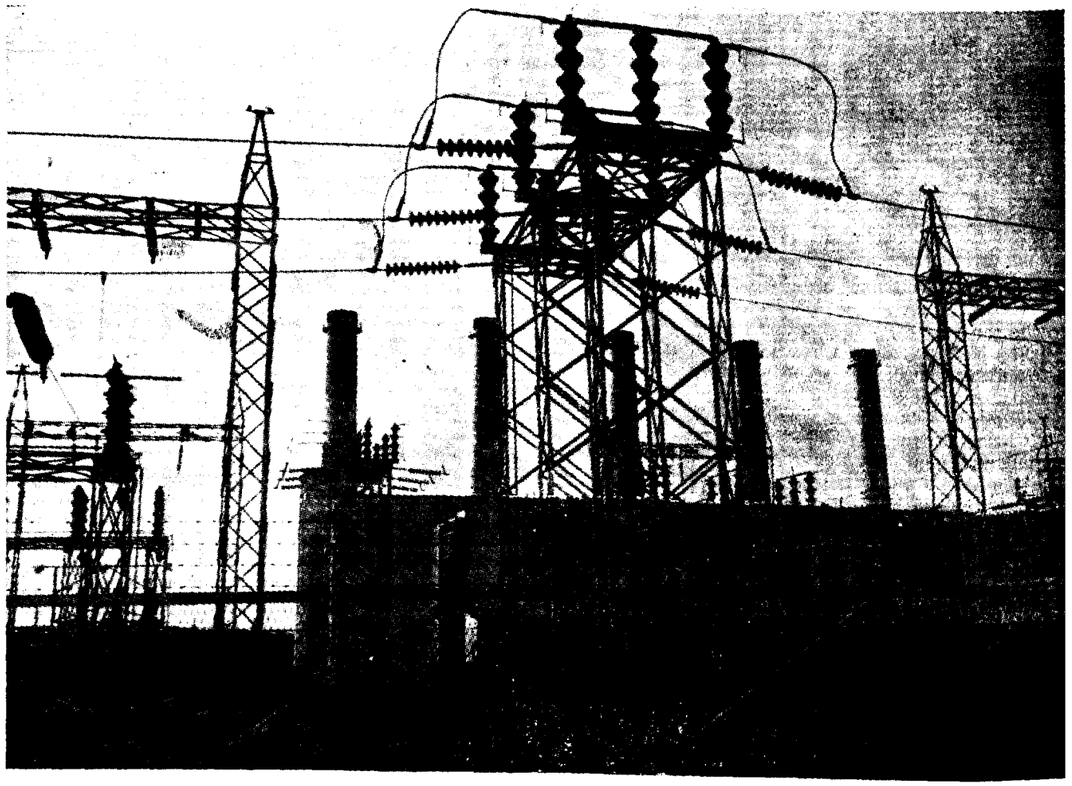
A BOLD STEP

ONE of the blessings of medical science is that life expectancy all over the world has gone up. But who can deny that the situation would have been still better had the benefits reached the poorest citizen ? Progress in medicine is one thing and its practical application for the good of the millions in this country is another. The doctor-patient ratio and the prices of medicines are the two important factors which determine the extent to which the people could gain from advancement in the field of medicine and surgery. The recent Government announcement cutting down drug prices takes care of one of these factors to a legitimate limit. The Government have taken a bold step and deserve to be congratulated. People, by and large, have welcomed it and there have been no loud protests from any quarter.

The fact that the Government took quite some time in coming to a decision, shows that they were dealing with a complicated process. The Drug Price Control Order was issued in 1963 and in August1966 the question of fixing drug prices was referred to the Tariff Commission. The Commission submitted its report containing 43 conclusions and recommendations in August 1968. As a result of the decisions announced on these recommendations now, the selling prices of essential drugs will be reduced on an average by 30 per cent. The prices of 17 basic drugs have been fixed and there is to be a cut in the mark-up in the case of formulated drugs. Under the new formula announced for fixing drug prices, the retail price of existing formulated drugs will be ex-factory cost plus a mark-up of not exceeding 75 per cent of this cost. However, in the case of new products, evolved as a result of appreciable product development work, a higher mark-up upto 100 per cent will be allowed for a period of three years. New drugs which are products of original research and contain new therapeutic ingredients will be allowed to have a mark-up upto 150 per cent for a period of not more than five years. Manufacturers may fix prices in accordance with these principles. but they will have to furnish detailed information to the Government, within a prescribed period, for review and refixation, if necessary. As an altenative, they may submit a pricing scheme to the Government for prior approval so that the profits do not exceed 15 per cent of turn-over. In such cases, the Government may allow a higher mark-up in respect of drugs other than the essential drugs. It has been explained that this flexibility is meant to promote exports, to encourage marketing of selected products important to national health and to generally ensure an orderly development of industry.

If the industry has any misgivings on the subject, it will be well advised to remember that a reduction in prices will lead to rise in demand and consequently to expansion of production. If the industry expands, the cost of production can legitimately be expected to go down. In this way the Government decision to cut down prices will stimulate the industry. Even as regards the small-scale sector, indications are that the problems faced by it will be met suitably. The Government has already announced that they favour pooling of prices of raw materials and intermediates which go into the production of drugs. The idea behind this is that all manufacturers should get raw materials at the same rate and a particular manufacturer or a group of manufacturers does not get any unfair advantage. Of particular help to the small-scale sector will be the plan to improve the quality and increase the output of glass containers, rubber stoppers and aluminium strips etc. There are over 2,000 units in the small-scale sector which stand in need of special attention.

The value of a decision lies in its implementation. It is gratifying to note that Government have decided to strengthen and streamline the machinery dealing with price control administration. For this purpose a committee is to be set up either in the Ministry of Petroleum and Chemicals or under the aegis of the Bureau of Industrial Cost and Prices. Also, licensing procedures will be tightened up with a view to removing existing anomalies. Circumstances in which excess over-licensed capacities have come into being will be investigated and regularised wherever possible. These are attempts in the right direction and it is to be hoped that the reduction in drug prices, which might take a couple of months to come into effect because of procedural complications, will ultimately benefit the consumer as well as the producer.

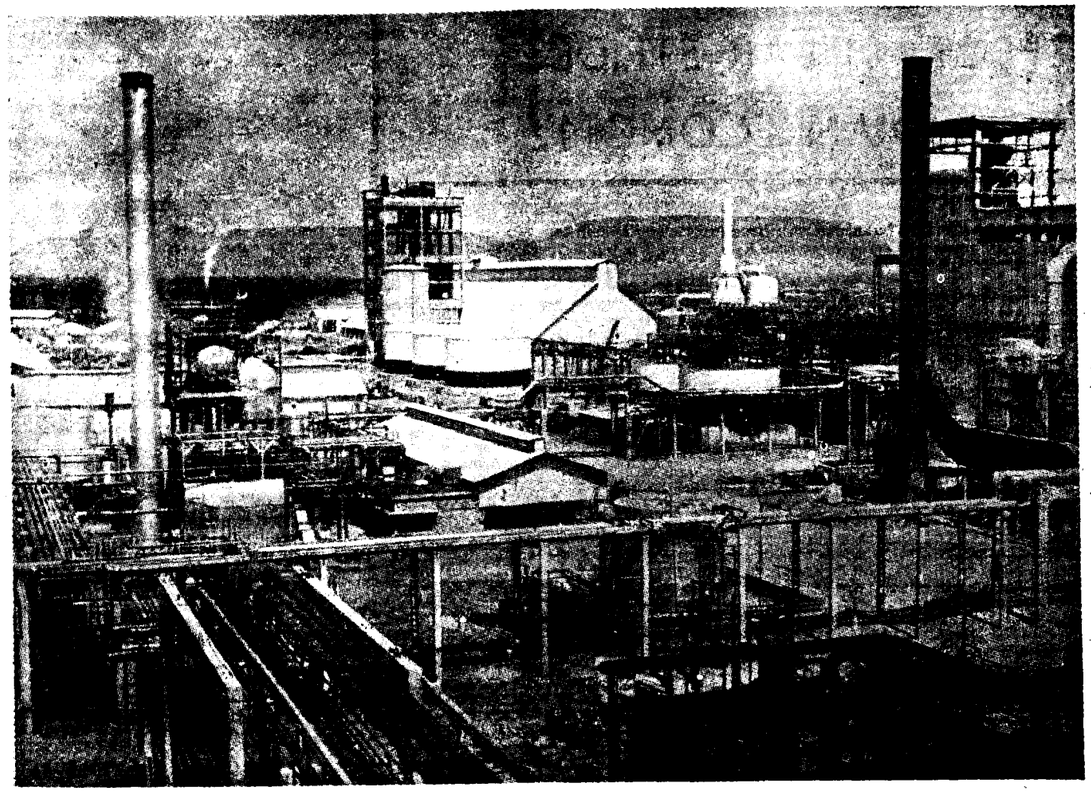


Thermal Power Station, Dhuvaran : Located near the oilfields of Gujarat, this station depends on natural gas and oil for fuel. The capacity, which is now 250,000 kW, is being doubled.

A CATALYTIC BI-NATIONAL PARTNERSHIP PROVIDES SPURS

ROSSCOTE KRISHNA PILLAI

The diversity and range of the different sectors of Indian economy that have advanced with the help of U. S. assistance are remarkably wide; the forms and shapes in which the aid has been given are myriad. Up to January this year, the total U. S. aid given to India stood at 9,340.2 million dollars, which is 57.8 per cent of the total foreign aid received by this country. A large chunk of U. S. aid has been given in the form of PL-480 food assistance and the money raised from within the country by selling the surplus foodgrains from America has been used for aiding development in agriculture and the building up of infrastructure and social services.



Coromandel Fertiliser Factory at Visakhapatnam: This factory now delivers 1,000 tons of finished fertiliser a day. It has helped in considerably raising farm output in Andhra Pradesh and neighbouring States.

WHILE it is true that the remarkable growth that this country has achieved in various sectors of its economy since Independence is, in the main, the cumulative result of her own herculean efforts made under the successive Five Year Plans, it is equally true that these efforts have been augmented, catalysed and consistently pushed ahead by the financial and technical aid received from foreign countries. Among India's donor countries, the United States of America stands in the forefront in terms of the volume and monetary value of aid. And Government leaders and public opinion in India have acknowledged, times without number, the positive and dynamic role of this American assistance in the country's accelerated economic development.

Despite the fact that the terms of foreign aid have not always been favourable and that the politics of foreign aid have produced avoidable ill-effects and fears and disillusionment have grown with mounting foreign debts, the liberal pumping in of American money and technical help has created in the country monuments of technological and scientific progress in different fields. The numerous projects in almost every field of India's development bear eloquent testimony to America's sustained interest in this country.

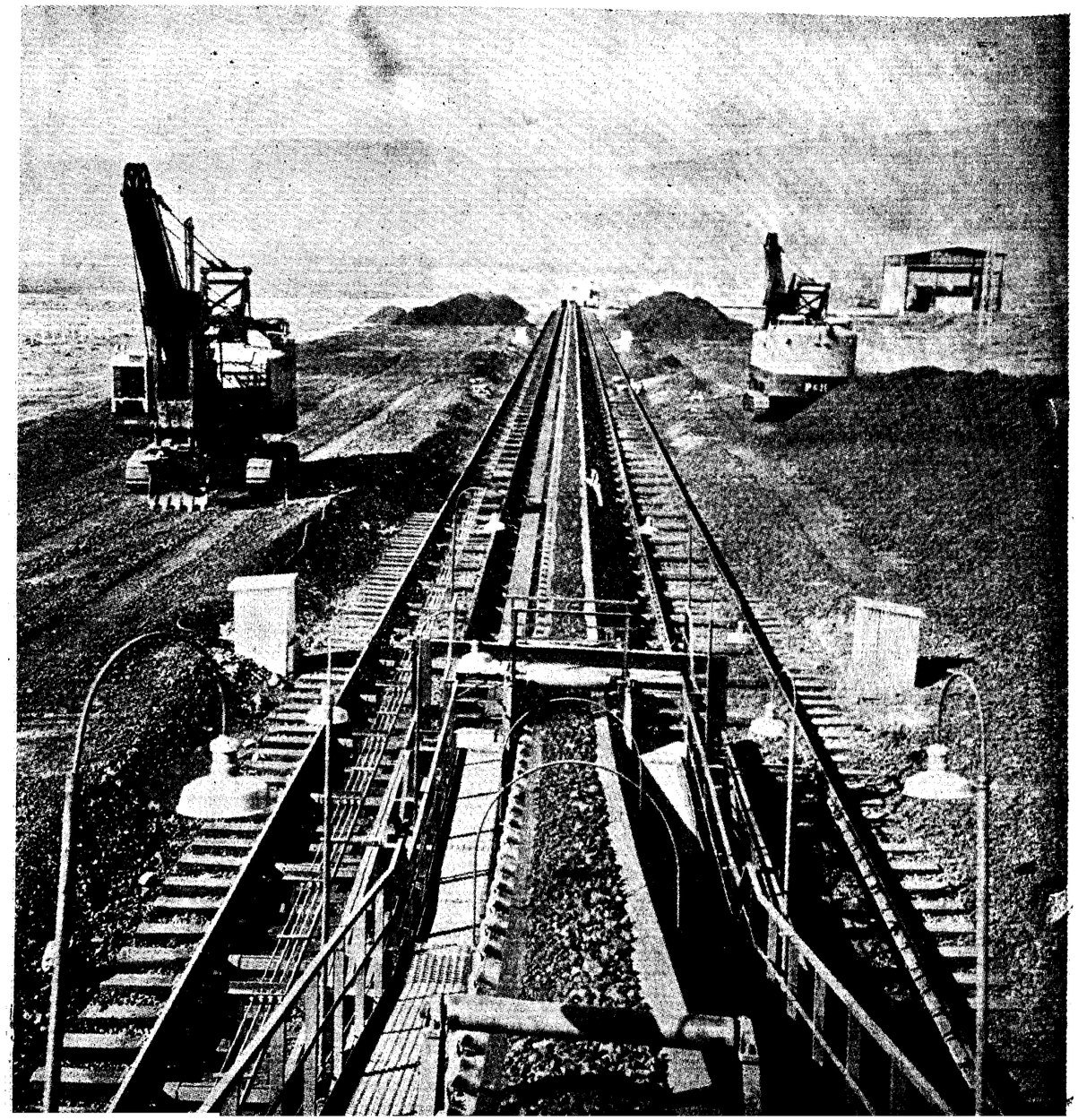
The diversity and range of the different sectors of Indian economy that have advanced with the help of U.S. assistance are remarkably wide and the forms and shapes in which this assistance has been given are myriad. Only a quick and random survey is attempted here.

The first U.S. aid to India was given in 1951 in the form of an emergency loan of Rs 90.3 crore (Rs 142.28 crore according to the present rate of exchange, equal to 189.7 million dollars) for buying two million tons of wheat from America to meet the difficult situation caused by the unprecedented crop failures of the previous year. Since then, the United States has provided to India more aid than what has so far been given by all other countries put together. Although per capita computations of U.S. aid will place India at the bottom rung, in terms of the gross total, India is the largest single recipient of *purely economic aid* from the U. S. A. Since the inception of the U.S. aid programme in 1951, the total U.S. aid obtained by India up to January this year stood at Rs 7005.15 crore (9,340.2 million dollars). This is about 58 per cent of the total foreign aid received by this country.

The pattern of growth and change in complexion of American aid to India over the last 19 years makes an interesting study. In the initial period

SPECTACULAR STRIDES OF INDIAN ECONOMY

Iron-ore handling plant at Visakhapatnam : India exports four million tons of iron ore annually to Japan and earns more than Rs 22.50 crore in foreign exchange.



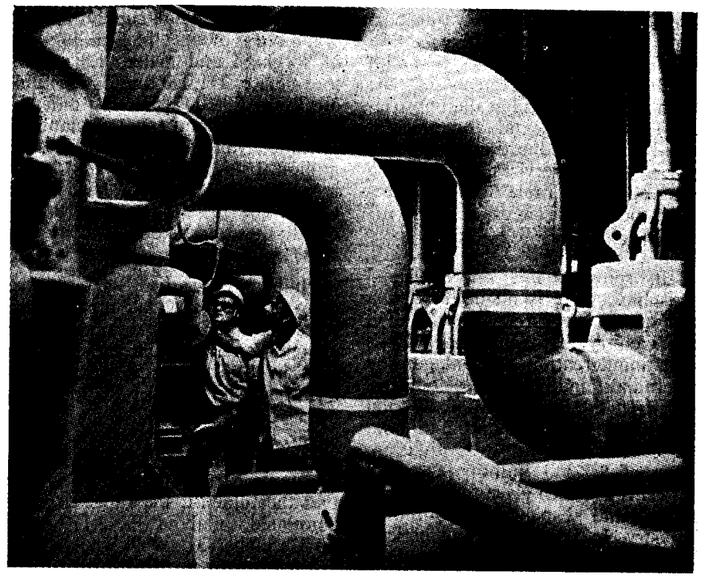
following the "Wheat Loan" in 1951, the quantum of aid funnelled into India increased only by fits and starts. However the Indo-U.S. Technical Co-operation Programme, the first institutional arrangement for American aid to India, was established during that period.

Three Agencies

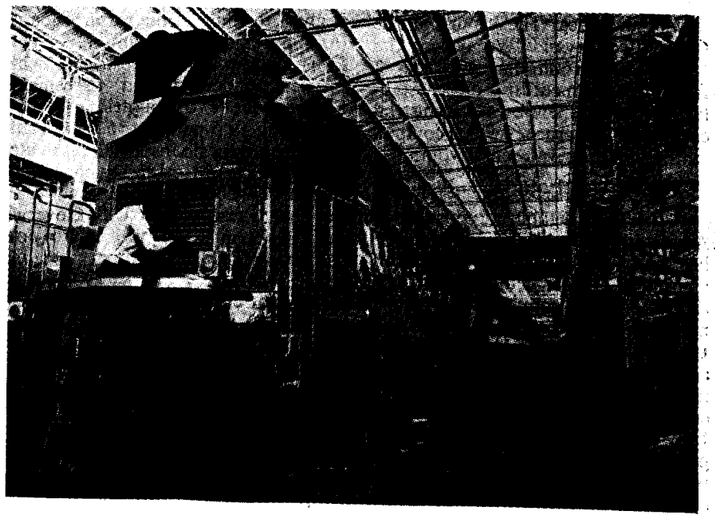
The very first technical co-operation agreement concluded between the two countries in 1953 related to agriculture. In fact, Indian agricultural development has received the bulk of U.S. aid since its inception. At present agriculture accounts for 40 per cent of the technical assistance expenditures of the United States Agency for International Development (USAID), which is the most important agency that extends grants and loans and lends the services of American specialists in various fields. Besides USAID, there are two other agencies through which American aid is now channelised into India ; namely the Public Law 480 (Food for Peace) programme and the U.S. Export-Import Bank.

The volume of American aid to India increased considerably from 1956 onwards and became diversified, too. The advent of the Soviet Union as an aid-giver to India's economic development and the thawing of the Cold War has, perhaps, helped in the spurt to some extent. As a consequence was born in 1958 the World Bank Consortium for India and Pakistan for co-ordinating the annual allocation of aid by a group of donor countries led by the U.S.A. The Consortium has since come to play a crucial role in determining the foreign aid component of India's developmental efforts.

After 1960, consequent upon President Kennedy's assumption of office and subsequently, there has been a massive increase in U.S. aid to India. Increasing importance came to be attached to the building up of a prosperous well-balanced economy in India as essential to world order and stability.



Atomic Power Station at Tarapur : Forty miles of colour-coded piping—some bigger in girth than a man, climbing up and down hundreds of metres—form part of the complex equipment installed here.



The Diesel Locomotive Factory at Varanasi : It turns out every year 150 locomotives and thereby helps the fast dieselisation of Indian railways.

As has been mentioned earlier, a major chunk of American aid has been funnelled into Indian agriculture. Other important sectors that have received substantial proportions of U.S. aid are what may be collectively described as those consti-

tuting the infra-structure of the country's economy, namely transport and communications, and irrigation and power. Programmes that aim at the social upliftment of the country's masses and at the improvement of their mental and physical well-being, like education, health and other social services, have also received considerable doses of American aid.

A Wrong Notion

In spite of this unprecedented assistance, there is no doubt that a widespread notion is prevalent in this country that American aid has been indifferent, if not antagonistic to India's industrial development. However, the fact is, out of the total US aid of over $ 9,340.2 million, Rs 7,005.15 crore—post devaluation, a sum of $ 2,300 million (about 25 per cent) has been given for modernisation and expansion of Indian industry. In keeping with American interest, this has substantially helped in the strengthening of the private sector industry in India. In regard to this aspect of American aid, the Clay Committee that was appointed by President Kennedy to study the aid programme was explicit in laying down guidelines. The report of the Committee says : "We believe the United States should not aid a foreign government in projects establishing government-owned industrial commercial enterprises which compete with existing private endeavours."

PL-480

The most significant portion of American aid to India, however, has been given for providing food assistance. Under Public Law 480 (known in this country by its short name PL-480) enacted in 1954, the United States Congress established a programme to render surplus commodity food assistance to developing countries. The programme enables the U.S. Government to dispose of surplus food and other agricultural produce, mainly wheat, in the form of aid by agreement with countries which suffer from foodgrains shortages. India signed the first PL-480 agreement on August 29, 1956 and has over the last 14 years received substantial quantities of wheat and other foodgrains under Title I of this programme in times of grave crisis in the internal food production.

Taken together, the PL-480 agreements signed till October last year provide for a total supply of 51.5 million tons of wheat, 5.5 million tons of sorghum and maize, 1.8 million tons of rice, 431,000 tons of vegetable oil, over 38,100 tons of different forms of milk and smaller quantities of tinned fruit and cheese, besides 3.6 million bales of cotton and other items like tallow and tobacco. The total value (including transportation) of all these commodities comes to 4,637 million dollars.

India pays for the PL-480 supplies in rupees. At least half the shipping costs are also borne by India. The supplies received from the U.S. are sold in India through government agencies. The bulk of the proceeds received in rupees, that is an amount equal to 4,324.8 million dollars is paid to a special account, known as counterpart funds. It is estimated that the total PL-480 rupee deposits amounted to about Rs 2,170 crore on December 31, 1969. The remaining portion of the total PL-480 sale proceeds, namely 312.2 million dollars is repayable in rupees convertible to dollars at the option of the U.S. Government.

Of the rupee funds, 80.5 per cent is given to India in the form of loans (61.1 per cent) and grants (19.4 per cent) for her economic development projects under mutual agreement between the two countries. Of the remaining 19.5 per cent, 6.5 per cent is reserved for loans to the private sector, being an essential condition of the PL-480 programme, and 13.0 per cent is reserved for U.S. Government uses in India which are not subject to public scrutiny.

Spectacular Strides

The PL-480 food imports have enabled India to ward off crisis conditions in scarcity areas and to build large bufferstocks which in turn have produced a cushioning effect on food prices in major urban centres. With the help of the loans and grants under this programme, this country has taken spectacular strides in agriculture, irrigation, rural electrification, flood control, river valley projects, power generation, transportation and port development, education, health and family planning.

Biggest Share For Agriculture

The United States has taken the keenest interest in seeing India progress in the agricultural sector. The total foreign exchange assistance for Indian agricultural development comes to over 700 million dollars (Rs 525 crore—post devaluation). In addition, loans and grants totalling Rs 750 crore have also been extended to agricultural development from PL-480 funds.

In the high-yielding variety programme which now forms the core of India's programmes for increased agricultural production, America's help has come in multifarious forms. American experts have also helped in evolving high-yielding varieties of rice and pulses. In all, some 125 American agricultural specialists are now in this country actively helping Indian scientists and extension workers in identifying and tackling problems encountered in research and on the farm.

In providing essential inputs for India's agriculture, too, American assistance has come in large measure. Fertilisers and pesticides have been imported from the U.S. with the help of non-project aid. U.S. non-project aid for the import of fertilisers now stands at Rs 65 crore a year. A considerable portion of the total pesticide production in the country, which is 70 per cent of the total used by farmers is due to joint Indo-American private enterprises. These concerns have received loans from the U.S. Government. A large number of planes engaged in the aerial spraying of insecticides have also come from America. From the credit given to India by the U.S. Export-Import Bank, 24 additional spray aircraft have been purchased from America. [The U.S. Export-Import Bank is the third agency channelling American loans to India. Its loans are in dollars and repayable in dollars at 5.5 per cent annual interest. So far this agency has given 475.1 million dollars (Rs 356.32 crore—post devaluation).]

With the increased emphasis laid by the Five Year Plans on raising agricultural production in the country, the need for an enormous increase in fertiliser production within the country has been keenly felt. Programmes for accelerating fertiliser production have been given very high priority. Timely U.S. help has come in implementing some of these programmes.

turn to PAGE 30

Wheat Revolution in Shahabad

J. N. SINHA

THE people of Shahabad district in Bihar have long been known for their love of freedom and they fought for it with exemplary courage during the British days. The name of Babu Kuar Singh, who rebelled against the British Raj, finds an important place in the history of Shahabad district—the ancient land of the Karushas.

In recent years, however, Shahabad, having a population of 35 lakhs, is undergoing a revolution of a different kind. It is the "golden wheat revolution". Armed with spray guns, power tillers, tractors, threshers and an assortment of chemical fertilizers, the sons of the soil can be seen reaping rich harvests of Sonalika, Kalyan Sona and Sharbati Sonara. The rice bowl of Shahabad is gradually being converted into a wheat bowl.

One of the most strategic areas of eastern India, Shahabad has three natural divisions. These are the alluvial Gangetic plains, the flat country consisting of tertiary rocks and alluvium and the tangled mass of rocks, gorges and valleys consisting of the Kaimur Plateau, an extension of the Vindhya range in the lower Gangetic valley.

The foundations of agricultural prosperity of this district were laid with the tapping of the Sone water for irrigation. Shahabad can indeed be called the gift of the Sone. The Sone, which rises near the source of the Narbada and the Mahanadi on the elevated plateau of Central India, is regarded as a male among rivers. Tradition has it that Sone was deeply in love with Narbada who did not respond and turned her course towards the west. Smitten to the core, the Sone turned furiously towards the east. It has remained a bachelor receiving no tributaries of any importance. Fretting and fuming through high rocky terrain for a distance of 520 kilometres, the Sone enters the Gangetic valley at Akbarpur, near Rohtas Fort. It then covers 160 kilometres through the plains of south Bihar and finally joins the Ganga near Maner in Patna district.

A 3,782-metre long anicut was completed across the Sone at Dehri at a cost of Rs 15 lakh in 1875. The decision to construct the anicut was taken in the wake of a severe famine which struck Bihar in 1857. As the anicut, no longer economical or technically dependable, had outlived its utility, it was decided to replace it by a barrage about eight kilometres up stream from Dehri. The barrage project included remodelling

of the existing canal system and the construction of two high-level canals designed to irrigate dry lands. The construction of the Sone barrage and its two link canals, started in the year 1962-63, was completed in 1968. Since the summer of 1968, the Sone canal system is being fed through the link canals with the help of the new barrage. As compared with the old anicut, the diversion of water now is being managed with much more efficiency.

Shahabad was one of the districts selected in 1960 for the Intensive Agricultural Development Programme. Starting with seven blocks, the I.A.D.P. now covers 20 blocks of the district. The cropped area under the programme is more than half of the total cultivated area in the district. The farmers have been receptive to new ideas.

Best Gram Sevak

In the village Amiyavar of Nasriganj, for example, when some petty cultivators were persuaded by the Gram Sevaks to start summer paddy cultivation, they were derided by the conservative sections who warned them against divine wrath should the earth be tilled before the proper "nakshatra" set in. But no such thing happened and the bumper crop grown compelled the "conservatives" also to fall in line with the "progressives." The farmers of Amiyavar and four other villages in the neighbourhood — Sabadla, Jamalpur, Nasriganj and Bardiha, with round-the-year assured irrigation, have blazed a new trail by raising four crops from the same field in the course of a year as against two grown earlier. The inspiration for growing four crops came from Mr. Yadav Prasad Pande, the Gram Sevak of Nasriganj. He has since been declared the best Gram Sevak of Bihar. Last year he came second in the all-India ranking.

The time-table for the multiple cropping pattern is as follows : (i) summer crop or vegetables—sowing period mid-March to mid-April, harvesting last week of June; (ii) "*Aus*" paddy—sowing July 15, harvesting end of September or first week of October; (iii) early potato—sowing first week of October, harvesting December; and (iv) wheat or potato—sowing December, harvesting March. Potato grown in this area finds market in Dhanbad and Calcutta. The high yield for potato has been achieved by judicious use of fertilisers.

To demonstrate rice cultivation technique as also to provide training to farmers and extension workers, an agricultural extension farm, popularly known as the Japanese farm, was started at Arrah. This farm has done a lot to popularise the scientific technique of cultivation among the farmers of the district. Four Japanese experts are at present helping in conducting trials on agricultural techniques.

Major Achievements

Among the four major achievements of the IADP in Shahabad, the pride of place goes to the increased use of fertilisers by the farmers. There has been a seven hundred per cent increase in the application of fertilisers in the district within a period of seven years. In 1969-70, 1.11 lakh tonnes of chemical fertilisers were used, the highest for any district in the State. In fact this figure represents a third of the total quantity of chemical fertilisers used in Bihar.

Next in importance comes the wheat revolution in Shahabad. The area under wheat has steadily increased. The farmers are keen on growing high-yielding varieties. The improved Mexican variety of wheat developed in the country, which does not suffer from the "colour bar" but has a golden hue, has found ready acceptance. Sonalika (RR-21), Kalyan Sona (S-227), Sharbati Sonara, N.P.-852 and N.P.-884 have become popular with the farmers. An experiment being carried out at the Bikramganj research station in Shahabad on a continuing basis over a period of three years has established that the cultivation of wheat after the winter paddy is more profitable than growing hybrid maize.

The trend towards mechanisation is another notable feature of the farm revolution in Shahabad. Tractors were not in use in the district till 1961-62. In the following year, 76 tractors were pressed into service. The number of tractors has since risen and Shahabad can now boast of having about a thousand tractors, the largest number for any district in the State. Purnea with 700 tractors comes next. There were no threshers in the district till 1965-66. Now 653 threshers are in use. Over 12,000 improved ploughs and 2,000 other improved implements are being used by farmers. Power tillers, threshers and harvesters are in very great demand and if their number has not increased further it is because the supply has not been able to catch up with the demand. The supply position is likely to improve next year when indigenously-made power tillers and threshers are expected in the market.

The introduction of summer cultivation is the fourth significant contribution of the IADP in Shahabad. Farmers of the district are of the view that spectacular success in summer cultivation can be achieved if the uncertain position about the supply of irrigation water in the district during summer is removed.

North Koel Scheme

A solution to this problem lies in the North Koel Scheme which envisages the construction of a dam at Kutku in Palamau district. It will supplement water supply during the period of short supply in the Sone Canal System. The River Valley Projects Department of Bihar has created a new investigation division at Daltonganj for this purpose. The Project is likely to cost Rs 12 crore.

Shahabad, which has made tremendous strides in the field of agricultural development in recent years has also advanced industrially. The industries at Dalmianagar, Rohtas and Amjor (Pyrites) have contributed to the balanced growth of the district. The standard of living has improved. New schools have been started in the area and even small cultivators are sending their children to these schools.

To Those Who Deserve

LOANS FOR SMALL TRADERS

Small traders in durable consumer goods like textiles, provisions, medicines, cosmetics and retailers in perishable commodities like vegetables, fruits etc. are getting loans from the Bank of India.

The bank assistance will be in the form of cash credit or overdraft to meet the genuine working capital needs of the traders. These productive loans with easy terms of repayment will not only improve the economic lot of the small traders, but will have a beneficial impact on the economy as a whole.

STATE BANK HELPS RURAL INDUSTRIES

About 200 small rural industrial units under the Kozhikode Rural Industries Project, in Kerala, have received loans of Rs. 500,675 from the State Bank of India.

The Rural Industries Project, acting as a channel between the Banks and the small entrepreneurs gives priority to village artisans and craftsmen. A good number of bell metal workers, blacksmiths, weavers (non-traditional) and potters have benefited from the new scheme. The technically qualified ex-servicemen, and repatriates from Burma are also given some special consideration in the case of granting of loans.

BROOM-MAKER BENEFITED

Ishvarbhai, a broom-maker of Mehsana in Gujarat, has received a loan of Rs 700 from the Bank of Baroda. This Harijan family, engaged in making brooms from date leaves, was facing difficult days owing to lack of funds for buying the raw material. Previously, he would have to borrow from the village money-lender at an exorbitant rate of interest. But now the liberal assistance of the nationalised bank has helped him improve his economic position.

FOREIGN EXCHANGE FOR HIGHER STUDIES

Students going abroad for higher studies will be saved from the difficulties in getting foreign exchange. The State Bank of India and its subsidiaries, under a new scheme, are considering the applications for release of foreign exchange for these deserving candidates. The offices of the Reserve Bank will also entertain applications directly from the students and issue permits for effective remittances through any bank dealing in foreign exchange.

Previously,students going abroad had to bank upon the Exchange Control Department of the Reserve Bank of India for release of foreign exchange.

IMPORT SUBSTITUTION DEMANDS PRIORITY

SUBHASH J. RELE

THE prospects of India's getting foreign aid seem to be bleaker today than ever before. The project aid of $80 million, committed this year, covering barely one-fifth of the estimated need of the year, is less than last year's aid by $140 million. Even the outlook for non-project aid is not bright. So the Fourth Plan, has rightly laid stress on self-reliance through progressive diminution of aid. It is envisaged that foreign aid, net of interest and loan repayment should be reduced by 50 per cent by the end of the Plan. The achievement of this objective calls for sustained efforts on two fronts—export promotion and import substitution. Our exports, particularly the non-traditional items, are picking up, but the rate of increase of 3 per cent falls much shorter than the Plan target of 7 per cent increase per annum. There has been, however, a certain amount of wishful thinking on the export front. It has been rather presumptuous on our part to expect that the foreign exchange gap can be filled by increased exports alone. It is obvious that with the bleak aid prospects, a policy of increasing self-reliance for minimising the drain on foreign exchange has become inescapable. The best solution can be found in a massive drive for import substitution. It is unfortunate that not much emphasis has been put on import substitution as on export promotion. But in fact, the need for and possibility of import substitution are much greater in the context of increasing difficulties in promoting exports.

Broadly, import substitution means a shift in the source of supply from imports to domestic production. The bulk of our import demand at present is not for finished manufactured industrial products as much as for raw materials, components, spare parts and balancing equipment. Import substitution has become possible in some of the following areas :

(1) Imported raw materials, components and spare parts have been substituted with indigenously manufactured materials. (2) Consumption of imported raw materials and components of production have been reduced. (3) Change-over of production of chemicals and chemical products from intermediate inputs to basic raw materials has taken place. (4) Substitution of imported raw materials or components by suitable alternatives with consequential changes in the specifications of the end products, and (5) acceleration of the phased manufacturing programmes to achieve greater indigenous content in the shortest possible time have been taken up.

During the last two decades India's industrial structure has been considerably expanded and diversified. The import content of domestic investment has successively declined from 21.5 per cent in the First Plan to 14 per cent in the Second Plan, and to 11 per cent in the Third Plan. During the Fourth Plan the economy will require total imports of Rs 9,630 crore, of which Rs 7,830 crore will be maintenance imports. It is encouraging to note that over the last fifteen years, the country has made considerable progress in import substitution, although much leeway has to be made. With an overall impressive growth in industrial output perhaps the most remarkable achievement has been the production of several new items. New ranges of production have been explored by the indigenous industries from year to year. The important goods produced more recently during 1965-67 are sophisticated machine tools, precision dies, silicon transistors, tungsten carbide cores, scientific and surgical instruments, ion exchange, insulin, fibre glass, industrial furnaces, some basic and activated dyes, edible gellatin, certain types of food processing equipment, industrial weighing machines, etc. This has helped in acceleration of economic and industrial growth, cut down the heavy burden of import bills, and prevented serious shortages of the very essential goods.

Self-reliance through progressive diminution of aid calls for a massive drive for import substitution. In recent years, import substitution programmes have enabled India to save foreign exchange, and utilise the country's productive capacity to a fuller extent.

Engineering Industries

The fall in the foreign exchange expenditure as a result of the phased manufacturing programmes has been more pronounced in the engineering industries. The import content in many of these products is 10 per cent or even less, as is revealed from the table below.

This was the result of the direct investment in industries for achieving import substitution and building up the domestic industrial capacity. Import substitution has taken place in large measure in certain items, such as aluminium in place of copper, plastics in case of non-ferrous metals, synthetic fibre in place of imported cotton or wool, etc. Aluminium is being increasingly used instead of imported copper in electrical industries. In cable industries too, high tension and low tension lines are manufactured from aluminium. Bare copper conductors are replaced by aluminium conductors.

	Percentage of Import Component
Trucks and Buses	4.0
Cars (Fiat)	1.0
Jeeps	3.0
3-Wheelers	5.0
Cars (Ambassador)	1.5
Vespa Scooters	5.0
Railway Wagons	1.0
Passenger and Goods Lifts	1.0
Transmission Line Tower	4.0
Power Driven Pumps	1.0
Diesel Engines other than Vehicular	5.0
Sugar Mill Machinery	8.0
Cement Machinery	8.0
Building and Construction Machinery	5.0
Airconditioning and Refrigeration	10.0
Radio Receivers	2.0
Bicycles	NIL
Sewing Machines	NIL

A recent report of the Directorate General of Technical Development reveals that the programmes for import substitution have led to a favourable decline of the foreign exchange component in production from 30 per cent to 18.4 per cent during the period 1961-67. In terms of money the foreign exchange saving during the period was about Rs 210.8 crore. The import substitution programmes have enabled the country to save another Rs 409.40 crore in foreign exchange through increased production, taking the total amount of foreign exchange saved to Rs 620 crore. Though production during the period increased by about two and a half times, the foreign exchange expenditure was kept low at Rs 311 crore. During the same period the index of production rose from 112.5 to 219.4 in the engineering industries, and from 118.8 to 193.1 in the chemical industries (base year 1960=100), despite the progressive reduction of about 40 per cent in foreign exchange expenditure as related to production during the seven year period.

The report lays a selective emphasis on the production of commodities with high import content, but it has ruled out complete import substitution, because for several years, the Indian demand for certain special steels, components and raw materials will remain so small that production within the country will not be economical. In fact, the limitations of import substitution should also be recognised. There have been instances where import substitution has meant higher cost of production to the extent of 30 to 40 per cent. Import substitution must be judged in terms of relative cost which should not exceed the benefits. Apart from this, there are several snags in our import substitution campaign. In many cases, import substitution has been resorted to at the risk of jeopardising quality and price. In several cases, it has resulted in gross misallocation of resources. These should be avoided, and a pragmatic policy of import substitution, taking into account the respective merits and demerits of such programmes, should be adopted.

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A NEW AGRICULTURAL STRATEGY DEMANDS A NEW SUPPORT MECHANISM

M. M. BATRA

THE different facets of the recent technological leap forward in agriculture have been popularly called the Green Revolution. Disentangling itself from the traditional agronomic practices, Indian agriculture is now increasingly adopting the most modern and scientific techniques for stepping up productivity.

Production of rice has risen from 3 crore and 4 lakh tonnes in 1966-67 to 3 crore and 98 lakh tonnes in 1968-69, surpassing the earlier record level of 3 crore and 93 lakh tonnes in 1964-65. The year 1968-69 marked a decisive confirmation of the Green Revolution in wheat cultivation as wheat output rose despite not too favourable weather conditions to 1 crore 87 lakh tonnes from the annual average of 1 crore 10 lakh tonnes for the five years previous to 1965-66.

Record Production

The production of foodgrains in the country is expected to reach a record 10 crore tonnes this year. Only four years ago it was 7 crore 2 lakh tonnes. We have now decided that there will be no concessional food imports beyond 1970-71 as the prospects of agricultural output in 1969-70 are even better.

This agricultural transformation is much more in evidence in the quantity and quality of inputs than in the change in the cropping pattern.

New Agricultural Strategy

Under the "New Strategy for Agricultural Development" adopted since 1966-67, the development programmes have been reoriented to respond effectively to the new dynamism of Indian farmer. The production and supply of improved seeds, particularly of high-yielding varieties, have been adequately organised. The country has attained self-sufficiency in seeds of high-yielding varieties and is in a position to export these seeds to other countries.

The high-yielding varieties programme was launched in selected areas with assured irrigation from *Kharif* season of 1966. The area under high-yielding variety seeds which had risen from 18.9 lakh hectares in 1966-67 to 60.7 lakh hectares in 1967-68 increased further to 93 lakh hectares in 1968-69, and the target for 1969-70 is 1 crore 9 lakh hectares. The Fourth Plan objective is to extend their use over an additional 1 crore 56 lakh hectares for the different crops.

The highest yield per hectare during 1967-68 for paddy was 13,898 kgs. for IR-8 and 72,350 kgs for China-1039 varieties. It was 11,580 kgs. in the case of wheat, 9,856 kgs., for maize and 6,927 kgs. for *bajra*. Prior to the introduction of high-yielding varieties programme the highest yield per hectare obtained for paddy was 2,056 kgs, for maize 1,606 kgs. for *jowar* 842 kgs., for *bajra* 725 kgs., and for wheat 1408 kgs. in 1964-65.

Multiple Cropping

The area under multiple cropping is estimated to have increased from 30 lakh hectares in 1967-68 to 60 lakh hectares in 1968-69 and is estimated to reach about 80 lakh hectares in 1969-70. At present about 20 per cent of the total irrigated area in the country is being used for double cropping. 2.9 lakh pumpsets were installed in 1968-69 and the total number of pumpsets working increased to 17.5 lakh.

The additional area likely to be benefited by the minor irrigation schemes during the year 1968-69 was 14.6 lakh hectares as compared to 13.7 lakh hectares during the preceding year. The Fourth Plan target is to extend minor irrigation facilities to new areas of 32 lakh hectares for which a total allocation of Rs 476 crore has been provided.

As part of the rural electrification programme to provide cheap electric power for lift irrigation, nearly 2.5 lakh electric pumpsets were energised during 1965-66 and 1966-67. By 1968-69, about 10.69 lakh pumpsets were estimated to have been in operation.

Use of Fertilisers

The use of fertilisers is significantly increasing because of cultivators becoming increasingly conscious of its utility. Consumption of nitrogenous fertilisers has risen from 5.8 lakh tonnes during 1965-66 to 20 lakh tonnes by 1969-70. Consumption of phosphatic fertilisers increased from 1.3 lakh tonnes in 1965-66 to 6.5 lakh tonnes in 1969-70. For development and utilisation of local resources of organic manure, three schemes are in operation as state plan schemes, namely rural compost scheme, green manuring and urban compost and sullage utilisation.

Irrigation Facilities

Assured and adequate availability of water is very important in maintaining the tempo of green revolution. This is more so because less than one-fifth of the cultivated area enjoys the benefits of controlled irrigation. Even in the irrigated areas a significant proportion of the cultivated land gets its supply of water from tanks and other sources which are fed by rain water. An important factor responsible for the decline in agricultural output during 1968-69 was the failure of rains in different parts of the country. Parts of Andhra Pradesh, Tamil Nadu and Gujarat experienced bad weather. Rajasthan faced something of a drought.

A somewhat different strategy has to be evolved if areas dependent on rain are to increase their agricultural productivity. Almost all the coarse grains are dependent on rain. Similarly the cultivation of most

cotton varieties and all oilseeds and pulses are rainfed. Therefore, if their output is to increase, new methods of dry farming have to be evolved in addition to developing new high-yielding strains.

Further, the present emphasis on minor irrigation should be continued and extended. Water requirements can be fulfilled to the largest extent by minor irrigation either independent of or as a supplement to canal irrigation.

Till now, progress has been made in relatively small areas, such as Punjab and Haryana and parts of U.P., Bihar, Andhra Pradesh and Tamil Nadu *i.e.* in areas where reasonably adequate irrigation facilities are available. This has led to islands of prosperity in a sea of rural poverty. Such regional disparities should be reduced, and efforts made for the new strategy to take roots quickly in other areas as well.

The expenditure that has to be incurred on irrigation, fertilisers and interculture for the spread of Green Revolution is heavy and normally beyond the capacity of the farmer, particularly the smaller one. An adequate credit system, backed by the support of the nationalised banks, should be created. The existence of support prices and procurement prices have reduced greatly the risk of price fluctuations. There is, however, a need for minimising the risk of crop failure by crop insurance, flood control and pest control schemes.

The new strategy requires sizable expenditure on inputs. To ensure a wide diffusion of new technology, every farmer with a worthwhile investment proportion should have the necessary facilities. This implies the provision of more adequate extension facilities and supply of items like fertilisers and pesticides.

The price spiral, which started in 1962-63, has moved the terms of trade in favour of the agricultural sector, resulting in higher money incomes, savings and investment. With the constant increase in prices of all foodgrains and some of the commercial crops—such prices have doubled in the last decade—the income level of farmers has also dingly gone up. In a country like India where the shortage of almost all the agricultural commodities is a common feature, prices are not likely to go down even if more production is realised by sufficient increase in the use of inputs and by bringing more land under two or three crop rotations. In view of the continuing shortages of different agricultural commodities, the stage where the marginal cost equals the marginal revenue will not be reached for many years to come. While larger investment will be necessary to reap the advantages of the new methods and techniques in agriculture, incomes and profits from farming will be correspondingly higher. As such agriculture as a sector has no dearth of potential investment.

Thus Indian agriculture has reached the crossroads where the cream of potential investment is being diverted into unproductive uses due to non-availability or shortage of inputs and other production requisites in the required quantity.

Care will also have to be taken to see that the incentive to undertake larger investment is not affected in anyway. The tenant-owner relationship defined in the broadest manner, should be so regulated that a proper share of any increase due to larger investment accrues to the person who cultivates the land. With such an arrangement the strategy may not be popular beyond owner-cultivators.

Further, initially the new techniques will be used by wealthy farmers who own fertile, irrigated land. The peasants with unirrigated land and small resources will be unable to use the new technology. Thus the economic inequality between wealthy farmers on the one hand and the marginal peasants on the other will be intensified.

The new technology also leads to an increased demand for labour because of the number of agricultural operations needed. This has naturally led to a demand for higher wages and also to a certain deterioration in the relations between the landlord and agricultural labourers. It is understood that efforts are being made in many parts of the country to use more machinery in substitution for labour. It should be ensured that demand for higher wages does not lead to an uneconomic use of capital and thereby to a diminution of employment opportunities.

What is essential to sustain the green revolution now underway is the co-ordinated efforts of our scientists working in various disciplines to anticipate problems and be ready with remedies. Any complacency at this stage might have social and economic repercussions making the Green Revolution short-lived.

FATHER OF THE INDIAN CINEMA

IT was a sultry summer evening in 1913—May 3 to be precise. The jostling crowd at Bombay's Coronation Theatre was astir with excitement. A great event was in the offing, for admission charges had been billed at twice the normal rates and a scintillating dance performance coupled with an engaging magic show had been promised to herald this unusual happening. After the formal speeches of VIPs the lights were switched off and from tiny square holes beams of light travelled across the auditorium flashing on the screen moving images that told a story familiar to every Indian for centuries. Though the characters did not speak, everyone among the audience knew who they were and what they were doing. The 3,700-foot long projection was India's first feature film, "Raja Harishchandra". It bestowed on this country the distinction of being one of the pioneer film-making countries in the world, long before many countries on both sides of the Atlantic had made their first feature films.

Who was this pioneer who blazed the new trail ?

The honour of placing India on the film making map of the world goes to a 43-year-old Maharashtrian Brahmin, the son of a Sanskrit professor. He had changed from one trade to another, one craft to another and from one profession to another, accumulating in the process the diverse skills that go into the making of a film.

Hailing from a small place called Trymbak near Nasik, he belonged to an orthodox family which helped him know all about Hindu mythology and culture. As a young boy he used to take part in plays and also had successfully tried his hand at writing poetry, short stories and plays. He learnt moulding, architecture and painting at the J.J. School of Art in Bombay. Also, he had acquired a mastery of magic and optical effects. A good draughtsman, he had worked as a scene-painter with a theatrical company. He also learnt photography and was a portrait photographer himself. For sometime he had done a stint in printing, engraving and block-making. He also knew music well and could himself give delightful recitals.

But that was not all. He was an ardent movie-goer who never missed a film. Of all that he had learned, acquired or practised nothing fascinated him more than the moving pictures on the screen called the cinema. In 1910, while seeing a foreign film, "Life of Christ", inspiration gripped him and he spent restless nights thinking as to how and when he himself would be able to make a film, bringing alive on the screen the heroes and heroines of the Mahabharata and the Ramayana.

Frantically, he started collecting books and magazines on film technique, even journeyed to England and brought back with him the equipment and also the practical know-how which he gathered in just about 15 days. And within a year he realised his dream of making Indias' first feature film

A pioneering effort demands and gets its own price. The price this enthusiastic pioneer paid was immense—an impaired eyesight, the total disruption of his business, his life's savings sunk and the family jewellery pawned. Without a studio to start with and without a precedent to follow, he created almost entirely by himself a motion picture that was received with acclaim even in those countries where the cinema was born earlier. This one-man miracle was wrought by his amazingly versatile genius. He did everything from perforating the raw film, stitching the costumes, painting the scenery, writing the scenario, cranking the camera, directing the cast, developing and processing the exposed film to editing and marketing it.

IGNORAMAN

Wants to Know
If
chronic water scarcity
has not already
made Delhi
a dry port

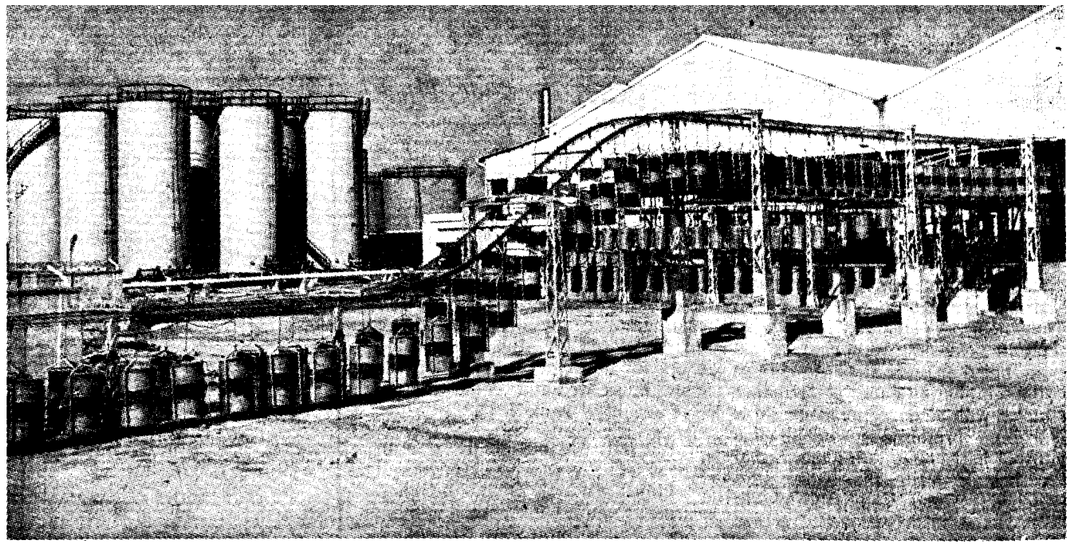
His zeal knew no limits and his will could triumph against all odds. Between 1913 and 1937, he made 100 feature films and 22 shorts including one on how to make films. He not only showed the path in every aspect of film-making but also revealed to his countrymen the fullest scope of this entirely new medium. In fact, he alone in India determined the future growth of this art. And he was, when cinema came into its own, a forgotten man.

While the demonic flames of the Second World War were licking death and havoc all over the world, the flame of a great life was trembling in a neglected house in Nasik—where it all began—and he was dying. He was dying in poverty, neglect and dark ingratitude. On the evening of February 16, 1944, the burning pyre consumed this illustrious Indian. Who was he ?

He was the Father of Indian cinema.

He was Dhundiraj Govind Phalke.

●



The long conveyor of the 'Lube' plant unloading empty barrels

Lubricant Needs of South India

Madras "Lube" Plant Starts Production

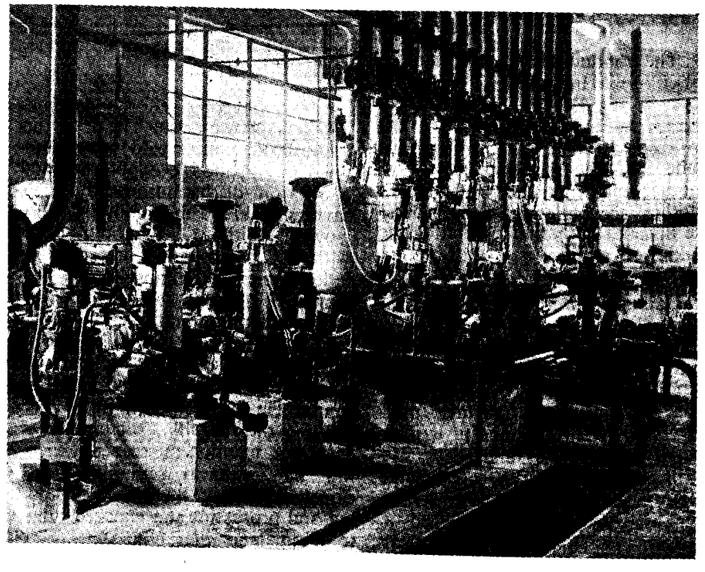
S. V. RAGHAVAN

Our Madras Correspondent

INDIA took one more stride towards self-reliance with the commissioning of the biggest and most modern Lube Blending Plant in the country at Tondiarpet near Madras on April 4 this year. The Plant, which has been set up by Indian Oil Corporation Ltd at a cost of Rs 1.10 crore, has an annual capacity of 1,40,000 tonnes valued at Rs 18 crore. The Plant has been completely designed and built by Indian engineers. It is situated within half a mile of the Madras Refineries Ltd in Manali, from which will flow all the eleven grades of lube base stock through specially laid pipe lines to Tondiarpet for blending into different products. The Plant will blend a wide range of industrial and other lubricants, like automotive oils, diesel engine oils, gear oils, machine oils, steam turbine oils, compressor oils and refrigerator oils.

The third in the series after Bombay and Calcutta, the Madras Plant will meet the different lubricant needs of the southern region with the highest quality and most stringent world standards. Not only will this Plant blend products for foreign oil companies operating in the country, but will also export its products and compete with international oil companies in world markets both in regard to price and quality. According to Mr Karunanidhi, the Chief Minister of Tamil Nadu, Indian Oil Corporation Ltd has demonstrated that not all public sector projects are failures.

High quality 'In-line' oil blending is done by using sophisticated electronic blenders.



The Plant blends lubricating oils by a highly sophisticated method using an electronic blender (in-line blending method) and blending kettles (batch-blending method) For the in-line blending method, Indian Oil has secured from Mobil Petroleum Co Inc., of New York, a sophisticated digital electronic blender, one of the fewest in the world. The equipment consists of very sensitive volume control valves connected to the digital computer and will ensure blending of lubricating oil of very high quality.

The Tondiarpet installations cover a complete range of all equipment which go with a modern blending plant of this kind. Storage tanks for the various products connected by pipe lines with the central pump house, suction heaters, boilers and air compressors are some of the major parts of this complex. To mechanise movement of empty barrels for filling, a conveyor system has been installed. Indian Oil is to set up a plant to manufacture drums to meet the needs for these and a grease manufacturing plant to supply the requirements of the region.

Some of the equipment is being used for the first time in India, perhaps in the east itself. One of the rare items is the infra-red spectrophotometer.

A BELIEVER IN PACKAGE PRACTICES

In the shadows of iron ore bearing hills lies the farm of Ganapat Shamrao Vishwasrao Sardesai of Lamgaon in Bicholim Taluka. Cultivating paddy in a four-acre plot of land, Sardesai, 42, has stepped up the per-acre yield from 10 quintals to 40 quintals. *Padma* and IR-8 are his favourite varieties. Of the four acres, three are under *Padma* and the remaining one is under IR-8.

Sardesai believes in following strictly the package practices including the proportion and timing of application of fertilisers, waterings to the plants and the proper use of pesticides at the first symptoms of any pest or disease.

In addition to paddy cultivation, Sardesai grows bananas, pine-apples and cashew. He tenders these crops with the same care as his paddy crop.

A Cotton Called "SUJATA"

A new cotton variety, "Sujata," is expected to save considerable foreign exchange currently being spent on importing long-staple cotton from Sudan and the U.A.R. The Regional Station of the Indian Agricultural Research Institute at Coimbatore in Tamil Nadu has released the new variety, which is a re-selection of an Egyptian variety known for its staple length. Mill tests have proved that it is capable of spinning very fine counts. This variety has also recorded good yields ranging between 1,600 and 2,000 kg. of *kapas* per hectare.

The Coimbatore Station has a large collection of cotton varieties from all over the world which are being evaluated under conditions prevailing in the country. Breeding work on a variety of cotton from the Soviet Union has resulted in evolving an early maturing strain called PRS-72. The variety matures in about 125 days and can be grown in rice fallows under irrigation. There are several high-yielding short duration varieties under advanced trials at the station. Among them are those which resist cotton jassids, a pest which takes a heavy toll of the crop.

The Station is also contributing its share in the development of hybrid Sorghum. The co-ordinated Sorghum Hybrid No.1, released in 1964, has spread into the irrigated summer tract of Tamil Nadu, giving 61 per cent more yield than the best local improved strain, CO-18. Hybrid Sorghums for rain-fed areas have also been evolved at the Station.

The Regional Station has also demonstrated the profitability of multiple cropping by growing dwarf wheat in winter and hybrid Sorghum or Sujata cotton in summer.

UNEMPLOYMENT

Need for better and wise planning

P. N. KALIAPERUMAL

The economic theories put forward by "capitalist economists" to fight unemployment do not fit into the Indian conditions. The view that the lever of our economic development is foreign trade is merely an adaptation of these theories and has no validity in our country for two reasons. In the first place, our foreign trade cannot grow to such an extent that the problem of unemployment would be solved. We are very much behind the advanced countries in science and technology. In the case of non-traditional exports, we cannot face competition from those countries in the international market. We are lagging behind even in the export of traditional goods. Secondly, there is a wide gap between the rate of growth of unemployment and that of industrial development, which will not be bridged if we lean on exports alone. Thus a foreign trade-oriented policy is not best suited for meeting the problem of unemployment.

The solution to the problem lies in the creation of an internal market for our industrial goods. Internal demand is the best means of promoting industrialisation. A high investment is necessary for raising the purchasing power of the people, particularly in the rural areas. Nearly, two-thirds of the population lives in villages. The mainspring of their income is agriculture. Therefore, any rise or fall in agricultural income reflects itself in the demand for industrial goods.

Rural Income

A depression in agricultural income creates serious problems. In the first place, there is a sharp cut in the demand from the agriculturists for industrial goods. Secondly, impoverished peasants are streaming to towns and cities making the urban population thicker. Both these things lead to unemployment.

Thus, the problem of unemployment can partly be solved by increasing the per capita income of the rural folk. But this requires a substantial investment in intensive farming. Then there should be a movement of excess labour from the land to the industries. This would increase the per capita income of the agriculturists. The prices of agricultural goods would decrease. This fall in price would produce an effect leading to a considerable increase in employment opportunities. Since the demand for agricultural goods is inelastic and a major portion of the income of the masses, say 45 per cent, is spent on purchases of agricultural goods, the direct result would be a significant amount of saving in their expenditure which they would prefer to spend in purchasing industrial goods. There would also be a reduction in the cost structure of the manufacturing industries because of low prices for agricultural raw materials and low wages for workers. By and large, prices of industrial goods would show a decline. Therefore, the demand for consumers' goods, which is more elastic, would take a forward leap. This would result either in the expansion of the working capacity of the consumers' goods industries or the installation of new industries. A better progress in the capital goods industries would be visualised. All this would give place to more employment opportunities.

In short, when excess agricultural labour is relieved from land and given alternative employment in industries, agricultural productivity increases and the agriculturists' income also rises. This gives a fillip to industrial growth through an upward revision in the demand for industrial goods. Business prospers and trade expands. As a result, new employment opportunities are created for the urban people and the educated unemployed.

From the employment point of view, small-scale and cottage industries deserve to be given importance in planning. They are labour-intensive and absorb mass labour. Cottage industries must be directed to produce only such consumer goods as would attract the people in general and the rural folk in particular. A wise selection of goods is necessary. Wooden furniture, fancy baskets and bags, toys and playthings may be included in this category.

Cottage industries are labour-intensive. It is likely that the prices of the goods turned out by them will be comparatively higher. To keep the wheels of production going, these prices must be subsidised by the Government. Cottage industries should mainly concern themselves with employment and not with trade. Otherwise they will not serve as a permanent solution to the unemployment problem.

Small-Scale Industries

As regards small-scale industries, these should be set up in larger numbers and serve as ancillary units of the large-scale industries. Areas of production should be reserved for small-scale industries, which although less labour-intensive than the cottage industries, are more labour-intensive than the large-scale industries.

In the field of large-scale industries, it is necessary that these should be up-to-date. Modernisation with less labour and more capital is highly needed to make a breakthrough in the economy as a whole. This will have two important results: (i) better quality goods can be produced so as to ensure a global market for them, and (ii) capital goods which are greatly needed for the expansion of both the small-scale and cottage industries can be supplied at low prices.

More capitalisation in large-scale industries will adversely affect the employees. This can be met by reducing the hours of work per worker for some period. Later, the hours of work can be raised to the previous level.

It should be helpful if Government could give unemployment pension to the educated unemployed. Part of this expenditure could be met by levying a tax on the educated employed persons at a progressive rate.

Unemployment is not a lost case, but it needs better and wise planning.

FORWARD TRADING IN SHARES

T. SRINIVASARAGHAVAN

FORWARD trading in shares was banned in 1969. On an earlier occasion too forward trading had been suspended following the bear raids in the market in 1962 which pushed down values sharply and subsequently its resumption was permitted under less liberal margin regulations. The stock market which remained depressed from 1963 to 1967 entered a phase of recovery in 1968, but in 1969 speculation showed signs of becoming runaway with a number of scrips registering sharp rises. This was the circumstance when the ban was again imposed.

Following the imposition of the ban there was some recession in values and the stock exchanges have pressed the case for allowing forward trading with stricter regulations. The resumption is being sought mainly to keep the market sufficiently broad and active. The market for a number of shares is extremely narrow and sharp fluctuations have occurred in the cash shares owing to their restricted negotiability. Investment in shares is confined to a very small section of the population and until the habit of investment in these assets becomes wide, there will be need for forward trading (which is trading without necessarily paying in full or taking immediate delivery, trading through a system of carry-overs) to ensure market continuity. With the imposition of ceiling on land-holdings and increased taxation of real estate, investment in shares will gradually increase, but this will be discouraged by a sharp rise in values which will put many shares out of reach of the investors, unless the supply of shares in the market is sufficiently broadened. Forward trading, besides doing this, quickly releases funds when investors want to realise some of their shares, with a view to switching to new issues; it thus acts as a prop to the capital market. The new issues market which remained buoyant in 1959-62 became depressed in 1963 and has not recovered even today. The investor needs, in this context, to be doubly assured of the liquidity of his shares and forward trading is necessary to give this assurance. Forward trading exerts a sympathetic, stimulating influence on the cash section and moreover, the facility of buying shares in the clearing section without immediate complete payment would help the flow of more funds to the cash section thus broadening the activity in both sections.

However, the objections to forward trading mainly rest on its speculative character. It hastens excessive speculation and in values which deviate too much from what sound investment criteria would justify. The yield in good shares has often been brought in the forward section quite below that on close alternatives which are less risky investments, creating what has been described as a "reverse yield gap." Moreover, the facility of forward trading attracts a number of weak marginal traders whose presence in the market is an important potential source of instability. Because of the facility of buying on margin, speculation in shares is combined with speculation in commodities by spreading out one's funds more broadly and thinly and this has added to instability. It is true that in the cash section also some shares have been lifted up in value abnormally, but this cannot constitute an argument in favour of having forward trading. This is because the violent rise in the cash section has been to some extent the outcome of forward trading existing in some shares; the operators can divert more funds to the cash market for big purchases while buying the forward shares on a carry-over basis. Thus, if, on one hand, forward trading broadens the market, on the other, it scares away the genuine investor, particularly the smaller among them, and achieves largely a speculative broadening.

There is one aspect of forward trading which needs to be better comprehended. Forward trading makes bear operations (selling and pushing down the price with a view to buying back or covering at a lower level) easier. In a cash market the bears cannot easily buy back the number of shares they have agreed to deliver and there is thus the possiblility of a bear squeeze occurring (the bear will have to pay unprofitably high prices to buy back the shares) which acts as a deterrent to bear operations. A good market, it may be said, is one where both bull and bear operations should be possible with equal facility; then the balancing operations will lend a large measure of stability. But what in reality happens in the forward section is this—much of the bear operations come only when a clear falling price trend is established and short-covering, in a number of cases, when fundamental economic conditions are discouraging, comes only after values are much depressed. Even where bear operations restore "intrinsic values", the previous bull operations which brought about an abnormal rise necessitate a great downtrend for such restoration, a movement which scares away investors.

In deciding on the resumption of forward trading, it must be borne in mind that the stock exchange machinery has not been interested in checking abnormal rises in prices. The stock exchange authorities possess the power to fix maximum prices, but this has not been exercised even when very sharp rises of several points have occurred in the course of a single day. Several years ago the P.J. Thomas report emphasised that the stock exchange presidents, being officials elected by stock-brokers, would not be in a position to impose on the market the right kind of discipline. The report proposed the nomination of the presidents by the Government. The suggestion has not lost its relevance. If forward trading can be justified for some more years as helping to broaden the market, stricter regulations should be imposed for checking violent fluctuations. This implies a greater degree of government control of the stock exchanges than has been the case till now.

DEVELOPMENT POTENTIAL OF ANDHRA PRADESH

B. SATYANARAYAN

ON the basis of economic and geographical features, Andhra Pradesh can be divided into three regions : (i) Coastal Andhra, (ii) Rayalaseema, and (iii) Telengana. These regions vary in social and economic characteristics, agricultural practices and the level of industrial development. The coastal Andhra region is the most fertile and covers nearly one-third of the area of the State. The annual rainfall in this region is the highest, around 40". Ground water resources are plenty and the water level is fairly high. Some of these natural advantages have made this region a rich area with high agricultural productivity. Paddy is the most important crop apart from commercial crops like tobacco and chillies.

The Rayalseema is a dry region, most vulnerable to drought and famine. Its soil is mostly rocky and rainfall scanty. Its rich mineral deposits are yet to be exploited on a scientific basis. Telengana is the most backward region in the State. The land is mostly dry and barren. Proper irrigation facilities are scarce. Agriculture is still in a primitive stage, and largely dependent upon rainfall. However, it has a rich mineral and industrial potential. The State's Plan performance can be judged only from the Second Plan onwards as the integrated State came into being in November 1956. The State's Second Plan outlay was Rs 188.60 crore against Rs 312.66 crore in the Third Plan. In both the plans, agriculture, irrigation and power received the highest priority, which was in consonance with the national order of priorities. The expenditure on agriculture rose from Rs 37.15 crore in the Second Plan to Rs 78.89 crore in the Third.

1965-66 was a drought year. Hence the 1964-65 figures of 75.82 lakh tonnes would be a better comparison.

The installed power generating capacity at the beginning of the Second Plan was of the order of 99 M.W. During the Second Plan period an additional installed capacity of 128 M.W. was created. At the end of the Third Plan, in 1965-66, the installed capacity of the State reached 292 M.W.

In the field of industrial development the role of the State sector is relatively a minor one as compared to that of the Central and Private Sectors. The amount provided for industrial development was Rs 153.50 lakh in the Second Plan, and Rs 581.59 lakh during the Third Plan. These figures highlight the fact that the State has been backward in regard to industrialisation. This aspect also throws light on the point that it is the Central and Private Sectors that have to play a major role for the industrial advancement of the State. The Private Sector investment on industries in the State during the Second and Third Plans is estimated to be of the order of Rs 25 crore and Rs 65 crore respectively as against Rs 675 crore and Rs 1,050 crore respectively for the entire country. In the Central Sector an amount of Rs 6.3 crore was incurred on the expansion of Hindustan Shipyard at Visakhapatnam during the Second Plan period, against an outlay of Rs 871 crore on organised industry and minerals in the country as a whole. Similarly, during the Third Plan, out of the total investment of Rs 1,564 crore on organised industry and mineral projects in the Central Sector, the provision on projects located in the State amounted to only Rs 76.5 crore, forming 5% of the total national outlay on industries. In view of the State's industrial backwardness, the Central and Private Sectors have a greater role to play.

In 1965-66, the State's per capita income was Rs 321, as against the national average of Rs 352. In 1964 the per capita value added by manufactures was Rs 11 against the national average of Rs 32. In 1964-65 the per capita power consumption for all purposes was 28 kwh against an all-India average of 59 kwh. In respect of road mileage for 100 square miles, Andhra Pradesh is far below Kerala, Madras, and Mysore having 38.5 miles (in 1964) against 190 in Kerala and 66 in Madras, while the all-India average was 40.

And yet, the State is endowed with abundant water,minerals, forests and power resources each of these awaiting fuller utilisation. Firstly, technological revolution will have to take place in the field of agriculture, mainly through better seeds, better plant nutrients, improved water facilities, better implements, more pesticides and fertilisers. To achieve timely results, adequate credit facilities should be provided to the farmers. There is an ample scope for the development of sheep, piggery, poultry and fisheries industries since the State is having all the prerequisites.

At present, the agricultural commodities produced in the State are utilised by the industries mainly for primary processing and the complete chain of industries for each product is not substantially developed. It is, therefore, necessary to follow a coordinated approach between the development plans for agriculture and agro-industries so that a comprehensive agro-industrial complex is developed in the State. Since Andhra Pradesh is agriculture-oriented, industry to produce agricultural implements in general and small and medium tractors in particular, should have precedence over all other industries.

According to a survey undertaken recently by the Indian Institute of Foreign Trade, the State's export during 1965-66 totalled Rs 45 crore (in pre-devaluation terms) comprising of major commodities, like tobacco, handloom products, vegetable oils and oil cakes, leather, sugar, mica and other mineral products. Other items such as spices, rice bran, human hair, handicrafts and engineering products are also exported from the State. The export earnings from three commodities—tobacco, sugar and vegetable oils—constituted 56% of the total exports. The Survey revealed a foreign exchange earning potential of Rs 91 crore by 1970-71. In perspective, it appears, balanced growth of various regions is the only permanent soultion to put an end to fissiparous tendencies of late in evidence in the State. The first step is to establish Planning Boards at the State capitals with planning cells at district and block levels.

DISCIPLINE IN INDUSTRIAL RELATIONS

NAVIN KUMAR

SINCE Independence, industrial relations in our country have suffered, leading to conflicts between management and labour and causing heavy loss in production. It is, therefore, necessary to evolve and enforce some system of order and discipline so that the development programmes are implemented smoothly. The State has to play a significant role in this sphere.

It has been maintained by some labour experts that collective bargaining is a sacred area beyond the reach of the State. But in the changing times, which call for the maximum utilisation of available means of production, collective bargaining cannot just be a bipartite affair. The State has to come forward either as a moderator or a judge in the final settlement. I fully endorse the view that the State in the national interest should set a ceiling on wage increases agreed through collective bargaining. Some labour experts contend that there is another basis for compulsion where the State, with a view to safeguarding the needs of the nation, might assume the power to order compulsory adjudication as alternative to the breakdown of bipartite negotiations. Enforcement of collective bargaining does not present the difficulties feared by some opponents. In the countries of the West, collective bargaining has the same status as any other contract and failure to observe such an agreement can result in labour courts imposing fines on the unions, the employers or the employers' associations.

Past experiences support the view that industrial unrest develops owing to non-implementation of the terms of an agreement. In many countries of the West, to avoid such situations, the State has the power to register such agreements with a governmental authority and to enforce them when an application is made by either party. In our country, where the Constitution vests the responsibility on the State to develop the economy so as to subserve the common good, voices have been raised in certain quarters that the State should consider the employers record of industrial relations while granting industrial licences and import permits.

In the context of the development needs of an economy, the workers right to strike should not be regarded as more sacred. I fully endorse the fairly widely-held opinion that the State is justified to ban strikes during the pendency of conciliation or other processes of settlement. Prior notice of strike should be insisted upon so as to enable the conciliation machinery to have a chance to work. In some countries, workers in key or defence establishments have been stripped of their right to strike. In some others, workers cannot go on strike in public undertakings. The right to strike is protected in most of the European countries though conditions under which strikes may take place may be limited. Wild cat strikes are illegal, strikes in breach of a collective agreement are actionable in law, though once an agreement has expired, the right to strike is resorted, and indeed often provides the occasion for demonstrative strikes for improved wages and conditions. It is to be seriously considered by the management as well as trade unions of the private sector whether the bipartite agreement should not contain procedures for settling disputes relating to the interpretation or application of the agreements without resort to strike or lock-out. Here it is pertinent to examine what will happen if workers in industries declared essential by the State go on a strike. Past experience shows that whatever the State may do, workers even in essential services are unlikely to refrain from strike so long as they are sure that mass defiance will be ultimately condoned by the State.

It has been suggested that there should be no artificial restraints imposed by the State on the rights of workers and employees in the public sector, including those in the departmental sector. They should enjoy the same rights as those in the private sector. It is, however, important for the State to ensure effective discipline in the public sector. Most of the projects in the public sector have not been able to operate with reasonable efficiency because of gross indiscipline. The Administrative Reforms Commission has suggested that public enterprises should serve as model employers but it has, at the same time, warned that they should not interpret this concept to imply "an approach so paternal as to overlook indifferent work and incidents of indiscipline".

The proposal that the State should enforce collective agreement as a means of dealing with unconstitutional strikes cannot be accepted. When collective bargaining has been reformed, it will be possible to identify any circumstances in which it would be appropriate to apply legal sanctions because satisfactory dispute procedures will then be available and the legal penalties will be appropriate where irresponsibility is the root cause of the breach of procedures. The suggestion that the States should establish Industrial Relations Commissions to keep the matter under review needs to be supported. The Industrial Commissions should have three judicial and three non-judicial members, the latter to be drawn from labour, management and industry. The Industrial Commissions should have separate wings to deal with mediation and conciliation, adjudication, and recognition of the trade unions. Besides, there should be standing labour courts in the hope that these will reduce political interference and strengthen the process of collective bargaining.

A number of proposals have been put forward for safeguarding the rights of individuals, *vis-a-vis* the employers as well as the trade unions. The State should establish a statutory machinery to safeguard the employees against unfair dismissal. The State should also improve the existing machinery for judicial determination of disputes between individual workers and employers arising out of individual contract of employment and of statutory claims.

WORLD SPOTLIGHT

CEYLON

MAHAWELI GANGA PROJECT

S. M. AGRAWAL

CEYLON'S land area is divided into distinct wet and dry zones. The wet zone, situated in the south-west, covers only about 30 per cent of the land area but supports more than 75 per cent of the population and accounts for over 80 per cent of the cultivated land. In recent years the Government has concentrated its efforts on agriculture to produce more for the domestic market, both to accelerate economic development and to improve the balance of payments by reducing food imports, particularly rice.

The next step is to expand the acreage under cultivation and this could only be possible by large-scale utilisation of land in the dry zone. And this depends on reliable means of irrigation. The settling of landless people is another important political and social objective.

The major source of water for the dry zone is the Mahaweli Ganga, which is the island's biggest river. The Mahaweli Ganga and its tributaries drain an area of some 4,000 sq. miles, roughly one sixth of the island's total area. The river's source is at an elevation of over 6,000 ft. in hilly country. It discharges about six million acre ft. of water into the sea at Trincomalee. This water, which has hitherto not been used, is available for agri-cultural and hydro-power development.

Three Phases

The Master Plan for the development of the Mahaweli Ganga took four years to mature. It is to be financed by the United Nations Development Programme with the Food and Agriculture Organisation as its executing agency. The World Bank and IDA have advanced 14.5 million dollars each to meet the foreign exchange requirements of the project.

There are three main phases of development. The first phase includes three projects : the construction of a diversion structure across the river at Polgolla with a tunnel to divert a part of the river-flow into Sadu Ganga ; a reservoir at Bowatenna on Amban Ganga at a point immediately below the confluence of Nalanda Oya ; and the diversion of the water requirements for Kala Oya Basin. These works, together with power stations, canal systems and land development, are expected to cost Rs 575.5 million. Nearly 1,27,000 acres of land will benefit from the improved irrigation facilities. Except 4,000 acres of sugarcane, the entire acreage is under rice cultivation. Rice yield is expected to increase by 83,000 metric tonnes, equivalent to a quarter of Ceylon's 1968 imports, and sugar production is likely to treble. A 40-MW hydro-electric power plant will be installed at Polgolla.

First Stage

The annual agricultural benefits anticipated will be of the value of Rs 128 million with minor improvements in irrigation and agricultural practices. Introduction of major improvements will push up the figure to Rs 166 million. The annual power benefits are estimated at Rs 11.7 million. Thus the total benefits could vary from 24 per cent to 31 per cent of the investment.

The first stage is scheduled for completion in five years and would cost 50 million dollars. The diversion structure on the Mahaweli Ganga at Polgolla will be 530-ft long and will be controlled by 10 radial gates, each 40 ft wide and 20 ft high. A five-mile long tunnel, 18 ft in diameter, will pass on a part of the Mahaweli flow into the Sadu Ganga, and a power house located at the end of the tunnel will contain a power plant with an installed capacity of 35.7 kilowatts. A Bowatenna, a reservoir with a gross storage capacity of 36,800 acre ft will be created for the regulation of the diversion from the Mahaweli Ganga. The dam will rise to a height of 132 ft with a cross length of 880 ft. A power plant will be constructed at Lendora on the diversion canal to Kala Oya.

The project, when completed, will transform the North Central Dry Zone into a greenery and will add immense potential to the Island's Grid. Some 12,296 families will be settled on farms and another 2,100 families will be absorbed in supporting services. The resultant agro-industries will generate further employment.

SIERRA LEONE

Co-operatives to the Fore

K. K. SARKAR

SIERRA Leone is situated on the West Coast of Africa. A former British Colony, Sierra Leone became independent in 1961. It has a population of only 2,183,000 and an area of 27,925 square miles.

Co-operative movement in this country was started in 1948 with the establishment of the Co-operative Department under the Ministry of Commerce and Industry.

During these two decades, the movement has spread far and wide. Thrift and credit societies outnumber others. Out of 31,296 members, 12,625 are women representing 49 per cent of total membership. In 1949-50, there were 10 thrift/credit societies with a membership of 642. Their number, by the end of March 1968, had increased to 629

and membership to 31,296. The growth of consumer co-operatives has, however, been irregular, From seven societies with a membership of 894 in 1949-50, their number rose by only one but their membership declined to 600 by the end of March 1968. On the other hand, produce marketing societies did very well. Their number increased from 12 in 1949-50 to 272 by the end of March 1968. During this period the membership swelled from 287 to 13,533. This steady growth of thrift and produce marketing societies indicates the healthy development of the co-operative movement in a small country like Sierra Leone.

Marketing Co-opertives

Marketing co-operative societies handle rice, cocoa, coffee, palm kernel, vegetables, as well as some husbandry products. However, their total turn-over figures have been declining since 1961-62.

The total turnover of marketing co-operatives was 155,161 Le. (1 Le= 2.50 U.S. dollar) in 1954-55. It reached a peak figure of Le 690,000 in 1961-62 and almost sharply declined to a record level of Le 142,409 in 1967-68. Even those marketing rice did not fare any better. Their turnover reached a high point of Le 104,000 in 1965-66 and settled down to an all-time low of Le 55,603 in 1967-68.

However, the pig and poultry co-operatives have expanded their business and handle about 70 per cent of the total poultry and egg production.

A major difficulty facing the co-operative movement in the country is the non-availability of finance.

Loans to the co-operative movement are mostly granted by the "Loan Fund." The Loan Fund operates on the basis of government-guaranteed overdrafts at local commercial banks. Taking the established ceiling into consideration, every delay in the repayment of loans granted for a campaign leads to a decrease in the amounts to be made available for forthcoming campaign operations. The establishment of a co-operative bank has been envisaged to overcome these difficulties and allow the movement to have its own financial structure.

In consumer sector too, the co-operative movement is weak. However, fresh efforts are being made to revitalise it.

EFFECT OF NUCLEAR COOLANTS ON MARINE LIFE

A detailed hydro-biological survey of the effects on fish and other marine life of nuclear power plant coolants released into seas and lakes is to be carried out in Sweden. According to a Swedish scientist, nuclear power plants are expected to release about 150-300 cubic metres of water per second at a temperature of 8°C above that of the recipient. The planned power plant at Trosa, on the Baltic coast south of Stockholm, is estimated to cause a rise in temperature of at least 0.1°C over an area of some 60 square kilometres.

The influx of heated water can cause changes, positive and negative in the recipient and certain varieties of fish, including salmon, grayling and rainbow trout die which at temperatures as low as 20-25°C, while young and embryonic fish succumb even earlier. In some cases,however, the influx can favour marine life, though sometimes of undesirable varieties of fish.

The survey will include field experiments in fish ponds and the gathering of samples at various points on the Baltic coast.

NEW INSTRUMENT FOR MERCURY ANALYSIS

A mercury analysis instrument — the "Merkurimeter" developed in Sweden can determine the mercury content of gases and solutions in only two minutes, and is sensitive down to a few microgrammes per cubic metre or per litre. When dealing with solutions the equipment, by means of a pump, sucks air into the system, thus enabling the mercury to be measured in the form of gas. The instrument, based on the atomic absorption principle, distinguishes between metallic and ionic mercury.

The Merkurimeter can be used for check analysis of mercury discharge in factories and other places of work.

Report From Yojana Bhavan

RURAL DEVELOPMENT AND UNEMPLOYMENT

A Central Committee for Co-ordination of Rural Development and Employment has been set up by the Government of India. Shri B. Venkatappiah, Member of the Planning Commission, is the Chairman of the Committee which will prepare and review the working of programmes to be undertaken by Small Farmers Development and similar agencies in the Fourth Plan. These programmes are for potentially viable farmers, marginal farmers, agricultural labour and rural artisans. The progress of projects relating to dry farming and for integrated rural works in chronically drought-affected areas will also be reviewed by the Committee. The Committee will ensure the co-ordination of these programmes and projects and arrange for their evaluation at suitable intervals.

Further, schemes which contribute significantly to the creation of rural employment and provision of benefits to the weaker sections of the rural population will also be reviewed by the Committee. These schemes are for minor irrigation, rural electrification, dairy development, area development, rural roads, rural artisans' projects, rural works and growth centres.

The Fourth Plan includes a number of special programmes for the benefit of the weaker sections of the rural population, development of dry, arid and other areas of defined categories, and the creation of larger opportunities of development-oriented rural employment. The Plan provides a sum of Rs 115 crore for small but potentially viable farmers, and sub-marginal farmers, agricultural labour and rural artisans. Both these are in the Central Sector. In addition, provision has been made for area development schemes (Rs 15 crore) and for dry land farming (Rs 20 crore). Also, a total non-Plan outlay of Rs 100 crore is expected to be available over the next four years for an integrated and purposive programme of rural works in chronically drought-affected areas.

BOOKS

MAKING RAJASTHAN DESERTS BLOOM

Conditions of Stability and Growth in Arid Agriculture by N. S. Jodha and V. S. Vyas. Published by Agro-Economic Research Centre, Sardar Patel University, Vallabh Vidyanagar, Anand, Pages ix+127. Rs 15.

L. S. Venkataramanan

ENVIRONMENTAL conditions, specifically water availability and moisture content of the soil, indicate the nature of farming technology that is suitable. Arid zone farming technology has to be different from technology suitable for areas with water availability through irrigation or rainfall. Limitation of water in the arid zone has become a severe constraint on growth possibility and, more importantly, in reducing high variability in yields caused through the recurrence of droughts. Jodha and Vyas in this important contribution have highlighted the special problems of arid zone agriculture marked by low and highly unstable yields. The very unfavourable weather conditions, such as extremely low rainfall (5"–20"), low humidity, soil susceptible to erosion, inadequate sub-soil-water which is saline, and the largely subsistence nature of farming, over the arid region as a whole, indicate the perpetual miserable living conditions of the farming people.

The arid zone (both arid and semi-arid areas) of Rajasthan which forms part of the great Indian desert, covers three-fifths of the State of Rajasthan. Water and vegetation conditions improve as one moves from north-east to south-east within the arid zone. 80 per cent of the arid region which accounts for 60 per cent of the population of the region is largely fit for animal grazing and is unsuitable for crop-raising. It is the lot of nearly 20 per cent of Rajasthan's population to be in this very inhospitable arid region. Even though the soil-climatic conditions are totally unfavourable for crop farming in the arid tracts, the desert farmers are forced to raise subsistence crops to feed themselves. The farmers, however, realise only low yields, and there is chronic shortage of foodgrains and fodder.

Jodha and Vyas present valuable evidence on eleven districts categorised into three arid zones. One of the three zones is semi-arid having relatively better soil and water facility. Data covering the period 1951-52 to 1968-69 have been presented and also cross-sectional comparison, between different districts and zones, made to illustrate the immensity of the problem of arid zone agriculture. The main crops grown in the arid region of Rajasthan are: *bajra, kharif* pulses, *jowar* and sesamum. The gross cropped area covered by these crops is 60 per cent, 21 per cent, 5 per cent, and 6 per cent-respectively.

The yield variability of *kharif* pulses is lower than for *bajra* and this is lower than yield variation in *jowar* and sesamum. The co-efficient of variations are: 22 per cent, 32 per cent, 43 per cent and 47 per cent respectively. Since *bajra* is the main food crop, it covers nearly 60 per cent of the cropped area. The pattern of the acreage allocation in most of the districts of the arid zones are similar to the pattern observed for the region as a whole. The high yield variability contributes to large income instability of the farming population.

A disturbing conclusion reached by the authors, through analysis of yield data and variation in yields for all crops and in all districts is that neither yield levels nor relatively stable yields explain the pattern of acreage allocation in the arid zone. The conclusion that follows from this is that though the peasants have formally the choice of allocating the areas to different competitive crops, in effect, this choice is not excercised in favour of the most profitable crop *kharif* pulses because the subsistence consideration of growing *bajra* and to some extent *jowar* becomes an over-riding factor.

The authors examine the benefits of irrigation and water facilities on farming by comparing Ganganagar and Bikaner districts of Rajasthan which form part of a homogeneous tract with comparable temperatures and identical rain-fall conditions. The irrigation facilities in Ganganagar district and the lack of it in Bikaner district have led to considerable differences in the intensity of land use in the two districts. The net sown area is 61.5 per cent of the total geographical area in Ganganagar district while it is only 18.6 per cent in Bikaner district. Owing to assured canal waters, it has become possible to raise crops such as wheat, paddy, cotton, sugarcane and oilseeds in the Ganganagar district.

The authors consider alternative possibilities of increasing water availability over the arid zone. The alternatives of tapping impounded drainage water, water supplies from streams in the neighbouring regions, and exploitation of ground water resources, all of these appear to have only limited possibilities in the blooming of the desert arid zone. The work in making available water from the Punjab, through the Rajasthan canal, is still in progress and when completed around 1980, the length of the branches and tributaries of the Rajasthan canal would extend over 8,000 kms. and the length of the field channels would be about 72,000 kms.

Even after the completion of this major canal, the sorrowful prospect is that the living conditions of the farming community over a substantial area of the arid region would not basically change. The exploitation of ground water resources has to counter two problems, namely the depletion of water, because the rate of draft may exceed the rate of recharge on account of paucity of rainfall and the problem of salinity. These problems limit the use of ground water for farming purposes. Efforts are under way for conserving

and making the most efficient use of available water and moisture supply through bunding and provision of shelter-belts against wind action.

The authors suggest that under existing conditions even though there is not much scope for diversification in cropping pattern which is subsistence-oriented, it is still possible to aim at more stable yield levels, through the use of improved seeds. Growth of grass crops for fodder purposes could also help the farmers in realising a modest return even under very unfavourable rainfall conditions. Mixed farming by crop and live stock raising, suggest another solution in stabilising farm incomes. But the problem posed by water and forage scarcity limits possible benefits through mixed farming.

This useful study has indicated the need for more research on the technical, institutional, and economic factors affecting arid zone farming. Even though nature is very hostile, it appears that the farming community could still benefit from a better and more effective use of the available resources. The most important contribution of this study is to awaken public attention to the problems of the arid zone areas.

DEFENDING BIG BUSINESS

Monopoly, Concentration and Industrial Licensing by Dr. S. R. Mohnot. Published by Oxford & I.B.H. Publishing Co., 1968. *Pages* 171. *Rs* 18.50.

THE book is a critical analysis of the reports of the Mahalanobis Committee, the Monopolies Commission, and of Dr. R. K. Hazari on Industrial Planning and Licensing and of the Monopolies Bill. In the preface the author claims, it is an "endeavour to identify the facts from fancy and distinguish between facts and fancy."

The study of the Monopolies Commission, the author argues, has "greatly been vitiated by a lack of proper study of the processes of mergers etc. He refers to the Commission's finding that "dangers from concentrated economic power and monopolistic and restrictive practices exist in a large measure either at present or potentially" and says that it was not expected of the Commission to be in doubt about their basic finding. The author then goes on to list what according to him are the valid conclusions from the studies referred to. He agrees that concentration in private hands does exist but wants that the very system of modern production and its tools are not destroyed by "an obsession with the problems of concentration."

On the chapter on "Monopoly", the author says "there is no danger, present or potential of monopoly in India ; the state will be the only potential monopolist" in our economic system. "Restrictive trade practices will have to be dealt with by a strong hand of social control, which he says, could be done under the existing laws."

In the next chapter, the author wonders how Prof Hazari could say "One might, in a rash mood, hazard the statement that Birlas do not follow up about one-half of the licenses". The author argues that even according to Prof Hazari, it is an open question whether and, if so, to what extent the performance of the Birlas actually blocks the entrance of other entrepreneurs. The data, collected by Prof. Hazari, it is said, are partial, incomplete and in some cases not fully reliable. The author says, if the facts of the Report are the basis, it is doubtful, if the industrial house, which has received the pride of place, had attempted to preempt or to foreclose licensable capacity and limited resources. But the fact is well established that Prof Hazari did pre-empt empirical facts in favour of his pre-conceived opinions....". The author claims that the facts given by Prof Hazari himself would disprove his conclusions that the "Birlas do not follow up about one-half of their licenses" and "enterprise plus imaginative undertaking of licensing formalities, thus enable the Birlas to foreclose the market."

The author describes "distinctions on communal and parochial basis" made in the report as tragic. Is it the intention of the Professor, he asks, that since Marwaris got 24.4 per cent of the investment proposals, all Marwaris or their firms were to be excluded from industrial activity ?

After analysing the various recommendations on industrial licensing, the author asks what is the economical way for discouraging the wrong kind of investment, if licensing by itself is not an economical instrument. He says one does not get an answer from the Hazari Report.

One may not agree with the author's reading of the reports but it presents the other side of the coin.

M. S. R.

JOBS AND MEN

Demographic and Employment Trends in Mysore State—A short review. A Case Study of Sub-Regional Employment Exchange, Bangalore. Published by the Directors of Evaluation and Manpower Planning and Social Welfare Department, Government of Mysore, Bangalore, 1969.

K. V. Iyer

THE former publication provides a brief review of the trends in growth of population classified according to sex, rural/urban and workers/non-workers and the labour force participation rates in the Mysore State during 1901-61 on the basis of the decennial population censuses. This is followed by an analysis of the growth of employment in the public and private sectors during 1962-66, estimates of urban unemployment on the basis of results of the National Sample Surveys, trends in employment exchange registrations and placements. The attempt is useful in that it presents in a single small publication a critical analysis of the data available on population, employment and unemployment from diverse sources.

The latter publication is a study in depth of the working of the Bangalore Employment Exchange, covering the procedures and practices followed in the Employment Exchange machinery regarding registrations and placements of various occupational categories, as well as scheduled castes and scheduled tribes. Detailed statistics of the employment exchange registrations since 1945 have also been presented. The main difficulties in effecting placements of job - seekers are highlighted and various suggestions for bringing about improvements in this regard as well as in the employment service machinery in general have been indicated. Studies like this are welcome in that they focus the attention of the appropriate authorities on the difficulties so that suitable remedial action could be initiated.

COTTON TRADE

Hedging Efficiency of the Cotton Futures Market by M. G. Pavaskar. Published by University of Bombay. Pages 77. *Rs* 7.

P. S. Sangwan

THE investigation conducted on the 'hedging efficiency' of the cotton contract at Bombay market was specifically aimed at finding out the real impact, if any, on the relative prices obtainable from a ready stock of lint cotton marketed *vis-a-vis* future marketing. This appears to be the first study of its kind made in regard to cotton futures market. This should have been extended to other commodities like groundnut, groundnut oil, jute and jute goods.

The statistical data in the study appears to have been carefully analysed, showing the spread between the ready and future prices obtainable through the Indian Cotton Contract that operated at Bombay during the selected period and the effect of variations in the spread on the effectiveness of hedging operation. The study concludes that the future contract was biased towards buying hedgers, that is, mills and exporters, rather than the selling hedgers such as stockists and merchants. The finding, though quite specious, may impair the utility of cotton future markets in the country.

In Chapters 3 and 4, various assumptions were taken into consideration for collecting the statistical data to infer the average efficiency of different types of hedges, number of hedges with positive and negative degree of efficiency and distribution of effective hedges among different efficiency groups, gains and losses to the hedgers and non-hedgers during the transaction spread over varying duration.

The study, however, seems to suffer from a few shortcomings, as it was based only on price variations. Due to certain imbalances in the supply/demand position, specific measures were adopted for regulating movement, marketing and distribution of cotton, like restrictions on purchase of cotton by mills, compulsory surveys of cotton besides the imposition of regulatory measures by the Government on futures contract. However, fixation of statutory maximum and minimum for different varieties was by far the most important factor that interfered with free movement of cotton price. Futures prices consistently quoted at a discount below spot prices during the period under study was a peculiar spot-future price relationship.

The suggestions to improve the working of the contract, as proposed in the study, may not be implemented in view of the fact that the futures trading in cotton has not been permitted since 1966-67 season. Moreover in the context of a changed political climate as also statistical conditions, it appears doubtful whether the futures trading in cotton would be revived early.

A NOBLE LIFE

Zakir Husain : Symbol of Indian Democracy. Published by Publications Division, Government of India, New Delhi. Pages 30. *Rs* 2.75

THE late Dr Zakir Husain's was a many-splendoured life. He combined in himself the vision of a philosopher and the deep knowledge of a dedicated educationist. As a statesman holding the highest office he symbolised in his person the most cherished ideals of India's culture. He was a man who regarded the "whole of India as his home and its people, his family". Appropriately, the booklet carries a subtitle that sums up Dr. Husain's national stature as "Symbol of Indian Democracy".

The booklet, however, does not do justice to the multifaceted personality of the late President. There could have been a separate chapter on Dr Husain as an educationist. Very little attention has been devoted to the formative years of the man who sought to combine in our national life "power with morality, technique with ethics, action with meditation, the East with the West, Siegfried with the Buddha". The distinguished career of a man who travelled from education to politics, like his illustrious predecessor, could have been dealt with at greater length than has been done in this booklet. The chapter on the 'Death of A President' appears to be inordinately long, especially due to the inclusion of all those condolence messages. Even the crucial Presidential election of 1967, which was regarded as a triumph of India's secular ideal, has been dismissed in a few lines.

There are some good photographs of Dr Husain which again could have been suitably interspersed with the text instead of being clustered at one place.

Some of the excerpts from the late President's speeches and writings, incorporated in the latter part of the booklet, sparkle with the radiance of his luminous mind. More of these would have brightened up this little publication.

P. G.

OVER 22 LAKH ADOPT FAMILY PLANNING

Acceptors of family planning in India increased to 22,56,546 in 1969 from 22,05,601 in the previous year. Since the inception of family planning programmes, 67 lakh sterilisations, and 31 lakh IUCD insertions have been recorded. During 1969, the number of sterilisations fell to 983,058 from 16,64,064 in the former year while the number of IUCD insertions decreased to 307,340 from 4,78,328. However, the number of users of conventional contraceptives shot up to 9,65,721 during the year, compared to 5,75,830 in the previous year and thus more than over-compensated the shortfall in achievements in family planning through former methods.

At present in the urban areas about 80 per cent and in rural areas about 60 to 70 per cent couples in the reproductive age-group are aware of family planning methods.

INDIAN ECONOMY AND THE U. S.

(from Page 8)

Three large fertiliser factories have come up or are taking shape with U.S. aid. At Visakhapatnam, the Rs 50-crore plant of Coromandel Fertilisers Ltd., a joint Indo-American enterprise, currently delivers 1,000 tons of finished fertiliser per day. This plant has received a total U.S. loan of Rs 30.71 crore and makes an annual foreign exchange saving of Rs 16 crore. At Trombay, largely financed by U.S. loans the public sector Fertiliser Corporation's plant with an annual capacity of 135,000 tons of fertiliser nutrients has been set up. A third factory with an annual capacity of 271,000 tons of fertiliser nutrients is being built by the Government of India in partnership with a private U.S. firm. A loan agreement was signed recently in Washington authorising payment of Rs 19.06 crore to a joint venture of a U.S. firm and an Indian firm for setting up a Rs 52.50 crore fertiliser plant in Goa with an annual capacity of 156,000 tons of nitrogen. American co-operatives will contribute Rs 75 lakh for helping the Indian Farmers Fertiliser Co-operative establish a two-unit fertiliser complex at Kandla and Kalol in Gujarat. The Rs 81-crore-project is believed to be the world's largest international business transaction by co-operatives. It will produce more than 8,00,000 tons of finished fertiliser products which include 229,000 tons of nitrogen, 122,000 tons of phosphate, and 62,000 tons of potash. It is estimated that this plant will account for a rise in foodgrains production by more than 2.2 million tons.

With mounting enthusiasm for boosting agricultural production, the craving for water for irrigation has also risen. Pumpsets are in great demand in the villages. The Fourth Plan has very appropriately provided for the Rural Electrification Corporation to finance rural electrification projects which will not only provide power for agricultural pumpsets but also for small industries and domestic lighting. The U.S. Government has approved a grant of Rs 105 crore for this Corporation which will energise about half a million new pumpsets. These pumpsets will provide irrigation to 2.5 million acres and increase annual food production by 1.5 million tons.

Indian agriculture owes its progress not only to the unremitting efforts of Indian farmers in increasing production but also to agricultural scientists whose patient labours have resulted in the high-yielding varieies and better farm-techniques. The number of agricultural scientists in this country has gone up thanks largely to eight new agricultural universities that have been set up in the past decade with the co-operation of the U. S. Government and six American universities. These agricultural universities have also carried knowledge of improved methods to farmers. Apart from aiding research in these universities, the U.S. Government has also extended research grants to 85 institutions located in different parts of India.

Educational Help

American assistance in India's educational programmes has embraced almost all levels, primary, secondary, university, and all fields, science, engineering, technology, and medicine. One of the biggest programmes organised with active American help is that of the Summer Science Institutes which seek to train college, polytechnic and secondary school teachers of science and mathematics in new methods of teaching their subjects and in the use of new laboratory techniques and teaching aids. Some 1,005 American professors have participated as consultants in these programmes since 1963 and have trained more than 25,000 teachers in some 695 institutes. Subjects taught included biology, chemistry, physics, mathematics, and engineering.

A consortium of nine American universities has deputed about 90 members of the faculties of those universities to make the Indian Institute of Technology at Kanpur, one of five such technological universities set up by the Government of India, an example for other engineering and technical colleges in the country. Situated in an area of more than 1,000 acres, IIT Kanpur trains more than 1,300 students every year. U.S. grants from PL-480 funds have also been given for setting up 14 regional engineering colleges and professional services and equipment to five other engineering colleges. The field of elementary education, too, has received its share of American assistance. A sum of Rs 121.13 crore has been given in the form of grants and loans for its development.

Health and Family Planning

Practically all aspects of public health and medical education have been considerably aided by funds, professional men and equipment from America. The Malaria Eradication Programme, which succeeded in almost rooting out the disease from the country, is one of the worthy U.S.-aided health projects in India. The All India Institute of Medical Sciences and a number of medical colleges, and specialised national institutions dealing with public health engineering, communicable diseases, health education, and nursing have benefited from U.S. aid.

America has evinced deep interest in the family planning programme which is a vital element in the heart of Government's plans for economic uplift of the country's millions, and has rendered assistance both in cash and kind. Programmes intended to combat the widespread malnutrition among India's children and to produce and popularise high-protein foods have also got American financial and technical support.

Industries Too

A number of industrial projects have received foreign exchange assistance from the U.S. Among them are industries producing aluminium, rayon, chemicals and plastics, paper, pulp, forgings and bearings and also coal washeries.

India is now receiving a substantial part of the U.S. aid in the form of non-project loans which are not tied to any specific project. They are meant to finance essential imports of components and spare parts for industrial equipment and some key raw materials like non-ferrous metals, chemicals, and lubricants, not available in Indja. The total U.S. non-project assistance comes to 2,000 million dollars (Rs 1,500 crore—post-devaluation).

Airborne geophysical techniques developed by America have been used in a survey in Andhra Pradesh, Rajasthan and Bihar to locate deposits of copper, lead, and zinc. With the help of USAID, the Geological Survey of India had also located some phosphate rocks, which will be useful in manufacturing fertiliser. The Orissa Iron Ore Project under which India exports four million tons of iron ore every year to Japan has received U.S. aid in developing the Kiriburu iron ore mine, the Visakhapatnam port, and in the construction of railway links from the mine to the port.

India's transportation systems have got quite a liberal share of U.S. aid. The total aid given for this sector comes to 335 million dollars (Rs 251.25 crore—post devaluation). In road building, a grant of Rs 20 crore has been given from PL-480 funds. While India was setting up her own manufacturing capacity for locomotives, coaches, wagons and other rolling stock, she imported from the U.S.A. 100 steam and 345 diesel locomotives and 8,700 railway wagons and steam components and spare parts. The total U.S. aid for all such imports came to 295 million dollars (Rs 194.25 crore—post devaluation). India's programme to build up self-sufficiency in rolling stock received a fillip when she set up the Diesel Locomotive Factory at Varanasi with U.S. assistance, which is turning out 150 locomotives a year.

The country's civil air fleet of Boeing-707 and the prospective jumbo-jet fleet for Air India are financed partly by U.S. Export Import Bank credits. Three Indian firms manufacturing motor vehicles have obtained loans of 77.2 million dollars for expanding their production.

One of the fields in which India has made commendable progress is that of power generation. She has now a total capacity of 16 million kw. Almost a third of this comes from 30 power projects that have obtained U.S. assistance totalling 445.5 million dollars (Rs 334.13 crore—post devaluation) in foreign exchange and Rs 349 crore in rupees from PL-480 sale proceeds. Among these projects are Chandrapura situated in Bihar's coal belt, one of the largest thermal projects in India, the Bandel thermal power station near Calcutta with a capacity of 355,600 kw. Durgapur with a capacity of 150,000 kw. and the Dhuvaran thermal power station in Gujarat, which uses natural gas and oil for fuel and generate over 250,000 kw. Two of the major U.S. aided hydro-electric power projects are Sharavati in Mysore with a capacity of 712,800 KW and Sabarigri in Kerala with a capacity of 300,000 kw. Other power projects are scattered all over the country.

The most spectacular of all the power projects now in operation in the country is the Tarapur nuclear power station which Prime Minister Indira Gandhi dedicated to the nation in January this year. The first of the three nuclear power plants being set up in India, Tarapur signifies the high watermark of Indo-U.S. co-operation in harnessing technology for transforming the country's economy. It stands as a symbol of the progress India has made with assistance from other countries.

WHAT KRISHI PANDITS SAY ABOUT FERTILISERS

"A rupee spent on fertilisers brings in three rupees worth of grain," say Krishi Pandits, Baburao Sukhdev Patil of Nasik, Maharashtra, and Sitaram Eknath Dhumal of village Kauthali, who won first prizes in the All-India Crop Competition in wheat and jowar. According to them even the best high-yielding varieties of seeds cannot give good results unless fertilisers are used in the right quantities. Rather they feel, hybrid varieties, require higher doses of fertilisers.

Sukhdev Patil who harvested 10,335 kgs of wheat per hectare imputes his success to the proper use of fertilisers. He applied as a basal dose 300 kgs of de-oiled groundnut cake,70 kgs of sulphate of potash, 200 kgs of superphosphate and 50 kgs of ammonium sulphate per acre.

He topdressed his crop with 50 kg of urea and 100 kg. of manure mixture (14 : 5 : 5) 21 days after sowing and 50 kg. of urea 45 days after sowing. He gave a further dose of 50 kgs of urea at the time of the emergence of earheads.

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TATA'S IRON MINING

A long range development programme to step up iron ore mining operations at Noamundi and to ensure a reliable supply of good quality ore for their blast furnaces at Jamshedpur has been formulated by the Tata Iron & Steel Co Ltd. The programme envisages the despatch of two million tons of washed and graded ore to Jamshedpur.

The run of mine ore is brought by dumpers from the mine faces to a primary crushing and screening plant where it is reduced to about 8" size. Thereafter it is crushed and screened in a secondary crushing plant to 3" size and washed in scrubbers. The entire electricals of this large project have been engineered, manufactured, erected and commissioned by Siemens in India, with the assistance of Siemens, Germany.

The layout of electricals posed many interesting problems : As the main plant is spread out over a distance of more than 5 kms, centralised control was of utmost importance. Siemens have supplied large luminous control board from which it is possible to start and stop any section of the plant and at the same time to monitor the operating conditions.

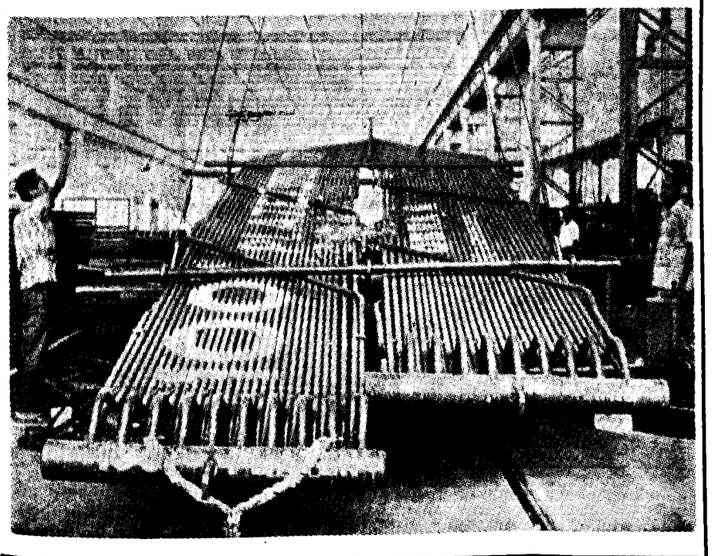
The construction work at site was started in the second quarter of 1967 and the processed ore was already loaded in early 1968. Full commercial operations were undertaken in April 1968. It is claimed that the experience gained in the last two years has confirmed the basic reliability of the electrical system.

100th PLATEN SUPERHEATER

THE 100th platen superheater manufactured for the 100 MW boiler for the Obra Power Station was handed over by the Cold Pipe Shop of Boiler Plant to the Shipping Department on March 2, 1970.

The platen superheater, located generally in the combustion chamber of power boilers is one of the highly complicated radiant zone tube assemblies that are encountered in the fabrication of tube systems of power boilers.

The welding of tubes to coils is done by tungsten inert gas welding using Argon as the shielding gas while the assembly joints with the platen heater is done by metal arc welding. These joints being subjected to high pressures and temperatures, are to be executed by certified alloy steel high pressure welders, tested by the Chief Inspector of Steam Boilers, Tamil Nadu. The weld joints are tested radiographically and the tube systems are hydraulically tested to one and a half times the working pressure.



CAPACITORS FROM BHOPAL

Heavy Electricals (Ltd), Bhopal has now established the manufacture of non-inflammable liquid (aroclor) impregnated capacitors for power factor correction. These capacitors compare favourably with any international designs in this field. HEIL is now equipped to meet the country's ever increasing demand for such capacitors.

The factory is now in a position to supply the capacitor installations, both for low voltage and high voltage systems, along with the matching series reactors, circuit breakers and control equipment including automatic control. The high voltage installations from 11 KV upwards are of outdoor type and can be catered for any voltage as per users' requirements.

A licence to manufacture Maximum Demand Indicators for the measurement of maximum KW or KVA demand on alternating current systems has recently been granted to the General Electric Company of India Ltd. These are special type of meters for measuriug the peak power supply to bulk consumers like large industrial units and power utilities. The demand integrating period can be set to meet many tariff structures with either internal or external tripping including "off-peak tariff" arrangements. The indigenous manufacture will save considerable foreign exchange.

The indicators will be manufactured at one of the GEC factories in Calcutta to the designs of Messrs Chamberlain & Hookham Ltd of the U.K., one of the largest manufacturers of electrical meters and allied instruments in the world.

The GEC of India Ltd manufactures energy meters in addition to various other electrical items. It also markets domestic electric applicances and lamps in India.

Regd. No. D-876

Development Diary

* The Gujarat Electricity Board has undertaken a Rs 4 crore project for the installation of two gas turbines of 27 MW capacity each at Dhuvaran. The largest gas turbines operating in India, these will be run on free gas from Cambay gas field.

* Exports of engineering goods touched an all-time high figure of Rs 105 crore during 1969-70.

* The International Development Association has announced a credit of $ 75 million (Rs 56.25 crore) to India for industrial imports.

* Canada has agreed to provide an interest-free loan of Rs 11.8 crore to India for the importation of Canadian industrial commodities including lead, zinc, nickel, newsprint and synthetic rubber.

* Exports of cashew kernels from India during 1969-70 amounted to 60,200 tonnes, valued at Rs 57.22 crore. 43 per cent of the exports were to U.S.S.R.

* A storm detection radar has been installed at Visakhapatnam for issuing definite warning of cyclones on the Andhra coast. This is one of the eight radars to be set up on the east and west coast during the next three to four years.

* OCRIM Cremona, Rome has agreed to sell a maize milling plant costing 75 million lire to the Government of India. The Food Corporation of India will set up this as a pilot plant for the processing of maize. Payment for the plant will be made from the balance of funds contributed by the Italian people for Indian food aid in 1966.

* An agreement on a project for making low-cost weaning food for children, with an ultimate capacity of 6,000 tonnes a year, has been signed between the Government of India and the Kaira District Co-operative Milk Producers Union, Anand, Gujarat. While UNICEF will supply necessary machinery and equipment to the extent of Rs 63 lakh for the operation of the plant, the USAID will provide a sum of Rs 20 lakh under PL-480 funds to cover the marketing and educational campaign costs.

* The foundation-stone of a second bridge over the Poteru river in Orissa, about 50 kms. from Malkangiri has been laid. When completed it will ensure traffic throughout the year in the Malkangiri sub-division.

* The Agricultural University, Pantnagar, U. P. has been successful in producing quality seeds of sugar beet. It has also reaped, for the first time in the country, a sizeable harvest of quality seeds.

* The Central Food Technological Research Institute, Mysore, have developed a process of making tamarind concentrate, which makes full use of the fruit, essence of which is hygenically extracted and concentrated under vacuum to retain all its natural qualities of flavour, taste and mineral contents.

* Assam produced nearly 4,000 kgs of jute per hectare in 1969-70. This is an all time record for Assam.

* The production of foodgrains in Rajasthan during 1969-70 has been estimated at 58.80 lakh tonnes as against 35.41 lakh tonnes during 1968-69.

* In Meghalaya, drilling operations are in progress round the clock at Jaksungram in the Garo Hills.

* The Haryana State Electricity Board electrified over 1,900 villages and energised nearly 23,500 tubewells in 1969-70. This is six times the target fixed for electrification of villages and 8,500 tubewells more than the target.

* Combustible gas has been struck at a village near Masulipatnam in Andhra Pradesh.

* A new type of plastic material has been developed from indigenous petro-chemicals by an institute for industrial research. This is likely to replace a large number of metals, commonly used in many appliances, and also in building the bodies of cars and scooters.

* In Uttar Pradesh, a bumper wheat crop has been grown this year in the sandy loam belt—considered to be unproductive—covering about 600 hectares in the western Doon Valley.

Printed at Navin Press, Delhi-6 and Published by the Director, Publications Division, Patiala House, New Delhi

YOJANA

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

Vol. XIV No. 10

May 31, 1970

Jyaistha 10, 1892

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

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A Handloom Design photographed by T. S. Nagarajan

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

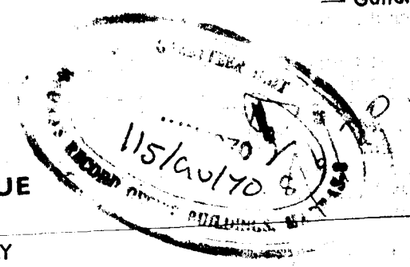
Inland Subscription : Annual Rs 7.50. Two years Rs 13. Three years Rs 18. Single Copy 40 paise.

Foreign Subscription : One year: 15 sh 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

Bravery does not mean browbeating others. He is not a brave man who uses his strength to terrorise others. The brave man is he who, though possessing strength, does not use it to intimidate others but, on the contrary, protects the weak.

— *Gandhi*



IN THIS ISSUE

Editorial

A COHERENT SCIENCE POLICY

SCIENTIFIC research in this country has, of late, exposed itself more and more to public gaze and public scrutiny. This is not because of achievements in our laboratories but because of the alleged factionalism said to be prevailing in some of our institutions of scientific research.

The Sarkar Committee, which probed the alleged irregularities of some officials of the Council of Scientific and Industrial Research, after two years of work, produced a report which almost absolved everyone of guilt. It is good that it has been so, for any step that might even remotely injure an organisation sedulously built up over the years should be scrupulously avoided.

At least three separate committees, the Sarkar Committee, the Kane Committee and the Public Accounts Committee, have enquired into the different aspects of the working of C.S.I.R. and have suggested, from time to time, a number of remedial measures to plug loopholes and improve its working. None can deny that everything has not been well with this organisation for quite some time now. The considerable investment that has been made in scientific research through this organisation has not produced commensurate results. This can be seen, for instance, from the fact that in 1966-67 the national laboratories under C.S.I.R. could realise only Rs 4.53 crore by selling their processes while the total outlay on these laboratories had reached Rs. 146.76 crore. Another instance of colossal waste of time and money is of the scrapping of as many as 21 research projects after it was found futile to pursue them.

However, it has to be emphasised that no worthwhile or tangible outcome can possibly result from piecemeal probes into the affairs of any single organisation dealing with scientific research. What is needed for putting science in this country on proper rails is a drastic reassessment of the work done so far by all the organisations involved in scientific research and the formulation of a comprehensive and coherent science policy that will be in keeping with the changed global picture in science and technology.

India was fortunate in having in the years following Independence and for a long time since a Prime Minister who considered that the country's economic development "would be possible only through the advancement of science and technology". He firmly believed that "the future belongs to science and to those who make friends with science". And he laid down a "Science Policy" as far back as in 1958, which emphatically said that it was only "through the scientific approach and method and the use of scientific knowledge that reasonable material and cultural amenities and services can be provided for every member of the community". Fortunately, the country's leadership even now rests generally with those who are dedicated to the creation of a technologically progressive society.

And as a result of concerted efforts made by the Government since Independence, we have in the country today an excellent infrastructure for resolving the real problems of the nation in the production of food, industrial development, energy resources, communications and transportation. Our expenditure in scientific research has increased by more than five times in the last eleven years from Rs. 27 crore to Rs. 136 crore last year and our scientific manpower has increased by three and a half times. Today we have more than a million trained scientific and technical personnel.

These gains notwithstanding, the organisation of scientific research has fallen into a rut in the last few years and has become bureaucracy-ridden to some extent. To fulfil the national goals set out in the science policy, the Government has formed in the course of several years a number of agencies, such as the I.C.A.R., the C.S.I.R., Department of Atomic Energy, the Defence Research and Development Organisation and so on. These organisations have tended to follow the Government's pattern of hierarchical structures.

The Government is only too keenly aware of the great significance of the applicational values of science and technology for economic development. In the Fourth Plan which has just been presented to Parliament, the chapter on long-term perspective has emphasised that "creation of conditions favourable to the application of science and technology to development assumes special significance. The improvement of science education, active and adequate Government support for developing science and technology and the planning of research in harmony with development needs have vital implications for long-term growth".

What is needed today is to take stock of our gains in science and technology and to redefine the Science Policy and evolve a Technology Policy in order to meet the challenges of the modern Space and Computer Age. This will necessitate the building up of sound relations between organisations of research, development and manufacture and the Government and the evolution of an effective strategy that will harmoniously utilise these relations to make the maximum possible use of the built-up infrastructure and scientific manpower.

It is gratifying that India's export performance in the past two years has been creditworthy, specially in non-traditional goods. However, when this is compared with the overall growth of the world trade, there is hardly any room for complaisance.

NO ROOM FOR COMPLAISANCE IN EXPORT EXPANSION

PITAMBAR PANT

ACCELERATED expansion of exports has assumed very great importance in our strategy of rapid economic progress leading to self-sustained growth as early as possible. The reasons for the emphasis on export promotion are easy to understand.

Economic growth in every developing country means rise in agricultural and industrial production, increasing capital investment for development of infrastructure of power, transport and communication, and for expanding productive capacities, and acquisition of know-how and introduction of better methods of doing things. This, in turn, requires larger foreign exchange earnings to pay for the large imports of modern machinery and equipment required for capital investment, and growing imports of raw materials, intermediate products and consumer goods, besides the import of advanced technical know-how, to meet the varied requirements of a growing economy.

There are a number of ways in which the growing requirements of foreign exchange can be met. More foreign exchange can be earned through commodity exports, invisible forms of exports, such as earnings from tourism and transportation and remittances from residents living abroad. Imports may be 'saved' and foreign exchange requirements curtailed by means of 'import substitution,' which really means producing domestically such goods as would otherwise require to be imported. A third way of dealing with the problem is to seek to bridge the gap between the foreign exchange required and the foreign exchange earned or saved by securing net foreign aid to that extent.

Edited version of the inaugural speech made at the workshop held under the auspices of National Institute of Bank Management, Calcutta

While in the transitional stage foreign aid serves a very useful purpose and is indeed unavoidable to initiate a bold course of development, in the long run we have to seek a balance between the country's foreign exchange earnings and foreign exchange payments. Both expansion of export and import substitution play an important role but emphasis may shift from one to the other depending on the stage of development and the specific situation of the country.

Import substitution can be an effective instrument provided it can be done without creating over-protected, inefficient and high-cost industries. Policies and programmes of indiscriminate import substitution carried out under the protection of high tariff or import controls, however, not only create high-cost domestic economy producing expensive products for domestic use, but also act as a severe handicap for the growth of exports. On the other hand, an economy which lays stress on export development is likely to create conditions favourable for efficient production, because sustained growth of exports, involving international competition, calls for greater cost and quality consciousness.

Earlier, in India, there was far greater stress on import substitution than on deliberate export expansion. It is only now that an increase in exports is clearly seen as fulfilling a vital role in progress towards external equilibrium. Rising imports can no longer be adduced as sufficient justification for increased aid requests. They have rather to be regarded as spurs to a vigorous export effort. In fact, with net foreign aid playing a diminishing role in the economy, the rate of growth of exports is likely to prove a critical constraint in the overall rate of development of the country. Greater availability of foreign exchange through larger export earnings also permits liberalisation of imports, thus reducing the scope for delay and inefficiency. It also provides greater possibilities of correcting imbalances in the economy arising out of mistaken calculations or unforeseen development because of the versatile use to which foreign exchange can be put.

There is a large deficit in the country's foreign trade account which is being met through foreign aid. Imports were nearly $ 2,320 million and exports $1,823 million in 1968-69, showing a deficit of $498 million. In addition, the debt servicing (interest and repayment on debt incurred) added up to $500 million and is expected to grow in future. Thus our obligations totalling $2,821 million are about 60 per cent higher than

our export earnings. As there is practically no margin on the invisibles side, there is a large gap in our balance of payments, which is a measure of our current abnormal dependence on external assistance.

The long-term perspective indicated in the Fourth Plan seeks to eliminate the dependence on net foreign aid by 1980-81. Foreign exchange payments in 1968-69 on account of commodity import, net outflow on account of invisibles, interest and amortisation on foreign debt, net private capital transactions and other items came to Rs 2,219 crore, as against the commodity export earnings of Rs 1,367 crore. The deficit of Rs 852 crore was covered by external assistance.

Exports and Imports

According to the perspective of development outlined in the Fourth Plan, while the rate of growth of net domestic product is put at 6 per cent per annum, exports are required to go up annually by 7 per cent and import (non-food) by only 5.5 per cent during the 12 years, 1969-70 to 1980-81. As a result, exports are estimated to increase from Rs 1,367 crore in 1968-69 to Rs 3,020 crore in 1980-81 and imports from Rs 1,904 crore to Rs 2,950 crore during the same period. This level of exports in 1980-81 taken with the surplus on account of invisibles, private capital transactions and other items would be sufficient to meet the commodity import requirements as well as interest obligations on foreign debt.

Various studies have been done in the Perspective Planning Division of the Planning Commission in export prospects and import requirements within the broad framework of and consistent with the long-term perspective. A broad picture of the projected composition of imports and the probable course of growth of exports by major groups for the period up to 1980-81 is given in Tables I and 2.

Table 1 : Projected value of imports – 1967-68 to 1980-81
(Rs. in crores)

Items	1967-68	1968-69	1973-74	1978-79	1980-81
Metals including metalliferous ores and scrap	200	181	355	380	450
Machinery and transport equipment and metal products	517	530	740	1,010	1,080
Crude oil and petroleum products	125	133	180	270	330
Fertilisers and fertiliser raw materials	212	185	310	385	430
Others	514	538	605	635	660
Total non-food imports	1,568	1,567	2,190	2,680	2,950
Foodgrains	518	337	30	—	—
Total imports	2,806	1,904	2,220	2,680	2,950

Table 2 : Estimates of exports by major groups—1968-69 to 1980-81
(Rs. in crores)

Group of Commodity	1968-69	1973-74	1978-79	1980-81	Annual rate of growth (%) 1968-69 to 1980-81
Agriculture and allied products	450	605	850	958	6.5
Tea	156	170	185	190	1.7
Marine products	23	48	98	116	14.4
All other products	271	387	567	652	7.6
Minerals	132	203	273	316	7.6
Iron ore	88	155	215	252	9.2
Other minerals	44	48	58	64	3.2
Manufactures	704	1,010	1,429	1,639	7.3
Cotton textiles and jute manufactures	289	333	367	380	2.3
Engineering goods	67	190	360	400	16.1
All other manufactures	348	487	702	859	7.8
Other exports unspecified	74	82	98	107	3.1
Total—all exports	1,360	1,900	2,650	3,020	6.9

Despite vigorous programmes of developing a wide range of industries in India, which will make an important contribution to import substitution, there will be a number of products for which increased imports will have to be provided. Principal among these are fertiliser materials (rock phosphate, sulphur, potash), non-ferrous metals (other than aluminium), and crude oil, for which India has neither adequate indigenous resources nor economical indigenous substitutes. Much of the increased requirements will have to be imported. Similar considerations apply to certain industrial raw materials and machinery which cannot be produced either in sufficient quantity or to requisite specifications or economically within the country. Ignoring the foodgrain imports, which are assumed to be unnecessary after 1973-74, the growth of non-food imports at 5.5 per cent per year depends critically on the success in implementing the key industrial programmes in accordance with the Plan projection.

While exports are more than doubled in 1980-81 compared to the level reached in 1968-69, the shares of total export earnings contributed by the major groups, agriculture and allied products (32-33%), minerals (10-11%), manufactures (52-54%) are not expected to undergo much change. But within the groups some items move very slowly and others much faster. For example, tea and marine products in the first major group and textiles and engineering goods in the third group provide the contrasts. Also, export of tea, cotton and jute textiles, which account for one third of total export earnings in 1968-69, are observed to grow at around two per cent per annum as against the overall growth of exports of 6.9 per cent. Their share in 1980-81 is reduced to less than one-fifth. Thus, the growth of exports has to be at a much faster rate than in the Third Plan and its composition is likely to undergo significant changes.

Increasing Trade with Socialist Countries

As regards the direction of India's export trade, a striking feature of the change is the very rapid expansion of trade with the U.S.S.R. and the socialist countries of East Europe. Their share in India's export trade increased from about 1 per cent in 1955-56 to 19.6 per cent in 1968-69, the share of the U.S.S.R. increasing from 0.5 per cent in 1955-56 to 10.9 per cent in 1968-69.

Exports to the U.S.A. increased from 13.5 per cent in 1955-56 to 17.2 per cent in 1968-69. The share of the U.K. in the country's export trade declined from 25.8 per cent in 1955-56 to 14.8 per cent in 1968-69. Exports to Africa declined from 7.7 per cent in 1955-56 to 5.4 per cent in 1968-69. The percentage share of exports to the ECAFE countries and to the European Common Market countries has been more or less maintained.

These provisional estimates are merely the starting point for organising action to promote exports. They are necessarily subject to large uncertainties, even more than other aspects of long-term projections.

One of the interesting problems of planning for exports in a bolder way for future is the need to conceptualise a pattern of trade with different countries which enables India to import her requirements on the best terms possible according to her long term plans and in a way which is mutually advantageous to her and her trading partners. This is partly an analytical and partly an operational problem. A pre-requisite is knowledge of the emerging developments—economic and technological—in different countries and careful assessment of possibilities of engaging in trade in different commodities and markets based on adequate knowledge.

Export expansion is a difficult and painstaking task. It is gratifying that India's export performance in the past two years has been creditworthy, particularly in non-traditional goods. However, when this performance is compared with the overall growth of the world trade, the very rapid expansion of exports in some developing countries, and also viewed against India's foreign exchange needs, there is hardly any room for complaisance. Fortunately there is an increasing awareness on the part of businessmen, government officials and political leaders of the urgent necessity of stepping up export drive and giving high priority to the promotion of exports and their continued growth on a stable and durable basis.

This new awareness is reflected in the long-term strategy of development of the Fourth Plan which puts great emphasis on the growth of exports at an annual rate of 7 per cent for the next 10-12 years. It finds expression in the thrust of government policy with reference to liberalisation of import procedures and investment regulation policies and incentives for activities which are intended to enlarge export earnings. It is reflected in the large number of valuable surveys and studies which have been made in the last 3 or 4 years to assess export prospects and potentials for specific commodities in specified markets and areas.

It is recognised that general exhortations and fervent appeals to patriotism will be insufficient to persuade exporters to seek markets abroad for their products or to enable them to hold these markets and keep selling their goods against keen international competition. A large-scale systematic effort is required. There are many questions to be considered in order to get the job done. There are questions of increasing the supply of exportable goods, there are problems of productivity, of costs and quality ; of management, investment policies and allocation of resources for exports; marketing techniques, better and more up-to-date knowledge of markets and competitors, financing and credit for various stages in the chain, to mention only a few. Apart from government and industry, banks can play an important part in this integrated effort.

Role of Banks

Problems in the field of export finance have become more noticeable in recent years and reflect largely the changing pattern of India's export trade which in turn is due to the growth and diversification of industry in the country. Up to the end of the Second Plan period a few primary commodities accounted for the major part of the exports. Exports were handled by well-established exporters with long-standing trade links with the importers abroad. The bulk of the finance required was for short-term accommodation. In these circumstances, the conventional facilities offered by commercial banks, such as acting as intermediaries in the collection and remittance of funds and the provision of short-term credit for carrying out the transactions, were, by and large, adequate to meet the requirements of the export sector. The banks in India have been extending pre-shipment finance for the production, the point of shipment as also post-shipment finance to cover the period from the stage of shipment to the date of realisation of the proceeds.

However, with the growth in the volume and the change in the commodity composition of exports and a gradual diversification of the export markets, there have come a large number of new entrants to the export field. The banks have to set new standards of creditworthiness or security and introduce different types of credits to meet the new requirements. For instance, while

With net foreign aid playing a diminishing role in the economy, the rate of growth of exports is likely to prove a critical constraint in the overall rate of development of the country. Greater availability of foreign exchange through large exports earnings also permits liberalisation of imports, thus reducing the scope for delay and inefficiency. It also provides greater possibilities of correcting imbalances in the economy arising out of mistaken calculations or unforeseen developments.

the commercial banks in the past confined themselves to short-term finance, some of the non-traditional exports, such as engineering products, required medium term credit.

Significant improvements have taken place recently in the export credit structure of India. These improvements primarily consist of liberalisation in the scope and procedure of re-financing facilities, reduction in the effective cost of export credit, introduction of a scheme of interest subsidy and another for direct participation by the Industrial Development Bank of India in medium and long-term export credits. Under the schemes currently in force, the Reserve Bank provides various kinds of re-financing facilities to the banks for providing credit to exporters at concessional rates.

In addition to export finance, the commercial banks have been traditionally providing a number of other facilities to exporters. These include among others, information regarding the creditworthiness of the importer and helping in the settlement of trade disputes. They are expected to play a more active part in the rapid expansion of exports at a rate which should double the export earnings every ten years.

Some of the suggestions emerging from the workshop are: (1) provision of exchange cover risk; (2) establishment of an Inter-Bank Export Information Centre; (3) need for banks to approach the problem of financing for exports as part of their overall activities in the sphere of small-scale industry, agriculture and industrial finance; (4) better information system on the credit status of importer; (5) availability of long-term funds; (6) institutional system for minimising risks over extended periods, especially of changes in exchange parties; (7) establishment of export departments in banks and formation of executive development programmes. It will be useful to view the role of banks in this activity as part of a larger organised and integrated effort in which the Government programmes and policies, the resourcefulness of business and the expertise of banks are properly co-ordinated.

'HAM DO - HAMARE DO'

DOCTORS

A cash award of Rs 5,000 will be given to a medical practitioner performing the highest number of sterilisation operations and IUCD insertions in the country. At the State and District levels, prizes of Rs 4,000 and Rs 2,000 have also been instituted with the objective of involving more and more doctors in family planning work.

Homoeopathic practitioners are also being involved in the programme. A per diem of Rs 10 has been provided for those attending orientation training courses held at the State and District levels. It is encouraging to note that 80,000 medical practioners in the country have already been involved in Nirodh distribution programme.

MASS ACCEPTANCE

About 2,38,805 more people adopted family planning during the family planning fortnight last year. During that single fortnight 176,000 sterilisations and 47,000 IUCD insertions had been performed and one million Nirodh distributed. This performance was 16.1 per cent higher than that in the same period last year, and 264.9 per cent higher as compared to that of any average fortnight during 1969-70.

LOWER BIRTH RATE IN TEA ESTATES

The birth rate in Assam Tea Estates has declined below 24 per thousand in 1969 from 47 per thousand in 1960. As a result of intensive drive for family planning in these areas since 1960, over 9,226 plantation workers have accepted sterilisation and about 43,900 women workers have accepted the loop. The acceptors of family planning service receive some pocket expenses from the Government and Rs 20 as family planning bonus from the Tea Estates. In addition, the Tea Estates grant three days special leave and an extra day for check-up.

The Indian Tea Association, already having a well-organised medicare set-up, is getting from the Government Rs 11 per IUCD, Rs 30 per vasectomy and Rs 40 per tubectomy performed. The Government will also supply sufficient quantities of conventional contraceptives among the Tea Gardens' labourers.

HOSPITALS

About 3,000 Government and private hospitals in the country will get necessary equipment for family planning work. A provision of Rs 1,400 for each of these hospitals has been made for this purpose.

As a part of the intensive drive for family planning the post-partum programme is also being strengthened and 58 major hospitals with an average performance of 3,000 deliveries have been proposed to be included in the programme. The aims of this programme are to initiate, expand and strengthen family planning within the hospital setting; emphasise the responsibilities of medicos in family welfare work; help hospitals participate in the teaching programme sfor undergraduates, post-graduates, nurses and para-medical personnel; ensure involvement of departments other than gynaecology and obstetrics in family planning work; make manpower in these hospitals available to other maternity homes and district hospitals; extend the programme to rural areas through the primary health centres and field practice areas of the hospital concerned; provide contraceptive service to other people who visit the hospitals; and to ensure provision of vasectomy service for the husbands of women who come for confinement to these hospitals.

INCENTIVES FOR FAMILY PLANNING

A centrally-sponsored scheme, costing Rs 8 crore, has been proposed for the establishment of health and family planning facilities in distant and backward areas. Under the scheme, the Central Government will provide residential facilities to the personnel of the Rural Family Welfare Centres in 400 blocks which do not have the minmum health and family planning services. The doctors working in the areas will get a special monthly allowance of Rs 150. In addition to these facilities, the Government will also arrange for water and power to these focal points, and road facilities to the Primary Health Centres.

ADMINISTRATIVE REFORMS HELP ECONOMIC DEVELOPMENT

C. V. RAGHAVULU

THE inter-relationship between administrative improvement and economic development needs no emphasis. Admittedly, economic development and political sophistication act as major forces for an administrative change, particularly in the long run. Administrative reform, if properly conceived, may hasten the pace of economic development. Conversely, unplanned and badly conceived administrative changes may hinder economic development.

That the problems of administrative improvement in India are far more complex than in the developed countries is a commonplace observation. Apart from the size and diversity of the population, the forces of tradition make administrative reform a difficult exercise; structures and procedures which are no longer relevant to present realities continue to persist. It is generally said that the administrative system is "slow, inefficient and unresponsive". Criticism of this type has come from the Press, the legislators and the informed laymen. Public criticism, though excessive and indiscriminate, seems to be a characteristic feature of the Western countries too. However, the most important weakness of the administrative system in India is considered to be its inability to carry out the social and economic policies of the Government.

The administrative structure and procedures designed at one time to serve the limited purposes of a colonial Government continue today in most of their essentials. Serious doubts have been expressed as to the adequacy and capacity of the administrative system to deal with the manifold activities thrown upon it since Independence. Similarly, the entire ethos of the Civil Service, its rigid outlook and preoccupation with routine and procedure are considered to be incompatible with progress. The trend is by no means peculiar to India. It is noticed that even in the most advanced countries like the U.S.A. and the U.K., bureaucratic rules have tended to become ends in themselves.

From the standpoint of social science research, there is no single unique, all-purpose structure, or method of administration. Each situation is shaped by its distinctive political environment, programme goals, social and cultural setting and the personality systems of the participants. The structures and method of administration best suited for the situation have to be evolved and experimented.

One of the oft-repeated questions is whether public administrators all over the world are less enterprising and prone to security than their equals in other sectors. In Italy and Turkey, for instance, it was found that bureaucrats have lower achievement-orientation than private executives; it followed that Government executives were less enterprising than managers in the private sector. But similar research in the United States has shown that there is no significant difference in the 'n' achievement of public and private employees. In anything, the public administrators, on an average, scored a little higher. Morever, the Polish administrators, serving in the public sector, scored a higher 'n' achievement than the Turks or Italians in the private sector. Apparently, there are variations from country to country.

The social scientist should also focus his attention on another aspect: to what extent the public bureaucracy is motivated by impersonal universalistic rules and regulations? While the U. S. public bureaucracy is found to be coming closer to the Weberian model, the Turkish and Italian bureaucracies seem to be more concerned with "personal alliances" and particularistic relationships. In the Indian context, it is a widely-held belief that particularist relationships are a significant aspect of the bureaucratic environment. "One's success depends on who one knows...rather than on universalistic rules which are impersonally enforced regardless of the particular situation and person involved." Furthermore, the reluctance of the Indian bureaucrat—in the public as well as the private sector—to agree to a tie-up of the financial rewards to effort or productivity and his preference for payment of regular salary indicate low scores on the achievement—ascriptive continuum. The crucial point is that if achievement orientation is essential for the operation of development progammes, we should collect evidence on the attitudes of bureaucrats in the public and private sectors. Data on such matters will be helpful in determining whether it is an advantage or disadvantage to rely too heavily upon the public sector. In the ultimate analysis it is the men occupying top managerial positions who determine the rate of economic growth.

Dr V. A. Pai Panandikar and Mr S. S. Kshirasagar have attempted a study on the attitudes of a sample of the Indian bureaucracy. The study revealed that decision-making in Government is not always based on rational considerations and that personal and familiar relations assert significant influence on the performance of official work. About half of the informants had low result-orientation, implying that they were not sufficiently concerned with achieving specific results in their work. The study, however, indicates areas in which the bureaucracy has adapted to the needs of development.

The study referred to above is a bold attempt in this direction. Yet there are several areas which require further probing. We should be interested in knowing a great deal about leadership styles. What kinds of leadership styles and patterns of supervision were related to productivity and employee satisfactions? To what extent has innovation been encouraged in public and private organisations? How far inter-group conflict is concerned with organisational success?

EMPLOYEES' ROLE IN CO-OPERATION

K. K. TAIMNI

THREE obvious factors which have a crucial role to play in any strategy to develop the co-operative movement in India are the state, the membership of co-operatives and the employees. Yet, almost always the emphasis since the very inception has been exclusively on the role, function and responsibility of the first two—the employees have, by and large, been considered to be of secondary importance. The consequences of such a serious lapse are to be seen in the halting growth which the movement has been able to make despite state assistance and sustained loyalty of the bulk of membership.

Any attempt to discuss the role of the employees in the co-operative development in the country must necessarily embrace two distinct aspects : (1) the employees' participation in management and ownership in co-operatives; and (ii) the management's attitude towards the employees.

In a rapidly changing socio-economic environment where maintenance of industrial peace and securing the commitment of the employees to the overall objectives of an organisation has become the prime concern of every management, co-operative management cannot possibly remain an exception for long. Rather, given the higher values of co-operative ideals and absence of private motives in their operations, the co-operative managements should set the pace for others in this field in securing and sustaining total and complete commitment of the employees to their goals.

Various suggestions including participation of the employees in management of the enterprise and sharing of profits have been mooted in recent years. It has even been proposed to nominate a workers' representative to the Boards of Management in a few public sector undertakings on an experimental basis. The co-operatives can really give a lead here and create conditions where the employees may completely identify themselves with the organisations they serve. Some of these steps are discussed here.

In quite a few types of co-operatives, the right of the employee to join a co-operative as a member has not been conceded on wholly tenuous grounds and thus, while paying lip-service to the lofty co-operative ideals, the employees are considered as mere cogs in the machine, reflecting an attitude which is in no way different from the one usually associated with a capitalist enterprise. Employees have as much right to become members of the co-operatives as, say, the producers or the users or the consumers and any denial to the employees to join a co-operative as members will surely justify the label of 'co-operative Capitalism' which is often given to some pseudo-co-operatives.

Another closely related aspect is that of employees' participation in management. It might sound utopian to many to suggest that employees should be given an opportunity to participate in management and be included in the Board of Directors. Still, given the social contents of a co-operative organisation, its emphasis on human values, its orientation towards the weaker sections of the community and the imperative need to create necessary motivating factors other than material incentives, which in most cases they cannot provide, there can be no better means for securing complete commitment of the employees than to induct them into the entire process of decision-making and consequently in management. It may, however, be stated that the claim of the employees to participate in management is based purely on the need to secure their commitment—the co-operative character of these organisations merely reinforces such a claim.

Problems can be visualised once such a step is taken. There will be the problem of reconciliation of the elected directors and state bureaucrats to a situation where they may have to sit along with the representatives of the employees in the Boards of Management. More than that, there is the possibility of the employees exploiting their improved position in the organisation to secure more advantages, perhaps at the cost of the members and the consumers. These are all within the realm of possibility, but are not such as should prove difficult to be tackled by the ingenuity of the collective will and wisdom of the co-operative fraternity.

Management's Attitude

The second aspect, that is, the management's attitude towards the employees, will have only a secondary importance if the principle of the employees' right to participate in ownership and management is conceded. There are, however, some aspects of this relationship which need to be repeated here. An enlightened compensation policy linked up with the individual's productivity and contribution towards the attainment of the over-all objectives, a built-in mechanism ensuring an easy smooth two-way communication system between the management and the employees, and a meticulous procedure to attend to the grievances of the employees, should constitute the sheet-anchor of the personnel management policy of a co-operative organisation. It is a sad commentary that even these simple aspects are not usually found in all the co-operative organisations in the country.

Finally, there is need for the co-operative management to appreciate the right of the employees to organise themselves into Trade Unions. The objectives of the co-operative management—its moorings and orientation—and that of the Trade Union movement run parallel to each other and the mere formation of a Trade Union among workers should not be the cause of unnecessary panic among the co-operative leadership. The era which we have now entered is that of permissive management.

Given such a framework alone, the employees will strive hard to make the co-operative organisation a live agent of social and economic change in the country.

NEED FOR A COMPREHENSIVE EDUCATIONAL PLAN

H. M. MATHUR

THE pace of educational development and change has accelerated tremendously during the last twenty years. Many countries in Asia and Africa, on attaining independence, embarked upon programmes to provide universal, free and compulsory education to all their school-age children up to the primary level at least. The recognition that education is a pre-requisite for over-all national development has led to the expansion of educational systems in all nations. Enrolments have gone up rapidly everywhere. Educational expenditures have gone up even more rapidly, not only in absolute terms but also as percentage of the GNP and the total public budgets. International funds allocated for economic development have increasingly been utilised in furthering educational activities.

Confronted with this fast-changing scene, educational administrators soon discovered that the "business as usual" approach would not take them far ; the new situation called for new ways of dealing with it. Planning, which appeared to have served the purposes of economic and social development, held out some hopes and the educators turned to it.

A New Concept

Planning in education is thus a new concept. As yet there is no generally agreed, simple definition of the term. Considerable educational research needs to be done and a lot more practical experience will have to be gained before a universally acceptable definition of "educational planning" is formulated. But already there has emerged a broad consensus of opinion concerning the nature and scope of this subject.

The concept of educational planning is today envisaged to include the following :

(a) It must be broad in scope embracing all the levels and forms of educational endeavour. A plan which is not comprehensive and fails to properly articulate primary, secondary, university, technical and other levels will inevitably produce imbalances within the eduational system. Out-of-school educational programmes, such as rural literacy campaigns, on-the-job training of factory workers, extension service for farmers and training for young mothers must have a place in an educational plan.

(b) It must be fully integrated with the country's overall plan of economic and social development. It must take into account the country's manpower requirements for development programmes and gear up schemes of technical and vocational training to the production of requisite skills. Planning must also reckon with the fact that there are important regional and social differences within a country. Educational programmes which may be appropriate for one region or one social group may be totally inappropriate for another region or social group.

(c) Educational planning must be concerned not only with quantity but quality as well. It should not merely aim at fixing quantitative targets for expansion over a period of years. More recently, educational planners have begun devoting increasing attention to the qualitative aspects and in the years to come it is sure to influence their thinking and action. The training of teachers, the efficiency of teaching methods, the elaboration of curricula, the quality of textbooks, the use of technological aids in the classroom are all important matters.

(d) Educational planning must necessarily be a long-term, uninterrupted, continuing activity. There is nothing unusual in the educational systems taking 15 to 20 years in turning out their products. Time-lags are inherent in the educational process. Therefore, planning sufficiently in advance is a sheer necessity.

The manner in which educational planning proceeds differs, in matters of detail, from one country to another because this has a lot to do with the administrative arrangements devised to carry out planning activity. Each country has its own administrative pattern and this fact largely accounts for variations to be found in the planning practices. There are, however, certain features which may be regarded as constants. It will be enough to indicate here the basic steps in the process of educational planning.

The establishment of an administrative organisation specifically for the planning work is actually the first step in the process. The planning unit must have on its staff competent statisticians, besides economists, educators and administrators. Needless to say that they must all be thoroughly conversant with the educational aims and planning techniques.

Of basic importance to the planning task is the availability of reliable statistics concerning the educational system and related socio-economic factors. The next step should, therefore, be to make a survey of the existing educational situation and the future requirements of the society. This survey should be comprehensive and cover quantitative as well as qualitative aspects of educational planning. A survey should also be made of financial resources and administrative support likely to be available for the promotion of our eduational endeavour.

Further steps in planning must be taken carefully on the basis of facts that the survey is sure to bring to surface. Success in planning would depend, to a considerable degree, on how this mass of statistical data is interpreted and employed as the quantitative foundation for projections of future development of educational systems.

Rough estimates of a country's needs in technical and higher education are usually easily available. But it is the manpower studies that yield definitive data. Educational planning, which has as its objective the development of the human resource potential, cannot proceed without this knowledge. It should be the job of the planning unit to make appropriate use of this and other relevant knowledge in the plans of educational expansion and improvement.

Priorities

An important step in the planning process is the drawing up of priorities within the various sectors of education. Availability of resources for education, always in a limited amount, precludes the possibility of pushing ahead fast all educational programmes simultaneously. But there need be no rigidity about the priorities. They can, of course, be altered if necessary.

Often, difficulties have been experienced by the educational planners not in actually framing the plan but in having it popularly accepted. This is largely due to public apathy and, to an extent, even to the indifference of those engaged in the profession of education, particularly in field work. It is important that popular support to the planning effort is secured.

A society which is expected to support the national educational goals determined by the planners, obviously must know what those goals are. Institutional planning and similar efforts at the local level can be powerful means of awakening wide interest in and popular enthusiasm for the overall educational plan of a country.

The planning process does not come to an end with the formal adoption of the plan document. Educational planning is actually a continuous process. It is the educational planner's job to keep a close watch on plan implementation. His suggestions for removing bottlenecks arising in the process of plan execution can be of great practical value.

An adequate machinery should separately exist in the planning unit to make periodic evaluation of the plan underway. Plan appraisal done from time to time yields useful lessons which the planner should always be keen to learn. Involvement of the educational planner in the evaluation programme is important to him at least for two reasons. In the first place, this can help him in adjusting the plan to the new situations arising in the course of implementation. Secondly, experiences gained in the process of plan implementation can be appropriately made use of in subsequent plans to make them more effective and efficient.

Financial Implications

Education is easily one of the largest sectors of our national life. A major share of the public budget these days is claimed by education. Apart from the regular education budget, funds and other services are usually provided by various other sources also. Still the available financial resources are no match to the current and growing needs of the educational development plans. In many countries a point has already been reached beyond which further allocations of funds to education cannot possibly be made without slowing down the pace of economic modernisation. Therefore, the realistic planning effort must not fail to take note of the financial constraints operating powerfully, particularly in the developing nations where money is most needed to expand educational services.

If financial resources are limited, the educational planner must certainly make a judicious use of them. The important thing is that choices made by the planner are invariably based on an accurate assessment of the cost-benefit considerations. The sooner cost-consciousness grows, the better. The planner must possess and develop a thorough knowledge of costs of alternative courses of action. Without sacrificing quality, much educational expansion is possible if there is willingness to put this knowledge to use.

Administrative Aspects

An educational plan framed with the greatest technical perfection may not sometimes get implemented at all. There are several factors responsible for failure to implement the plan successfully. One of them, which is at the root of practically all Plan failures, is the lack of adequate administrative machinery. Thus the role played by administration in the planning of education is vitally important.

Before putting the educational plan actually into action, it is desirable and necessary to have a detailed review made of administrative problems that are likely to arise. In many cases such reviews already made have disclosed the sad fact that the administrative personnel responsible for the Plan progress is not properly trained and oriented. Any planning endeavour which hopes to succeed must pay sufficient attention to the task of building up an adequate administrative machinery.

Participation by different kinds of specialists in the process of educational planning is inevitable. In fact, statisticians, economists, administrators, sociologists, anthropologists, psychologists, technologists and others representing a variety of specialities have all been participating in the planning of education. But it is the economists who presently dominate the scene.

Some educators have lately expressed concern over the fact that economists are now influencing the course of educational growth. They feel that thinking too much about over-all planning may deflect attention from the society's needs in education. The argument rests on the assumption that objectives of economic planning and educational goals do not have much in common.

But educators need have no worry over this matter. There is no reason to assume that the economists working in the field of eduational planning are insensitive to educational ideals. Much has been gained by the working together of economists and educators in this new venture. Economists can present facts which educators might have overlooked. In fact their contribution has added a new dimension to contemporary educational development.

Sunderbans with a vast tract of forests and fertile land still remains undeveloped. Opening up of new railway lines, development of tourist resorts and other schemes can turn it into a prosperous area.

SUNDERBANS THIRSTS FOR DEVELOPMENT

SANTWANA KUMAR DAS

SUNDERBANS, famous for its forestry and the myth of Royal Bengal tiger, had been reduced after partition to a delta of 5,600 sq. km. with a reserve forest of 2,400 sq. km. Now only a small stretch on the map of India, Sunderbans (West Bengal) with a population of 22 lakhs comprising scheduled caste persons displaced from East Pakistan and local peasants and artisans has all the problems of a backward region.

The whole area is criss-crossed with rivers, but its cultivable land has remained fallow for years, as inundation by saline water from the Bay of Bengal washes away the fertility. The area is practically without any rail or road link with the rest of the State despite its proximity to Calcutta, and as such the farmers and artisans do not get profitable markets for their products. Half the year round the people remain unemployed. Poultry products, vegetables and fish from the area might meet, to a significant extent, the increasing demand of Calcutta and suburban markets. Jute and other cash crops, which can be produced in the area, can bring handsome export earnings.

The problems of the Sunderbans can perhaps receive better attention if it is made an independent district, detached from the district of 24 Parganas with a population of 70 lakh. Besides this administrative change some infrastructural changes are also necessary. The extension of three railway lines, (a) 32-km. route from Hasnabad to Hatgacha-Pratapaditya Nagar, with railway services extending up to Sealdah station of Calcutta; (b) 19.2 km. route from Canning station to Kultali police station and Forest Office, and (c) another 57 .6 km. railway line from Lakshmikantapur to the Frazerganj sea coast village, will pave the way for all-round development of the area. No less crucial is the strategic importance of these railway links connecting the interior of the Sunderbans with Calcutta.

The proposed rural electrification scheme, covering 15 police stations in the south zone of the Sunderbans during the Plan period, will be another milestone. The West Bengal Electricity Board has to submit the necessary estimates to the Central Government for the purpose. The proposed resumption of oil drilling at Bodra in the Canning area of the Sunderbans is another scheme, likely to create beneficial impact on the economic life of the local people. This can pave the way for further industrialisation of the area.

The vital problem of resettlement of refugees, living in the meagrely-financed colonies, can also be solved through all-round development of this region.

Frazerganj, a sea-coast village in Sunderbans, and a few more coastal places could be developed into first class tourist resorts.

HIGHLANDERS' EXPERIMENTS WITH HIGH-YIELDING VARIETIES

FROM forest to the field is not a far cry. Sureshanand Nautiyal, a Divisional Forest Officer, took to farming after his retirement. He is now a progressive farmer of Chamoli, U.P. In his first attempt Sureshanand Nautiyal got 1,900 kgs of paddy per acre.

Though happy with his first achievement, Nautiyal was in no way satisfied. The other progressive farmers in the district had obtained 4,000 to 5,000 kgs per acre.

Nautiyal thought that his lower yield was due to late planting of the crop. Last year he sowed the nursery on June 4 and transplanted the crop on July 12. The farmers who sowed in early May got the maximum yield.

This fact was borne out by Kundan Singh of Rawalnagar near Gauchar in Chamoli district. He sowed the seed in the nursery in the second week of May and transplanted in the first week of July. He got 4,500 kgs of IR-8 paddy per acre.

But Dharnidhar of Taldhar village did not raise a nursery but broadcast the seeds. He sowed Taichung Native-1 and IR-8 varieties in the first week of June. Besides the recommended doses of fertilisers, he applied poultry manure as well. The yield was very impressive. Taichung Native-1 gave 5,100 kgs and IR-8 gave 5,000 kgs per acre.

The high-yielding varieties mature late in hilly tracts and farmers are therefore advised to sow early to ensure high yields.

Gyan Singh of Bandarkhand village confirmed that an early sowing of high-yielding paddy did make a difference. He was a bit late in sowing and got 4,000 kgs of Taichung Native I and 3,800 kgs of IR-8 paddy from an acre.

Top : A farmer displays his harvest of IR-8.
Bottom : Nautiyal (Extreme right), a former D.F.O. who has now taken to farming, with local agricultural officials.

GUJARAT'S EXPORT POTENTIAL

Poor Performance Has Failed to Redeem the Big Promise

HIMMAT PATEL

SINCE its inception in 1960, Gujarat has continued to develop on both the agricultural and industrial fronts. The climate for industrial investment and production is favourable due to higher level of industrial peace. However, the State's performance in exports had not been as spectacular during the last decade. In 1967-68 as against the country's total exports of Rs 1,199 crore, exports from Gujarat were only Rs 66.7 crore or about 5.4 per cent of the total exports. In view of its area, population and contribution to national production, Gujarat's share in total exports should be about 7 to 8 per cent. Accordingly this will involve an increase of Rs 135 crore to Rs 150 crore.

Till recently, exports from Gujarat comprised traditional items like cotton textiles, oilseeds, oil cakes, cotton, molasses, bananas and handicrafts. However, since last few years non-traditional items like precious stones, jewellery, engineering goods, chemicals, pharmaceuticals, plastics and plasticware, sanitaryware, pottery, engineering tools and diamonds have also entered international markets.

Cotton textiles are the principal item of exports. In 1967-68, the country's total exports of cotton textiles amounted to Rs 62.35 crore out of which Gujarat's share was Rs 7 crore or only 8.5 per cent of the total exports. This is not encouraging since Gujarat's share in total cotton textile production is 35 per cent. Out of total spindles and looms in this industry 21 per cent spindles and 30 per cent looms are in Gujarat. In addition about 27 per cent of the total imports of long staple cotton, which is used in production of fine and superfine textiles, is consumed by Gujarat textile industry.

One of the reasons for low export performance is that the domestic market is more profitable than foreign markets. The cost conditions in this industry also need proper consideration. The production of raw cotton which accounts for more than 50 per cent of the cost of production has increased three-fold during the three Plans. Its price also rose steeply as a result of which the cost of production has also gone up. This does not allow our exporters to offer more competitive prices in the markets abroad. The industry is constantly complaining about the excessive tax burden, both direct and indirect. We are not self-sufficient in production of long staple cotton. It has to be increased to save our scarce foreign exchange by curtailing imports of cotton and to enhance our exports of cotton textiles. Recently a cotton breeding station in Gujarat has developed an improved variety of cotton which can be used as a substitute for imported cotton from Sudan and Egypt. Besides the factors like rationalisation of industry, excessive tax burden and price of raw cotton need to be examined.

Gujarat can also export cotton seeds and earn foreign exchange. Neither the Government nor the exporter producers have cared much about this. One of the reasons for this is the burden of three per cent sales tax on cotton seeds which reduces export profitability. In case of deoiled cake which is a joint product of groundnut oil, Gujarat can do good export business. In the case of extracted solvent oil Gujarat tops the list of exporters. Against a total export of Rs 40 crore to Rs 45 crore in groundnut oil, the share of Gujarat is about 66 per cent of the total. No State except Gujarat has imposed sales tax on extracted solvent. On the other hand rapid fluctuations in the groundnut prices have also affected the exporters of solvent adversely.

In salt production exports also Gujarat has a leading position. In 1968 a delegation was sent to South East Asia to explore market prospects. The delegation visited Taiwan, Korea, Hong Kong, Singapore and Indonesia where there is an ever-increasing demand for salt. Japan is also a principal importer of salt in the Far East. If we take proper steps good market exists in this area for salt exports.

Sea Food

The export potential in case of goods like wool, forest produce and sea food is also sizable. The wool from Gujarat is considered to be of very good quality. Besides raw wool there is also a good scope for export of woollen carpets. Steps should be taken to establish a wool factory in Gujarat.

Sea food exports also have good prospects. Gujarat's 1,663 km-long coastline is nearly one-eigth of the country's total coast line. And yet not enough attention has been paid to sea food production. The production of fish was 50,000 tons in 1950-51 and increased to 1,24,000 only in 1967-68. This is a very poor performance. A vigorous programme is needed to boost fisheries. To begin with, fisheries and marine surveys should be undertaken and the industry has to be modernised by introducing mechanisation.

In 1960, exports of industrial goods were negligible. But it has increased to Rs 2.4 crore to Rs 3 crore. The engineering goods like steel tubes, diesel engines, power pumps, electric motors, textile machinery, dyestuff, chemicals, pharmaceuticals have entered into principal world markets and are able to compete with industrially advanced countries.

The diamond industry has developed considerably, specially in South Gujarat. This industry employs 2,500 persons in cutting and polishing. It is capable of exporting Rs 100 crore worth of diamonds by

the end of the Fourth Plan. In this industry we enjoy comparative cost advantage in the international market due to lower cost of processing. Some years back, the State Government tried to set up a training school for the diamond workers but the response from the workers was very poor and the scheme had to be abandoned.

Oil and Minerals

As a result of the oil refinery at Koyali, near Baroda, and the petrochemicals complex taking shape there with a huge investment of about Rs 150 crore, a host of other downstream industries are coming up in the industrial belt around Baroda and Bajuwa. This opens up export possibilities in oil products.

Gujarat is also rich in mineral deposits. Limestone and cements are the main mineral export items. As reported recently, an area of about 416 acres, very rich in bauxite has been discovered in Jamnagar district. The Gujarat Mineral Development Corporation has already started working in this area. The demand for calcinated bauxite is rapidly increasing in countries of Europe, and Gujarat can have its share in these markets.

The need of the moment is to undertake basic surveys regarding export potential in various sectors and sub-sectors, as has been done in Andhra Pradesh and Maharashtra. The findings of these surveys will help remove the obstacles to exports. In the case of engineering industry, the main hurdle is the shortage of raw materials because of which exporters are reluctant to entertain bulk orders. Setting up of a bank of industrial raw materials may be a helpful device. Gujarat Industrial Development Corporation in collaboration with Gujarat Small Industries Corporation and Gujarat Chamber of Commerce and Industries can manage to run this agency. Gujarat will have to ask for increased allocation of foreign exchange which has been steadily declining. Against the total requirement of about Rs 100-125 crore in 1966-67, the allocation was of Rs 74.69 crore. It came down to Rs 49.07 crore in 1967-68 and further to Rs. 36.72 crore in 1968-69.

The long coastline is dotted with 10 medium and 39 minor ports which hold strategic importance in exports from Gujarat. Fifty per cent of the total exports of Rs 66 crore in 1967-68 were handled by the medium ports. After Kandla port was declared a free trade zone, the hope of Gujarat having a modern and international port had risen high but the development of the port has been rather slow in the last two years. In 1969, a study committee was set up to study the problems of Kandla zone. The most pressing need is to link up Kandla with other ports of Gujarat and also with the hinterland which it caters. Kandla being nearer than Bombay, this will help develop import-export trade of goods to and from Punjab, Haryana, Jammu and Kashmir, Rajasthan, Western Madhya Pradesh and North West Uttar Pradesh. Thus Kandla can develop into a major port of international trade.

At present there is very little direct shipment facility because of which all exports and imports are handled at Bombay which obviously involves higher costs of transportation. Moreover, it is complained that the local taxes at Kandla are higher than at other ports. The charge on fertiliser imports at Bombay port is Rs 2.61 per tonne as against Rs 4.05 per tonne at Kandla.

The lack of adequate export finance facilities also hinders our exports. The facilities provided by the Reserve Bank of India through the commercial banks are not sufficient. Therefore the State Government and State Export Corporation should come forward to provide adequate finance to the exporters. A scheme like bonus voucher to the exporters can be introduced.

The railway freight concessions scheme for export goods should also be extended to Kandla. The goods exported from the ports of Bombay, and Calcutta, enjoy about 25 to 50 per cent concession in railway freight but this concession is not available to goods exported to Kandla.

Unfortunately, Gujarat has not been enthusiastic in promotion measures like international fairs and exhibitions. This attitude must change in order to gain entry into big international markets. In view of the big export potential of the State, the establishment at Ahmedabad of the office of the Chief Controller of Imports and Exports is a welcome step and will certainly help trade promotion in this part of the country.

QUOTATION BOX

Under an alien rule Gandhiji did not have to live in fear of physical violence. Now armed guards have to be posted to protect his statue.

—A letter in "The Statesman"

Thirty million children in the USA are malnourished and at least five million are starving according to a U.S. anthropologist, Margaret Mead.

—An AP news report

Gandhi is considered by many a politician saint. Apparently in his dealings with Bose, the politician had the better of the saint.

—N. G. Jog in his book "In Freedom's Quest"

Whenever people ask me how I'm qualified to edit a humour magazine, I tell them that I covered the last eight international monetary conferences.

—William David, Editor of "Punch", in an interview

I live on Thyagaraja Road. Thyagaraja is a musical celebrity. Will the Minister take steps to develop it as a tourist resort?

—Acharya Kriplani

Those of us who have suffered for years from the other person's smoke may have felt we were some kind of freaks.

Now along comes a survey which shows we aren't the freaks we may have feared.

Other people's cigarette smoke is among the top ten most annoying things encountered in public places.

—McLean Country News, U.S.A.

The world has seven times as many people as when Shakespeare lived. These 3.5 billion people must exist with same natural resources that the playwright's generation had, but somewhat polluted.

Prof. Harlow Shapley has calculated that each time a person draws a breath today, he takes into his lungs three nitrogen atoms used by Shakespeare. The water on your dining table contains molecules that kept your great grandfather alive.

—Littleton, U.S.A.

A NEW CONCEPT IN TRANSPORTATION

A "waitless" transportation system that can handle as many as 22,000 persons an hour has been developed in the United States as a solution to many traffic congestion problems. The system can expedite the movement of masses of people in crowed downtown districts, suburban shopping centres, major airports and similar congested areas.

The system is called Carveyor and employs a unique principle in which a network of conveyor belting proples small, wheelless cars that always are available for immediate boarding by passengers.

San Jose, California, a city of 400,000 people south of San Francisco, plans to instal a Carveyor system in its downtown area.

San Jose's new system will be six miles long, and construction of the first phase of the system is expected to begin in mid-1972.

Designed to operate at speeds up to 15 miles an hour, the Carveyor system is adaptable to surface, elevated or below-ground operation. The system means that for the first time, people moving about in crowded areas can come and go on their own time schedules with no time lost waiting for buses or sitting in automobiles as they creep along crowded city streets.

The new concept eliminates traffic congestion by greatly reducing the need for automobile and bus transportation in small geographic areas and preventing delay causing pedestrian traffic build ups at public transportation boarding stations.

Two primary applications of the Carveyor system have been foreseen. In downtown districts of large cities it would move people from perimeter parking areas into the core of the district and serve as a means of travel within the district.

At airports, Carveyor systems will be used to move people between parking lots or terminal complex entry points and terminal buildings. It could also be used to transport passengers between terminal buildings and satellite airplane boarding areas. It can be operated by two or three employees per shift with the cost of maintenance only 1.5 to 2 per cent of the total cost.

THE SHEARING GAME

Shearing a sheep every fourth minute is fun and 11-year old Nuku Smiler of New Zealand does it 134 times a day—the highest tally anywhere for his age. Dwarfed often by the sheep he handles, his 9-hour day performance is bit of a sensation in New Zealand. The Wool Board officials warmed up to South Island to watch the young shearer clip off the woolly ones. By lunchtime, the young boy's scissors had made 95 sheep lighter and before the 9-hour day was over the 134th sheep was shorn of its wool.

Nuku Smiler is not just scissors happy. He is aiming at winning the Golden Shears' international shearing contest. At the rate at which he is going it is certain he'll make it some day.

WORLD FERTILISER CONSUMPTION

During the past six years, total world consumption of fertilisers has gone up by 81 per cent, and now stands at almost 60 million tons annually.

Fertiliser demand has grown phenomenally in the less-developed countries which are experiencing a Green Revolution with high-yielding varieties of rice and wheat, and other crops.

In 1954-55, these countries used 1.4 million tons of fertilisers. This demand increased by 142 per cent in the past six years alone. In the coming five years, fertiliser demand in the emerging nations is expected to reach 15 million tons, and to 40 million tons by 1985.

IGNORAMAN

Wants to Know

If

"Loopikas" are going to be the rule rather than the exception

SILK INDUSTRY

Indian silks are finding increasing demand in Europe, the U.S.A. Japan and in more than 50 other countries all over the world. India's exports which were nearly Rs. 4.5 crore in 1958 have now reached Rs. 14.80 crore. India has drawn up a target of about Rs 59 crore for the Fourth Five Year Plan.

A study conducted by the Central Silk Board of India, recently, has shown that by providing irrigation facilities to mulberry plantations, the yield of mulberry leaf could be raised from 3,300 kg. per hectare to 16,700 kg. On the basis of this, a package programme was formulated jointly by the Government of India and the Mysore State Government for raising the production of mulberry silk from the current level of 1.4 million kg. to 3.75 million kg. within the course of ten years.

India has the unique distinction of producing all the three commercial non-mulberry silks—Tasar, Eri and Muga. The total annual production of these three varieties is about 540 metric tons. However, there is considerable potential in India for production of superior quality of tasar, grown on Oak plants in the sub-Himalayan belts of Northern India.

ESTIMATES OF UNEMPLOYMENT

EXPERTS COMMITTEE SUBMITS MAIN REPORT

THE Planning Commission used to present estimates of the backlog of unemployment at the beginning of the Plan, of the estimated increase in the labour force during the Plan period and of additional employment likely to be created through the implementation of the Plan as formulated in the earlier Plan documents. In view of the considerable divergence of opinion regarding the appropriate definitions of and suitable yardsticks for measuring unemployment and under-employment in rural-urban areas and in view of the widely differing magnitudes of unemployment worked out on the basis of various sources such as the Census, the National Sample Survey and the Employment Exchange data, it was felt that the various aspects needed a closer scrutiny. Accordingly, the Planning Commission set up in August 1968 a Committee of Experts to "go into the estimates of unemployment worked out for the previous Plan and the data and methodology used in arriving at them and to advise the Planning Commission on the various issues connected therewith, in particular, the alternative methods of analysis, computation and presentation that may be adopted for the Fourth Five Year Plan (1969-74) in the ten-year perspective of 1969-79." The Committee, which was set up under the Chairmanship of Prof. M. L. Dantwala, had Prof. K. N. Raj and Prof. D. B. Lahiri as its members. It has recently submitted its Report to the Planning Commission.

The main suggestions and recommendations of the Committee are briefly stated here. It will take a few months before the full report will become available.

In the opinion of the Committee the data available to the Planning Commission for estimating unemployment and under-employment in the past has not been adequate and the conclusions based on them were, therefore, unavoidably inaccurate, subject to an unknown margin of error. Many of the limitations of estimates of labour force, employment and unemployment are inherent in the socio-economic conditions of our country and cannot be wholly overcome by the conceptual refinements or improvements in the technique of estimation. While appreciating the desire on the part of general public for precise estimates on such vital problems as employment and unemployment, the Committee has observed that in the nature of our socio-economic situation such precision is not possible.

Concept of Labour Force

The concept of labour force as adopted in developed economies is unsuitable for an economy like ours with its preponderance of self-employment and production within the household enterprises. The main problem is that a sizable proportion of labour input in household enterprises is provided by some members of the family who have only a partial attachment to the labour market. They work in the family enterprises, without receiving any wages. They work on family farms and similar enterprises as and when required and when they do so, technically they become part of the 'labour force'; but when there is no such work, they generally revert to household work. In all probability, they would neither seek work nor be available for 'outside' work. Thus, while their inclusion in labour force —and in the calculation of unemployment—becomes misleading, their total exclusion would also fail to reflect the reality of the economic situation. In an economy like this there is very little likelihood of much chronic open unemployment throughout the year, but there would be considerable seasonal unemployment and/or under-employment. The question of the extent of under-employment is important but its measurement solely in terms of man-years is inappropriate because the income levels of under-employed, the nature of the additional work desired by them and the terms on which their labour will, in fact, be available are all relevant aspects of the problem.

As regards estimation of employment potential generated during the Plan period, the Committee has observed that reliable data are necessary on additional employment per unit of investment and/or increase in output in different sectors for making such estimates. The relevant ratios not only differ from industry to industry but are seldom the same at the margin as on the average for the same industry. Changes in technology and organisation also necessitate changes in the coefficients. While estimates of employment potential may be possible in limited sectors of the economy, it may not be feasible for large segments of the service sector and agriculture, in view of paucity of reliable data. It is also important to recognise that in a situation characterised by household and small-scale enterprises based largely on family labour and on the prevalent differences both in the attachment of family labour to such enterprises and in the intensity of their employment, it is not possible to judge how a given increase in employment potential is likely to get distributed among the labour force, even if such an increase could be somehow estimated. This is so particularly in the construction sector, which accounts for sizable investment activities in the Plan, as in reality, construction tends to be a seasonal activity and a substantial proportion of the persons engaged in construction projects tends to be employed on daily or weekly wages. The construction employment generated is, therefore, likely to be spread over a large number of persons than the estimates generally made in terms of full-time employment for 300 days.

After examining various aspects, the Committee has suggested that the most that can be attempted by way of estimation is the likely growth of employment in a few segments of the economy and for the rest, reliance has to be placed primarily on recording at frequent intervals the changes taking place in the composition of the labour force, its industrywise distribution, the wage rates for different types of labour, the intensity of employment and the numbers seeking employment. Such studies could perhaps be done through quinquennial sample surveys, which would help to throw light on the trends in labour market and make possible dependable projections of the trends in employment and unemployment in the future.

Heterogeneous Character

In the light of the above, the Committee has observed that the estimates of labour force, additional employment generated and unemployment at the beginning or end of a Plan period, presented in one-dimensional magnitude are neither meaningful nor useful as indicators of the economic situation and that the method adopted by the Planning Commission so far might be given up. The Committee has stressed that the character of our economy and consequently that of the labour force, employment and unemployment is too heterogeneous to justify aggregation into single-dimensional magnitudes. It has, therefore, recommended that studies should be undertaken to get information on the different segments of labour force, taking into account such important characteristics as region (State), sex, age, rural-urban residence, status or class of worker and educational attainment and to identify the demand likely to be generated in various regions (States) for particular categories of labour as a result of the developments envisaged under the Plan. It has further suggested that attempts should be made to obtain separate estimates of the level of unemployment during different seasons of a year among various homogeneous groups of the labour force. Further, in view of the possible difference in the peak and slack seasons in different States, it is necessary to obtain separate estimates for each State. In surveys of the labour force in urban areas, it will be necessary to have separate estimates of labour force characteristics and unemployment for towns of different size classes.

The estimates of the level of unemployment so obtained should not ordinarily be aggregated and should be presented separately for each season of quarter and for different regions with sharp variations. As a result, we shall have not one estimate of unemployment but estimates indicating the range of variations over seasons and regions. Persons who remain unemployed even during the peak seasons in rural areas will probably represent the hard core of unemployed needing special study and attention.

The Committee has further observed that it is necessary to abandon the practice of presenting the estimates simply in terms of 'employed' and 'unemployed' persons and instead try to obtain some measure of the level or rate of unemployment in the economy by reference to the daily recorded data on employment and unemployment, through collection of data about the labour time disposition of each individual during the reference week in the survey. The level of unemployment during the different seasons will be measured in terms of the total number of recorded days of unemployment, expressed as percentage of the total number of days on which the respondents report themselves to be in the labour force during the particular season. The level of unemployment so measured will show the proportion of unemployed in the labour force on any day, on the average, during the given reason, indicating the extent of under-utilisation of the available labour supply.

Data Collection

Various improvements have also been suggested in the collection and presentation of data collected through population census, National

turn to PAGE 18

EMPLOYMENT POTENTIAL OF FOURTH PLAN

THE Fourth Plan lays considerable emphasis on labour-intensive schemes, such as roads, minor irrigation, soil conservation, rural electrification, village and small-scale industries, housing, and urban development. In a statement laid on the table of the Lok Sabha on May 6 by the Prime Minister in a written reply to a question on employment potential of the Fourth Plan, it was stated that the development programmes included in the different sectors will generate substantial employment opportunities. However, the extent to which new employment opportunities will be created or there will be improvement in the earnings of those already employed in different sectors cannot be precisely quantified in the absence of reliable data.

With a view to giving a further fillip to the generation of employment opportunities in the Fourth Plan the Planning Commission has suggested to the Central Ministries and the State Governments and Union Territories to take effective steps to remove any restrictive policies which inhibit the faster growth of employment, to give employment-orientation to the programmes to be taken up under the Fourth Plan, to lay emphasis on promotion of medium and small-scale industries and on the adoption of appropriate labour-intensive technology with due regard to efficiency and economy, and to ensure adequate and timely supplies of materials at reasonable prices to industries.

A CASE STUDY

Better Cotton, Higher Yield

KARTAR SINGH GILL

SINCE long the Department of Agriculture has been educating the producers to increase the production of American cotton, while maintaining its varietal purity. But recently cotton development projects, launched by the Indian Cotton Mills Federation have come in a more significant way to help cotton growers boost up their per acre returns.

The Malaut Block of Ferozepur district is fortunate in having a Cotton Development Block. It was started in March, 1966 with its headquarters at village Virk Khera, under the direct supervision of a retired District Agriculture Officer. All staff was posted right in the village to ensure that sowing, irrigation, thinning, manuring, spraying and picking operations were carried out in time and efficiently.

A competition was held for providing incentives to the best producers by inviting entries from the interested cultivators. During the year 1967-68 the highest yield of 15.82 quintals was obtained from the field of S. Ranjit Singh Gill of village Saranwan Bodla. Major operations carried out by him were:

Six ploughings, accompanied by four plankings and thorough levelling of the field, so that fertilisers are not washed to low-lying patches ; seed rate was 8 kgs. per acre ; distance between two rows was 2½ feet and between two plants one foot. No farmyard manure was applied. However, 15 cart loads were applied to the previous wheat crop. First watering was delayed in order to allow the root system to develop better. Subsequent irrigations were applied depending upon the rainfall and level of moisture available in the soil. Special care was taken to supply irrigation at the time of bud formation, when adequate water was supplied to the crop. Two and a half quintals of *Kisan Khad* were applied in two doses half at the time of bud formation and half at the time of boll formation. One hoeing with *Kassoli* and 4 with *Tirphalies* were carried out at suitable intervals. Proper plant protection measures were taken to keep the crop disease-free. In all, nine sprays of insecticides were carried out in appropriate doses as detailed below:

Approximate date of spraying	Insecticides used
Middle of June	B.H.C. and D.DT.
1st week of July	Parathion
3rd week of July	Malathion
1st week of August	Parathion
3rd week of August	Malathion
4th week of August	Planofix
1st week of September	Sevin
3rd week of September	Planofix
1st week of October	Malathion

Even with only two sprays on an average the same progressive cultivator could obtain 5.92 quintals of cotton during the previous year.

In the project area covering 1,456 acres, some cultivator practised only 7 sprays but the average per acre yield rose significantly to 8.79 quintals.

Marketing

The Cotton Development Project played a significant role in marketing too. The project officials advised the cultivators about the maintenance of produce, because in the market neat and clean produce fetches premium price. So, for maintaining the quality of the cotton it was picked only when bolls were fully opened and days were sunny. In case of rains the picking was delayed so as to eliminate moisture. Picked cotton was kept at dry and clean places and some cultivators even used cloth sheets for this purpose. Cotton fallen from plants containing dry leaves and dust and of poor quality was kept separately. Workers employed in these operations were paid in kind. At the time of storing, precautions were taken so that the lustre of the cotton was not lost. After storage, came the problem of sale. The project officer arranged to auction all the cotton in the block co-operative, by notifying theauction date to all the interested buyers in Punjab. This better quality produce attracted many buyers. The cotton was sold at the price of Rs 193.50 per quintal with delivery at the village, as against the price of Rs 183.50 in Malaut market, 5 miles from the project area. Thus, better quality produce fetched a premium of Rs 10 per quintal to the cultivator-sellers, with a further advantage of saving in the transportation charges.

On an average per acre returns increased by Rs 87.90 because of the better quality of the produce and efficient co-operative sales arrangements.

This is a good example to be followed by co-operative sales organisations for improving the bargaining power of the cultivators.

Cotton producers in other areas too can usefully employ these techniques and raise their produce qualitatively and quantitatively.

Unemployment

(*From*) *page* 17

Sample Survey, Employment Market Information and Employment Exchanges.

The Committee is of the view that the problem of unemployment is most serious for workers who seek wage employment and in the course of development, both their proportion in the labour force and their characteristics are likely to change. Special care should, therefore, be taken to collect information regarding their position in greater depth and at short intervals.

Though, of late, attention has been focussed on unemployment among certain categories of highly educated or trained persons such as engineers, the problem is perhaps more acute, at any rate in terms of numbers, for those who are only nominally educated in the sense that they have not acquired adequate proficiency in any vocation. Many of these nominally educated persons are probably in the category of those who leave schools before matriculation or obtain a bare pass class in higher examinations. The Committee has emphasised that the problems of this group need closer study.

ABOLITION OF LAND REVENUE : NO KEY TO PROSPERITY

MATLOOB ALI KHAN

STATE Governments are now trying to abolish land revenue which for ages has been a good source of income. Even during the days of Manu land revenue was the most popular and he himself had recommended it.

From the economic point of view the abolition of land revenue may mean a substantial loss in revenue. This loss cannot be made up easily without introducing further taxation which may be undesirable from the social point of view. For instance a surcharge on irrigation rates or their enhancement may result in under-utilisation of irrigation potential. The cess on commercial crop will also affect adversely.

The imposition of non-agricultural taxes may not be helpful and this may widen the gap in the tax burdens on the two sectors, which is not justified. The abolition of land revenue even on small holdings may affect agricultural growth adversely. For example in U.P., land revenue is a little less than Rs 5 per acre. So on a holding of 6.25 acres it would not be more than Rs 30 a year, not good enough even to buy a bullock or dig a well. To collect this meagre sum, a long chain of staff including Tehsildars, Nayab-Tehsildars, Kanoongos, Ameens and Lekhpals, is maintained by the revenue department. But the abolition of land revenue does not mean the termination of their services which would further complicate things.

The abolition of land revenue will also affect the financial relations between the Centre and the States. If State Governments go on curtailing their resources, the Centre will have to increase its taxation drive to make up the loss in revenue. Will the Centre resort to this unpopular measure? Moreover, land revenue is a very easy going and helpful form of direct taxation which has remained inelastic with reference to agricultural income and revenue. Whereas the incidence of agricultural taxes has remained static over the years, the value of land has increased on account of increased irrigation facilities and land reclamation schemes. But no proportion of this rise in value has accrued to the Government.

From the table below it is evident that the total land revenue of Rs 120 crore forms one-tenth of the total revenue receipts of Rs 1268 crore. Ten years before it was one-fifth of the total revenue. This shows a falling trend in the rate of land revenue receipts against a general trend of increased agricultural incomes. Yet, land revenue still remains a big component of the earnings of the States. It would, therefore, be unwise to abolish land revenue. In the case of U.P., the land revenue receipts totalled Rs 277 crore, i.e. one-fifth of the

TAX RECEIPTS OF STATES

(*Rs in crore*)

	Land Revenue		Tax Receipts	
	Revised Estimates for 1965-66	Budget Estimates for 1966-67	Revised Estimates for 1965-66	Budget Estimates for 1966-67
Andhra Pradesh	10.23	15.01	85.01	99.28
Assam	04.80	05.15	32.31	36.41
Bihar	12.33	12.67	79.67	94.68
Gujarat	05.17	06.06	64.82	74.07
Jammu and Kashmir	00.41	00.62	06.63	09.65
Kerala	03.59	01.63	50.16	52.36
Madhya Pradesh	07.13	09.67	68.21	80.51
Tamil Nadu	05.06	06.33	98.80	117.24
Maharashtra	06.01	07.30	150.87	118.63
Mysore	05.16	05.79	59.52	69.94
Orissa	02.83	03.20	32.73	36.43
Punjab	03.13	03.68	67.26	76.34
Rajasthan	07.88	08.73	47.60	54.51
Uttar Pradesh	23.45	27.07	128.05	152.17
West Bengal	07.07	07.57	112.67	126.09
Total	104.25	120.48	1084.31	1268.31

AGRICULTURAL INCOME TAX

(*Rs in crores*)

	1965-66 (Revised)	1966-67 (Budget)
Andhra Pradesh	—	—
Assam	4.38	4.50
Bihar	0.33	0.31
Gujarat	—	—
Jammu and Kashmir	0.01	0.01
Kerala	2.10	2.10
Madhya Pradesh	—	—
Tamil Nadu	1.35	1.40
Maharashtra	0.26	0.26
Mysore	1.16	0.97
Orissa	0.05	0.04
Punjab	—	—
Rajasthan	0.04	0.04
Uttar Pradesh	0.28	0.30
West Bengal	0.70	0.65
Total	10.66	10.58

total tax receipts. In Andhra Pradesh the land revenue collection was Rs 15.01 crore about 15 per cent of the total tax receipts. Can such large chunks of earnings be dispensed with ?

On the other hand, the Finance Commission contends that the rate of land revenue tax is very low and recommends an increase in the rates of land revenue tax. Evidently only such States as are having only five or six per cent income from land revenue can resort to this abolition. If we accept the Venkatappaiah Committee's recommendation that the States may go in for more sales tax on foodgrains, then a State like U.P. with very high prices of foodgrains will not be able to impose this additional burden. Another view is that land revenue should be abolished and in its place agricutural income tax should be imposed. Table below indicates that the total agricultural income tax receipts in 1966-67 were Rs 10.58 crore or less than one-tenth of the total land revenue.

It is worth remembering here that the Finance Commission has insisted that the land revenue should be levied by all the States. It felt that there was "no historical or theoretical justification from the continued exemption from the income tax of income derived from agriculture". It was also recommended that the agricultural income tax must be levied in addition to land revenue. Therefore, it becomes clear that the abolition of land revenue is neither feasible nor beneficial either to agriculture or to the economy.

To Our Contributors

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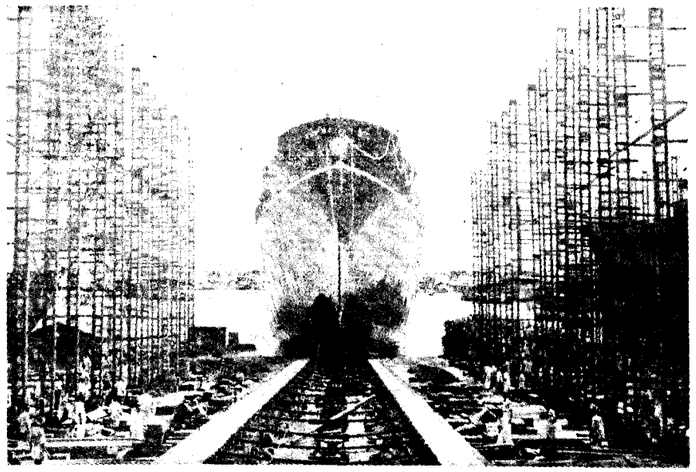
Unsolicited articles will not be acknowledged.



VISAKHAPATNAM SHIPYARD

THE idea of establishing a shipyard in India to build modern ships was conceived almost simultaneously with the formation of the Scindia Steam Navigation Company Limited in 1919. But it was only on June 21, 1941, that the foundation-stone of a modern shipyard was laid at Visakhapatnam. However, the keel-laying of the first ocean-going vessel did not take place until five years later. This was because of the scarcity of raw material, lack of skilled personnel, and setback caused by the Second World War. The first ship to sail out was the "Jala Usha", which was launched in March, 1948. After building eight ships of a series with a total tonnage of about 36,105 G.T.R., the Scindia Company was unable to finance either the construction of ships or the development of the Yard without State assistance. The Yard was taken over by the Government in March 1952. A Rs 20-million development plan was launched for the expansion of the Yard from 56 acres to 72 acres and for adding several facilities like two more berths. The tonnage increased to 1,00,000 G.R.T. by July 1958. The Shipyard, which is now manned entirely by Indian hands, won the Presidential award of "Certificate of Honour" for satisfactory performance during 1961-62.

So far, Hindustan Shipyard has built and delivered fifty ships aggregating 4,25.800 tons deadweight, which is approximately equivalent to 3,05,000 gross registered tonnage.

The successful commissioning of the Naval Survey Vessel I.N.S. "Darshak" on December 28, 1964, was an important landmark. "Darshak" is specifically designed for carrying out hydrographic surveys and is equipped with most modern electronic equipment. She is also the first Indian Naval Vessel to be fitted with diesel electric propulsion.

The Garden Reach Workshop at Calcutta, in collaboration with a West German firm, has set up a project at Ranchi to manufacture marine diesel engines for the ships to be constructed at the Shipyard and hopes to deliver the first engine in 1970-71. A Graving Dock as an adjunct to the Shipyard is to be constructed at a cost of Rs 4.08 crore and is expected to be commissioned by the end of September, 1970. This dry dock, the biggest in India, will be able to handle repairs of ships of up to 57,000 D.W.T.

Production is proposed to be raised to 80,000 D.W.T. per year. An integrated development programme costing Rs 7.57 crore is being implemented.

POULTRY DEVELOPMENT IN KERALA

T. R. THANKAPPAN
and
A. BALAKRISHNAN

KERALA'S poultry population forms 11 per cent of the total of the entire country and contributes 20 per cent of the total egg production.

To place Kerala's poultry management on sound lines, a Central Hatchery Complex was started in 1961 at Chengannur, about 120 km north of Trivandrum. The initial emphasis was on co-operative lines. The hatchery itself was to function as a base for the collection and incubation of hatching eggs on a large scale. The other features of the scheme included manufacture and supply of balanced poultry feed; improved marketing facilities for eggs and poultry meat; adequate measure to undertake strict breeding of high quality chicks; and imparting intensive training in poultry farm management to interested poultry farms.

The hatchery which started with an incubator capacity of 4,000 eggs has increased its capacity to 50,000 eggs. Besides, the hatchery also sells pullets (one day old chicks) for which there is a heavy demand. Upto 67-68 nearly 6.7 lakh chicks were distributed. There is also a feed compounding factory which produces ten tonnes of feed every day. Two types of feed—chick mash and adult mash—are produced.

Egg Supply

An egg collection and marketing scheme was started in 1964, to assure a regular market for table eggs and to supply good quality eggs to consumers at a reasonable price throughout the year. Under the auspices of the scheme, poultry breeders' co-operatives were set up for ensuring uninterrupted supply of eggs. Sales depots have been opened at all district headquarters where eggs from the Chengannur hatchery are sold. Eggs are also supplied to hospitals and to defence installations.

The hatchery imparts training to interested poultry farmers in various aspects of poultry rearing. Its chick sexing school is one of the few institutions in India where training is imparted in sexing day-old chicks (pullets) by the Japanese method. The chief merit of sexing is that poultry farmers are enabled to purchase female chicks exclusively instead of buying and rearing uneconomic male chicks as was being done earlier.

The success of a poultry development programme is conditioned by (i) incubator capacity (ii) adequate rearing space and (iii) availability of hatching eggs and feeds in adequate quantity. The hatchery as it operates at present suffers from certain inadequacies in respect of some of the factors mentioned above. Once the pre-requisites like adequate supply of pullets, feed and extension services are ensured, the Central Hatchery could play a great role in Kerala's poultry development.

Bird Farm

A sixty-bird farm would cost a capital outlay of Rs 1,000. This in turn will yield the farmer a net income of Rs 540 to Rs 600 each year. This could be laid down as the ideal size of an economic poultry farm as a household enterprise. But many of the households of agricultural labourers may not be able to take up the farm of this size for various reasons. For them even a flock of 10 birds per household will help to raise the family income by a margin of Rs 90 to Rs 100 each year. Thus a scientifically drawn up poultry develoment programme would be able to boost the agricultural labourer's income. The women and children could take up poultry keeping either as an organised farm activity or as a backyard business.

FAVOURABLE TRADE BALANCE

India had a favourable trade balance of Rs 2.60 crore in March 1970. Exports (including re-exports) in March amounted to Rs 128.14 crore and imports Rs 125.54 crore.

The table below shows the trade statistics for March 1970 as compared to March 1969 :

	(In crores of rupees) *March 1969*	*March 1970*
Exports (including re-exports)	115.59	128.14
Imports „ „	201.03	125.54
Balance of trade	(—) 85.44	(+) 2.60

The cumulative figures for April-March 1969-70 as compared to the same period in 1968-69 are given below :

	(In crores of rupees) *April-March 1969-70*	*April-March 1968-69*
Exports (including re-exports)	1,410.01	1,357.78
Imports	1,567.49	1,0910.2
Balance of Trade	(—) 157.48	(—) 552.42

CHINA AND JAPAN

TRADE SEPARATED FROM POLITICS

S. C. BHATT

AFTER a six-week stay in the Chinese capital a semi-official trade delegation from Japan has recently (April) signed a trade agreement with China. The two signed a joint communique on political matters in which the Japanese delegation denounced half-heartedly its own government, for its growing militarism. That is the price for the facility of trade with Peking.

For several years now trade between the two countries, which have no diplomatic relations, has been conducted on the basis of a so-called memorandum. Every year a delegation from Japan, led by some prominent member of the ruling Liberal Democratic Party known for his sympathy for China, goes over to Peking to negotiate an agreement. The trade between the two countries has been growing by leaps. Last year it showed an increase of 14 per cent with a volume of 625 million US dollars. Japan, always on the look out for markets, could hardly exclude her next-door customer with a large family of 700 million people, even if Japan has to be the mover of the resolution in the UN General Assembly against China's admission. Trade has to be separated from politics. Peking is no less realistic or cynical, whichever way you look at it. China cannot overlook the advantages of prices, freight and speedy delivery that the Japanese offer in selling their machinery and chemicals. Also, Japan is a big buyer of China's agricultural produce.

So while Peking lets off blasts of anti-Sato invective at regular intervals, Japanese businessmen are, as in previous years, the most numerous at the current Spring Fair in Canton. China extends this attitude of separating trade from politics to other countries—also West Germany, Canada, Australia—and so on. It has a large trade with the island of Singapore which has no diplomatic ties with China.

Even so, there were fears that this year's trade talks with Japan would not be an easy affair. For the past few months, especially after the Japanese Prime Minister's American tour, China has been showing genuine concern at Japan's increasing military strength. It has been repeatedly stressing that Japan is preparing to take over the American role in Asia. The visit of the Japanese memorandum trade delegation was delayed considerably, and it arrived in Peking more than two months after the expiry of the last trade agreement. Two former Cabinet Ministers, Kenzo Matsumura and Aichiro Fujiyama, were its leaders. The principal negotiator was another Liberal Democratic member of the Japanese Parliament, Yoshimi Furui. While the memorandum delegation was holding the talks, Peking received another Japanese delegation, called the "friendly" trade delegation. This delegation finished its business with alacrity, and they had no hesitation in signing a communique accepting the three principles laid down by China. These are : The Sato government should not obstruct normalisation of relations with China, it should not adopt a hostile attitude to Peking and must not pursue a Two-China policy.

The semi-official delegation took six weeks to settle matters, particularly the language of the anti-Sato communique. Neither side seems to have had it entirely its own way. After a great deal of wrangling on how to denounce militarism, a compromise was struck. Under this, China had its full say against the aggressive attitude of the Japanese government. It said the Sato-Nixon communique of last November aggravates Japan's military character, makes it the spearhead of aggression against China and would turn Japan into a military base of the United States. On its part, the Japanese delegation expressed understanding of the Chinese point of view, and said that the Sato-Nixon communique raises Japanese-U.S. military relations to a new level and agreed that Japan itself may become another Okinawa, that is an American military base.

Following the conclusion of the trade talks, the Japanese Prime Minister in a statement assured China that his government has no hostility towards Peking. At the same time Tokyo announced that it would go ahead with the proposal for giving another loan to Taiwan for trade credits. Japan's recognition and close political and trade relations with Taiwan is a thorn in Peking's side. Japan is aware of the large economic benefits from Taiwan. Trade with Taiwan last year was ten per cent higher than with Peking. Japan, besides, has extensive investments in Taiwan which is also now becoming a source for cheap labour for Japanese factories. So the pros and cons are being constantly weighed at the Japanese foreign office which works in very close collaboration with Japanese trade and industry.

How realistic the Big Powers and their economic giants are can be seen from the fact that big American chemical and machinery firms are getting ready to put through large deals with China *via* their Japanese subsidiaries. They are taking advantage of the easing of the American ban which now permits trade with China through third countries. The Japanese are aware of this and realise that if they do not keep their trade channels open with China, one fine morning the Americans and others may steal a march over them. There is a growing realisation all round that in the seventies China would be admitted to the community of nations and its large market is too tempting to be ignored.

In their realism in trade, both Japan and China are also aware of yet another complicating factor. Japan and the Soviet Union have been trying to improve their relations.

—Edited version of a radio talk broadcast by the News Services Division, A.I.R.

COMMUNITY WORK GETS BIG STUDENT RESPONSE

PETER COX

IN the coffee bars of Birmingham and Aston Universities you can still hear people talking about community action. Not as though they were discussing any impersonal, academic theory, but as something in which more than a third of them have taken part personally.

During one week last year more than 2,000 young people—studying to be chemists and dentists, metallurgists and lawyers, physicists and mathematicians—spent their time helping some of the one million people in Britain's second city, Birmingham, in the English Midlands.

Among them were the mentally handicapped and the blind, the old and the destitute, the poor and the vagrant, and the unmarried mothers--all the people who need a little extra care and attention.

The students did it neither as "do gooding Victorian paternalists", nor to improve the student "image". Most had not participated in community action before. The organisers had no idea if it would work.

Mass Participation

The one week of frenzied activity—decorating houses, building adventure playgrounds, converting a church into an arts centre and researching the problems of hypothermia—resulted in a saving to the community of $15,000 in labour costs alone and the completion of 41 individual projects.

And though this work had a marked effect on the community in material terms, it was intended to have a much greater effect on the students themselves.

"Mass participation in community action, over a short period of time makes a very important contribution for the student who takes part" uaid Alam Barr, a third-year student in politics and economics who organised the action week.

"The student quickly becomes exposed to problems which he was either unaware of or did not wish to be made aware of. The creation of an awareness of problems like lead housing, the loneliness of the old and the difficulties of the handicapped can have several effects on the individual.

"First, it may result in a long-term commitment to voluntary work aimed at alleviating some of these social problems.

"Secondly, it could create a commitment to social change—not just on a individual basis but in a wider context. A body of people who were not previously knowledgeable about particular problems could gain, as a result of community work, a knowledge of the conditions that exist and of methods to change them."

In terms of bricks and mortar, the Birmingham community action week brought about several new adventure playgrounds, newly decorated houses for people who could not afford to do it themselves, and the restoration of a dilapidated church into a building suitable for conversion into an arts centre.

One project resulted in a new factory for the mentally handicapped, another in a "test track" for blind people and their guide dogs.

Wheelchair Rally

Members of a Birmingham teenage club for motor-cyclists were given demonstrations of judo and films. They also enjoyed a pancake party. A paraplegic wheelchair rally was organised to show people confined to wheelchairs how to move about safely in a city centre.

Of the 41 projects undertaken by the two universities, only two had to be postponed—a trip for 12 underprivileged children to a holiday resort and a zoo outing for children—both because of bad weather.

All this was most creditable and impressive. But the important point the students had in mind was not the end result of their physical labour, but the increase in their understanding of community problems.

As a result of the experiences at these two universities, Alan Barr and a sociology student, Pamela Parfitt-Cook, are to set up a national body to promote community services in schools and universities throughout Britain.

Barr, who spent a year in Singapore with Voluntary Service Overseas (VSO) teaching at St. Luke's School in Simmangang, looked on this idea as a logical extension of his work at Birmingham University.

"We hope to act as co-ordinators, suggesting ideas for service and letting others arrange their timetable and find the people to do the work."

Co-operation

The effect of the mass involvement at Aston and Birmingham Universities is still being felt, both by students and staff. The authorities at both universities co-operated with the students during the last action week and it is expected that this co-operation will continue.

Planning has started on new projects to be run by the Universities in Birmingham. And the city's colleges and schools are being organised into suitable community action groups. Several hundred students from the universities now have regular social service commitments in the city as a result of their earlier participation in action week.

The students are reticent about their achievements. They prefer to talk about what they want to do next But a report about their work during the last action week said : "This has been an experimental, pioneer project which in terms of organisation and material results has proved successful. This is however only a very small beginning..."

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REPORT FROM YOJANA BHAVAN

Planning Commission in 1969-70

NINETEEN Sixty Nine-Seventy has been an eventful year for the Planning Commission, as revealed from' A Review of Important Activities and Studies, 1969-70.' The Commission, having finalised the Draft Fourth Plan (1969-70), and the Annual Plan for 1970-71, is now revising the different chapters of the Draft Plan, following the National Development Council's approval of the revised Plan outlays and allocations. The additional requirements for the Central and Centrally-sponsored schemes discussed at the high level, were further examined by the Commission.

Taking into account the recommendations of the Fifth Finance Commission in 1969, the Planning Commission recommended measures to enable the States to utilise the mobilised additional resources for augmenting the size of their Plans, and not to divert any fund for meeting the non-Plan deficit.

In pursuance of the decisions of the N.D.C. in 1969, the Commission invited proposals from the States regarding backward areas which can get concessions from financial institutions or outright grant or subsidy from the Centre.

The subject divisions of the Commission have worked out the perspectives of development over the next 12 years from 1968-69 to 1980-81 and their implications in terms of different aspects of growth.

Development Schemes

A comprehensive study of power development in north-eastern region was undertaken keeping in view the need for implementation of rural electrification schemes in the Fourth Plan. A detailed analysis of the cost of generation of electricity in nuclear power stations has also been initiated.

The changing trends of energy consumption and industrial output ratios since 1963-64 to 1966-67, as compared to earlier trends for the period 1953-54 to 1962-63 in six energy-intensive industry groups, namely iron and steel, non-ferrous metals, fertilisers, heavy chemicals, cement and textiles were also under study.

An analysis was also made of the consumption of all types of primary and secondary forms of energy, both commercial and non-commercial, for the period covering two decades from 1953-54 to 1973-74.

In agricultural sector, the projects for the potentially viable farmers are proposed to be increased from 20 to 45, while 40 projects will be taken up for the sub-marginal cultivators and agricultural labour. These will help rural employment and development.

Problems relating to integrated development of the north-eastern region comprising Assam, Manipur, NEFA, Tripura and Nagaland in the field of transport were also analysed.

A plan for dispersal of future urban population (on regional basis) through building up new townships in the south-east resource region was taken up.

Industrial Development

A number of proposals for setting up projects in the public and private sectors were examined.

Important among them are a paper corporation, a small car project in the public sector, seamless tube and gas cylinders project, a paper project by the Nagaland Government, nationalisation of sugar industry, export-oriented spinning mills in the public sector, fertiliser projects at Goa, Pardip and Mithapur; tapping of additional refining capacity in Assam, development of rayon and staple fibre industry, pumps and compressors project, tractor project and the development of Singrauli coal fields, pyrites and rock phosphate deposits in Rajasthan and petro-chemical complex.

In the social services sector, after assessment of the water supply schemes it was decided that the provisions for rural water supply should be separately shown and treated as 'earmarked' in the States' annual plans.

Guidelines were sent to the States and Union territories regarding programmes for backward classes in accordance with the recommendations of the Experts' Panel.

Emphasis was laid specially on employment-oriented programmes, with the development of labour-intensive medium and small-scale industries.

Evaluations

The functional divisions of the Commission have undertaken various evaluation programmes. The Research Programmes Committee sponsored 18 studies in 1969-70, dealing with traffic survey of Madras port, labour marketing behaviour in a developing economy, socio-economic survey of Bhilai region, impact of education on tribal life in Madhya Pradesh, industrial relations in the jute industry in West Bengal, village institutions in Punjab, industrial relations in Rajasthan, wage patterns in industries in Surat, implementation of land reforms in Andhra Pradesh, and socio-cultural implications of industrialisation in the country.

The Programme Evaluation Organisation prepared the evaluation reports on the high-yielding varieties programme, family planning programme, and community development and community listening schemes. The organisation also extended technical advice to the State organisations and trained State evaluation officers.

TWO HUNDRED YEARS OF SERVICE

SETH Sukhalal Karnani Memorial Hospital in Calcutta, formerly known as P.G. Hospital, has completed its 200th year recently.

The hospital, whose number of beds has increased to 650 from 235 in 1947, has 18 departments, with most sophisticated equipments and laboratories for further researches, and a medical college.

A pioneering institution among the modern hospitals in India, it can claim a tradition of medical researches of highest significance.

Sir Ronald Ross, the renowned discoverer of malaria parasite, worked here from 1898 to 1899. Much earlier, in 1849, Edward Hare started his experiments with quinine for curing malaria, and as a result, out of the 129 patients, all but one survived.

LETTERS

LAND MORTGAGE BANKS

Exorbitant and inimical rates of interest charged by money lenders have not prevented our villagers from turning to the money-lenders in their hour of distress. Why is it so ? Why the Land Mortgage Banks and other co-operative credit institutions are not able to compete, inspite of their low rates of interest, with the local *banias* ? The reasons are not far to seek.

In the course of a survey conducted by the Agro-Economic Research Centre of Andhra University, Waltair, many borrowers complained of the undue delay in the sanction of loans and the inappropriate time of its disbursement which made the loans cumbersome. Another complaint was that LMB loans are inadequate and that they have to resort to the moneylenders anyhow for the completion of their projects. Lastly, many were of the view that the instalments and the date and mode of their collection are not conducive to the borrowers since this compels them to sell their produce at lower rates or to borrow from the moneylenders only to repay their instalments to the LMB.

Is there a way out ? Perhaps, yes.

The moneylender and the borrower know each other well and this helps the creditor to release the money the borrower wants without undue delay. If the LMBs are to succeed, their staff must know each potential borrower thoroughly. And this is possible if the staff make frequent visits to all the villages in the area and have close contacts with the cultivators. This personal acquaintance can help reduce the time lag between the date of application and the date of sanction of a loan.

Secondly, care must be taken to release the money when the desired improvement can be effected without delay. This minimises the scope for diversion. Here the staff of the LMB, unlike the moneylender, have a special duty to see that the money is properly utilised. This, in fact, is a social obligation on the part of the LMBs.

Thirdly, realistic estimates should be made of the cost of improvements and loans sanctioned accordingly. A built-in flexibility in modifying the amount of the loan according to the actual cost helps the borrower in meeting the cost without recourse to the money lender. If, however, the loan sanctioned is more than the actual cost, then the surplus amount can be taken away by reducing the loan amount.

Fourthly, the collection of yearly instalments, which is at present designed to suit the banks' administrative convenience, must be reoriented to the convenience of the borrower. Many borrowers, the above-said survey revealed, preferred quarterly payments to annual instalments. If this is accepted, the banks should take the harvested produce as a pledge and store it in their godowns. This would help the borrower sell his produce at a fair price and repay the instalment with godown charges.

If adopted, these measures can persuade the cultivators to approach the LMBs rather than the moneylenders.

Waltair A. G. Prasad

WHITHER SOCIALIST GOALS?

The flaws in regional planning are evident from the fact that the underdeveloped areas of Vidarbha, Marathwada, eastern U. P., Madhya Pradesh, Orissa, Assam and certain parts of Bihar and Mysore continue to remain backward. The national income statistics also prove that the rich are becoming richer and the poor are becoming poorer. Our national income in real terms increased by 9 per cent in 1967-68, and the per capita income in real terms showed an increase only of 6.5 per cent. Obviously, the well-to-do classes are not making necessary sacrifices and their savings are being invested with a profit motive without regard to any social objective. As a result prices are rising while the general standard of living is falling. The gains from the planning are being concentrated in a few hands to the detriment of Plan objectives. The Plan holiday has further deteriorated the situation. Under the prevailing conditions India will never reach the socialist goals she has set for herself.

Kanpur M. Pratap

NATION'S PROBLEMS

I read with great interest articles published in '*Yojana*', which always deal with some significant aspects of India's economic development. *Yojana* gives me an opportunity to understand the nation's problems. Such an understanding and interest in the nation's problems will go a long way in clearing the obstacles in the path of progress. I have faith that our economic development has a glorious future.

Barapani, Meghalaya Charles K. Murmu

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BOOKS

SHIFTING CULTIVATION

Economic Problems of the Jhumias of Tripura by J. B. Ganguly. Published by Bookland Pvt. Ltd., Calcutta, 1969. Rs 16.

B. N. Nair

AGRICULTURAL development policies in relation to subsistence economies including that of India appear to be swinging in the direction of employing labour saving technology and achieving high levels of produtivity rather than preoccupying themselves with the painstaking study of pre-condition stages for all-round development. The problems of shifting cultivation dealt with in this book go to the root of this dichotomy in the approach implicit in the 'Green Revolution' enjoined by foreign counsel and that which is gradualist under the existing realities of India. Indeed, basically it has been recognised in certain quarters that there is a need to reorient the Fourth Plan so that there is a proper division between areas affected by *jhuming* or shifting cultivation and those areas under stable agriculture. The proposal to extend Integrated Development Programmes to the hill areas introduce a new dimension which, at any rate, counters the criticism of partial structuralism directed against Indian agricultural development policies and strategies by certain informed critics abroad. All the same, it is undesirable that the anthropological realities behind our agricultural development, particularly in the tribal belts, should remain unappreciated any longer by the impatient coterie of mathematically-oriented economists with an affluent urban background and such others whose knowledge of the economic geography of India is defective in the extreme.

Shifting cultivation, known more generally as slash-and-burn cultivation, has been practised under various names by our tribal peoples inhabiting the hill forests of Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Orissa, Manipur, Tripura and Vindhya Pradesh. In all over 26.7 million acres of land has been estimated to be under this type of cultivation of which 1.6 million acres are in the Union Territory of Tripura alone. Nagaland with a total geographic area of 1.7 million hectares has over one million hectares affected by *jhuming* practices.

The stable area under agriculture in all the affected States has apparently decreased with the increase in population and perhaps also due to de-tribalisation. The actual extent and nature of the problem have varied from State to State and these are intertwined with problems of the economic and social organisation of the tribals. An integrated study of these on an all-India basis on scientific lines is yet to be attempted although it is widely realised that this cannot be put off any longer.

Slash-and-burn cultivation has been looked upon in all parts of the world with varying degrees of disfavour, depending on how primitive tribal life has been viewed in the context of the need for rapid agricultural development. This is a subject of current interest in several African countries.

Economists specialising in subsistence agriculture like Colin Clark, have been interested in comparative studies of the density at which a primitive population can live under different forms of primitive means of subsistence. It has been observed that shifting cultivation has the least capacity among the different systems of primitive production to support population per square kilometre. Opinions in India have alternated between two poles, namely, the tolerant anthropological view point of Dr Verrier Elwin that the evil consequences of shifting cultivation (*bewar* among Baigas) have been exaggerated and that of the chief advocate of precision in anthropology in the person of N. K. Bose who was responsible for inspiring the author of the book under review. Himself a noted anthropologist, N.K. Bose, former Director of the Anthropological Survey of India, has consistently stressed the need for ascertaining the land carrying capacity under *jhuming* (chapter IX) before policy measures are framed to control the spread of *jhum* cultivation. Experiences of other countries such as Belgian Congo in the settlement of the Azande tribes and those in Anglo-Egyptian Sudan have been the subject of much comment among the votaries of economic anthropology, although these are far from the stage of influencing official thinking in this country.

Basically, the schemes of development in Africa under international auspices or those under the guidance of the former European colonial power have been aimed at reforming the *modus operandi* of shifting cultivation so that it would lead to a rise in the income of the cultivators and at the same time promote soil conservation. The main aim has been, therefore, to prepare the shifting cultivators for the transition from shifting to fixed cultivators (page 124). The essence of the *karamchhera jhumia settlement colony* under the Jhumia Settlement Scheme undertaken by the Government in Tripura has encompassed the above ideals also. More recently, the Centre has proposed to Nagaland the adoption of Area Development Project in certain districts affected by *jhum* cultivation and recommended integrated measures of soil conservation, minor irrigation, horticulture, afforestation and programmes of agricultural production, animal husbandry and fisheries. If these Integrated Area Development Projects succeed in Nagaland with adequate financial support from the Centre they may well represent a signal advance over many similar projects conceived and implemented hitherto in other parts of the country to control shifting cultivation. Besides, they may serve as models for similar efforts by other States in India which are yet to give serious thought to the problem.

In any case, the sharing of organisational experience in this field of agricultural development is a desideratum for overall policy objectives, not merely among the concerned States within India but also an important necessity on the higher level of exchange and communication among economic anthropologists at the international level. This also represents an important sector

of our planning in which a considerable degree of multi-disciplinary skill could be brought to bear upon problem-oriented studies, of integrating tribal life within the matrix of regional agricultural development.

The book under review is a doctoral dissertation (Calcutta University 1962) by a trained field anthropologist in Government Service. Hence, in the delineation of the scope of the thesis as well as its methodology, there is obviously the requisite consistency and focus born of empirical experience. Although it purports to be a study of the socio-economic system of shifting cultivation in Tripura, it has a broader sweep of both the general and particular issues of shifting cultivation in other parts of India and also of some parts of the world. There is considerable merit in the statement of the fundamental problem that the change from shifting to field cultivation should be properly and sympathetically guided by official agencies and that unimaginative measures should be avoided. The author's findings on the causes of the limited success (failure ?) of the colonisation scheme at Karamchhera are also revealing about the pitfalls of similar schemes.

Both in terms of its conception and analytical apparatus, it is easily the first methodological study of the problems in this field from the standpoint of economic anthropology with a special focus on ecological and sociological considerations germane to its treatment. Perhaps, for the first time, an attempt has been made to quantify the income, expenditure and debt of the tribal families that live on *jhum* cultivation, based on first-hand survey, employing statistical techniques. The study, therefore, is a welcome addition to the scanty literature on the subject. Fortunately, the attention of the Agro-Economic Centres at Jorhat and Jabalpur, not to speak of important official and non-official agencies, has been drawn in recent years to this and allied subjects of tribal economics that have considerable relevance in the context of our agricultural development under the Fourth Plan. All said and done, one might ask : Could not the production of the book been bestowed with some more care?

Social Revolt Personified

Thoughts on Dr Ambedkar—Selected articles by eminent scholars. Compiled by Hoti Lal Nim. Published by Siddharth Educational & Cultural Society. Pages 107. *Rs.* 2.

S. K. Das

THE book is a collection of 23 contributions on Dr Ambedkar, including the full text of a speech by the great leader of the Depressed Classes of India on Buddhism and Communism.

Dr Ambedkar was a child of neglect. He was born in Mahar family, a backward caste whose members were not allowed to cook in metal utensils nor their children allowed a seat in an educational institution alongwith a caste Hindu student. He rose to position of leadership fighting his way through turbulent tides. Opposing Hindu elements placed hurdles in his way to success ; nothing daunted him.

He started pleading with the authorities of the time for a rightful political and social status for his men. Their response did not satisfy him. He then took to the path of agitation. The temple entry movement brought out his qualities of leadership and he became within a short time the undisputed leader of the Depressed Classes. He also fought Gandhiji and wrested from him a promise of reservation of seats for the Harijans.

Though Dr Ambedkar's continued fight gave the people of the Depressed Classes some position in the legislatures and in the services which they never had before; it was not considered sufficient by the leader himself. He was successful in incorporating in the Constitution that untouchability would be considered an offence and would be punished, but to his great disappointment he found that his prime objective of changing the minds of the Hindus could not be attained.

Dr Ambedkar's mental suffering, agony and frustration lingered and about thirty years after he made the first declaration in favour of Buddhism he embraced that religion at the fag end of his career. With him about 35 lakhs of Harijans left the Hindu fold ; this meant their expression of distrust of the Hindus. For Dr Ambedkar himself the decision had much to do with the rising trend of factionalism in the organisation, the Scheduled Castes Federation.

Dr Ambedkar, according to Mr T. V. Parvate, a biographer, was essentially a believer in parliamentary democracy. The late Mr S. G. Barve, a former Member of the Planning Commission, has described Dr Ambedkar "as the symbol of social revolt". He has been variously characterised as a 'humanist', as one who fought for the betterment of education in India, a social reformer and so on. The Dalai Lama has acknowledged Dr Ambedkar's contribution to Buddhism as 'remarkable.'

The book, which has been printed with donations from various sources, is full of printing mistakes. There is no table of contents showing the list of contributions and their authors and short introductions about them. The rich material contained in the book needs fresh editing and a proper rearrangement before it is republished.

THE DISTANT WELFARE

And Miles to Go—A study of the economic distance between India and other countries by A. G. Majumdar and Miss Manashi Das. Published by Economic and Scientific Research Foundation, New Delhi. Pages 113. Rs 7.50.

B. N. Kumar

INDIA is moon-distance yet from its goal of Welfare State. She must produce, not humans as she is doing now despite all the family planning propaganda, but consumer goods and other articles of commerce and trade if she is to take her place of pride in the comity of nations.

This study compares and contrasts the growth rate of India's total and per capita production/consumption as for 1967 of 32 items with that of 27 nations—highly developed, developed, developing and underdeveloped—represented category-wise by the U. S. A., Japan, West Germany, France, England, Italy, Spain, Yugoslavia, Poland, Brazil, U.A.R. and Pakistan. Items selected for study are agriculture, population, income, labour force, metals, chemicals and consumer goods like TV sets, cement, milk, sugar, meat, fats, oils, proteins and services like transport, medical facilities and housing, constituting a fairly wide circle of economic activity.

Usually two alternative rates of growth have been considered to measure the distance. Also given is the rate of growth required by India to achieve the levels of other countries by 2,000 A. D. Focus has been particularly trained on comparison with the USA, Japan, England and Brazil.

It is well known that despite three Five Year Plans (the fourth one is under way) since 1951, India's economic advance, as measured by rate of growth in per capita real income, has been the lowest in the world, although in some sectors, like agriculture and steel, the progress has been spectacular.

As an illustration of the difficult tasks that lie ahead of India we will take per capita income into consideration. To achieve an average rate of growth of 6.3 per cent per annum the Indian economy will have to grow at the tremendous rate of 8.4 per cent per annum. It will take India 218 years at her 1950-60 growth rate of 1.6 per cent per annum to achieve the 1963 level of the USA. At this rate (1.6 per cent per annum) she is 35 years behind UAR, 63 behind the Phillipines, 83 behind that tiny country, Portugal, and two years behind even Pakistan.

A LEISURELY SURVEY

Industrial Relations in Rajasthan by Dr Dool Singh and Dr S. K. Porwal, Birla Institute of Technology and Science, Pilani. Sole distributors: Students Agency, Birla Vidyavihar. Pilani, Rajasthan. Pages 316. *Rs* 25.

K. V. Iyer

CASE studies on industrial relations, which is a very vital field, are very few in India and it is encouraging to find that more and more studies are being undertaken in this area. This survey was sponsored and financed by the Research Programmes Committee, Planning Commission, New Delhi. It comprises case studies of industrial relations in eight industrial units in Rajasthan and makes a critical analysis of the various aspects in these units having a bearing on industrial relations with special reference to the role of the trade unions, characteristics of the employees and the management, implementation of labour laws, working of the Standing Orders, Code of Discipline, functioning of the Works Committes and Labour Management relations.

The eight units which were selected in consultation with the Labour Commissioner of Rajasthan comprised two textile mills, two cement factories, two engineering concerns, one sugar mill and one glass manufacturing company. A stratified sampling method was adopted to select persons of different categories in different units to be interviewed. The preliminary work was taken up in March 1962 and the collection and tabulation of the data was completed by December 1964. However the analysis and the drafting was completed only by December 1965.

It is rather unfortunate that not only the survey took almost three years but that the publication of its results took another four years to be available to the public. Such leisurely types of studies and enormous delays in the analysis and publication render the results more or less obsolete for policy-making purposes. This publication has lost some of its utility by the enormous time lag of eight years between the preliminary work and the publication. Subject to these observations, a brief review is attempted of the salient aspects covered in the survey.

The eight concerns included very large as well as small ones from the point of view of share capital, fixed assets as well as number of employees engaged. Most of these units had one trade union each but in some units there were even upto three trade unions of a competing character. In cases where only one trade union existed, it was not powerful and was even inactive ; some of the unions ran into difficulties because of community bias and such factors. The workers in some units felt that trade unions failed to achieve any purpose and as such were not paying the regular subscriptions nor were showing interest in attending the union meetings. It was also noticed that by and large the trade unions were not viewed with favour by the managements.

The state of industrial relations varied from concern to concern. Various factors, economic and non-economic, tended to have their influence on industrial relations, specially the management policies relating to wages and bonus, appointments and promotions, security of service and working and service conditions. In most of the firms, the Standing Orders and Code of Discipline were no more than an eyewash. The Employees' State Insurance Scheme was generally unpopular in most of the units due to a variety of reasons. The Works or Joint Committees were also not functioning properly.

The authors have come to the conclusion that industrial relations were not quite satisfactory in industrial units where the management was rather autocratic. They have made several suggestions of a general character for improvement, such as following a scientific system of appointment, promotion on merit, making the wage and bonus attractive, framing proper rules and regulations for the grading of workers and fixing their pay scales, rationalsing the wage structure, making available Standing Orders and Code of Discipline in the regional language, improving the housing conditions, improving the working of the Employees' State Insurance Scheme, setting apart a portion of the union funds for welfare purposes. They have further stressed that a lasting solution to the industrial relations problem could be achieved only by the management's appreciation of the aspirations, status and role of the workers in the efficient working of the enterprises, cordial labour management relations and an effective communications system at various levels.

The publication on the whole provides a critical study of the industrial relations system and has thrown some light on possible areas of friction between management and labour and some general suggestions for improvement.

Planning Forum Survey

A VILLAGE THAT KNOWS NO PLAN BUT SENDS MOST CHILDREN TO SCHOOL

THOUGH a major portion of our five-year plans and development activities have been geared to serve the needs of rural India, there are still villages in India which have hardly felt any impact of these projects. Chinna Kommeswaram is one such village. More than four-fifths of its population even after three five-year plans, does not have the least knowledge of our plans or any other development activity, like community development projects and co-operative societies.

The findings of the socio-economic survey of this village—conducted by the Planning Forum of the Mazharul-Uloom College, Ambur—reveal that the living conditions in the village are still very primitive. The village has no proper drainage or sanitation system. Its residents are denied even the basic requirements like proper drinking water and medical facilities.

A part of the Somalapuram Panchayat of Madhanur Block, in the North Arcot district, Chinna Kommeswaram is situated at a distance of about 3 miles from Ambur. The village has about 65 houses. The survey team however covered 52 households (80%) comprising a population of 285.

The average size of the family, is less than six members, and children form 45 per cent of the total population covered. Contradictory to the national sex ratio, the number of women in this village is slightly greater (51%) than that of men. As regards children, boys are more in number (54%) than girls.

The village, though predominantly an agricultural one, exhibits some non-agricultural characteristics too. About 60% of the people depend mainly on agriculture. Of these owner-cultivators constitute 36.54%, tenant-cultivators 5.8% and agricultural labourers 17.30%. A considerable portion of the village population (40%) depends on non-agricultural sources like wood-cutting and washing, some even work as labourers in tanneries or as coolies. Subsidiary occupations which could provide employment to the agriculturists during off-season are practically non-existent.

The total income, including the income from other sources, of the 52 families surveyed, works out to Rs 94,010 per annum. The agricultural sector accounts for nearly 70% of it. The per capita income of the village is very low, Rs 330 per annum, and so is the living standard.

The consumption pattern of the village shows that 85 per cent of the income is spent on the necessaries of life. However, expenditure on entertainment is not negligible (4.12%). Expenditure on smoking and chewing of pans amounts to nearly 9%.

Net savings of the village (0.54%) constitute less than one per cent of the total expenditure of the village. Only about 8% of the total surveyed population have any knowledge about the National Savings Scheme or have any savings. The rest—about 92% of the population—do not save anything. Majority of those who save do so for religious and social purposes in hundies.

The percentage of employed adult population is 54.2, and most of the men in the working age-group, who are able, are employed. About 31% of the women are also employed in occupations suited to them, like wood-cutting, washing and cattle-rearing. Some of the school-going children also assist their parents in their jobs.

Housing is a big problem for the villagers. The majority of the houses (60%) are thatched huts with no facilities whatsoever, including electricity. Only about 40% of the houses have terraced roofs. However, a commendable feature is that almost all (98%) the families live in their own houses. The hygienic condition of the village is deplorably poor. Most of the houses are one-room tenements without any separate kitchen or bath.

Though the village is a small one, its requirements are many. There is a common well in the village, but its water is not fit for use. There is no hospital—either public or private. Therefore for any kind of medical treatment its residents have to go to Ambur, the nearest town.

The village lacks in good roads. The condition of the kachha roads becomes still worse during the rainy season. Since there are no street lights most of the people find it very difficult to go about at night.

There is only one elementary school in the village—maintained by the Panchayat union—without any proper building or other facilities. The survey reveals that only 18.56% of the men and 13.79% of the women of the village are literate. Many of the literates, however, have not even had elementary school education. But it is noteworthy that a majority of children of school-going age are attending the school.

The villagers are, in general, in favour of prohibition.

The enquiry as to how they spend their spare time revealed that only about 10 per cent of them work in subsidiary industries, when free. The rest, four-fifths' of the population, spend their spare time unproductively in going to the cinema, playing cards or listening to the radio.

Survey particulars relating to family planning reveal that nearly 72% of the households are in favour of family planning. Quite a few of them have also taken to birth control devices like vasectomy and sterilisation.

HIGH SPEED STEEL SHEETS

THE Alloy Steels Plant has successfully rolled high speed steel sheets for the first time in India. This major breakthrough will save a considerable amount of foreign exchange as the demand for these sheets is also being met entirely from imports.

High speed steel is generally used in the form of bars and forgings for tools, cutters, and so on. High speed steel sheets are ideally suited for hacksaw blades. However, some vital metallurgical problems stand in the way of the successful rolling of these sheets, the first one being the decarburisation problems. If decarb-free sheets are not used, the performance of hacksaw blades would be seriously affected owing to incomplete hardening and soft spots on surface. The Alloy Steels Plant has been successful in producing decarb-free sheets by using special processing techniques and heat treatment in controlled atmosphere.

Samples of these sheets were given to a reputed firm so long using imported sheets, for the manufacture of hacksaw blades. They found that the hacksaw blades gave an excellent performance and compared well with those made from the imported product.

The production of these sheets was possible due to the precision work done by the Plants Forge Shop, Conditioning, Heat Treatment and Bar Finishing Sections and the Sheet Mills where the major processing work was done.

A group of scientists and technicians under the leadership of Dr. G. Mukherjee, Chief Metallurgist, worked on this project. Other members who co-ordinated the project are Mr. R. B. Singh, Metallurgist (Sheet Mills), Mr. A. P. Bhatnagar, G. F. (Sheet Mills), and Mr. E. C. Shastri, Metallurgist (R. & D.).

RECTIFORMER

Heavy Electricals (India) Ltd., Bhopal, has completed the manufacture and testing of a 21676 A, 825V DC Rectiformer for Indian Aluminium Company. The Rectiformer combines a number of functions, like stepping down AC in-coming volts, regulating and rectifying to feed the aluminium smelter. Oil-cooled single-diode in-series silicon rectifiers in two cubicles, one positive and another negative, complete with protection and DC isolation are closely coupled by very short connection to the Rectifier Transformer tank.

Stainless steel tank side, all-aluminium construction of rectifier cubicle and the use of special hardware have helped in minimising the heating due to stray magnetic fields in the transformer enclosures Both the Rectifier and Rectifier Transformer are oil-cooled by separately mounted OFB coolers.

The aluminium smelter demands constant flow of power and ideally constant ampere-hour for optimum production of the metal. Keeping the local electricity tariff also in view, minimum half hour kw control has been used. The controller is designed to keep total kw consumed in any half-hour within the specified limits.

DIESEL LOCOS

Five trains pulled by 1380-horse power diesel electric locomotives using the electrical equipment manufactured by Heavy Electricals (India) Ltd., Bhopal. are now running on the metre-gauge rail lines. The locomotives are built by the Diesel Locomotive Works (DLW), Varanasi, in Uttar Pradesh. Besides, about 100 trains on broad-gauge rail lines pulled by DLW's diesel electric locomotives using traction equipment manufactured by HEIL are already rendering satisfactory service. All the electrical equipment for these locomotives was so far being imported from the U. S. A. and Canada.

The project engineering and electrical systems of the 1380 HP metre-gauge locomotives were completely developed at Bhopal to meet the performance requirement stipulated by the Research, Design and Standards Organisation (RDSO) of Indian Railways. A light weight, low voltage generator was specially developed for this application which permits full parallel connection of the traction motors. This arrangement is superior from the point of view of freedom from wheel-slip and better adhesion. Most of the other electrical equipment, such as auxiliary machines and control-gear items, are a modification to the existing equipment manufactured and supplied by HEIL to the DLW for the 2600 HP broad-gauge diesel electric locomotives, thus achieving a fair amount of standardisation.

HEIL engineers and workers take pride in having been able to develop these locomotives based entirely on indigenous talent.

BIG STEAM TURBINES

HEAVY Electricals (India) Ltd., Bhopal, are supplying two 30 MW Turbo Generator sets to Maharashtra State Electricity Board for Parli Thermal Power Station. The first set is under despatch and the second is in the assembly stage.

The turbines are non-reheat, single cylinder condensing type. The blading is of impulse type with some degree of reaction.

The turbine casing is split in the horizontal and vertical planes. The complete casing is divided into three sections—high pressure, intermediate pressure and low pressure sections. The materials used are molybdenum—vanadium steel, cast steel, and cast iron. The steam chest is integral with the high pressure top half.

Steam enters in the steam chest through the combined isolating and emergency stop valves. The exhaust end is designed for minimum aerodynamic losses and it is connected to condenser flange in transverse direction. The rotor is a single piece forging of special alloy steel. It is statically and dynamically balanced. The last blade of the turbine is about 500 mm. and rotates at a mean diameter of 1900 mm. These are made of stainless steel, are reinforced by lacing wire and are protected against erosion with satellite tips.

Regd. No. D-876

Development Diary

* The Hyderabad factory of the Bharat Heavy Electricals has successfully tested the 1.10 lakh kw turbine fabricated in its workshops.

* The Fertiliser Corporation of India has signed an agreement with an Indian firm for setting up a naphtha-based fertiliser plant at Haldia in West Bengal. The Rs 74-crore plant will produce 1.65 lakh tonnes of ammonia and 3.79 lakh tonnes of soda ash every year.

* The foundation of the Rs 30-crore Barauni Fertiliser Project has been laid. The seventh fertiliser plant in the country and the second in Bihar, it is expected to go into production by the middle of 1971. It is expected to produce 3.30 lakh tonnes of urea annually.

* A Rs 14-crore nuclear fuel complex, to support the expanding role of nuclear energy in the country, is coming up at Hyderabad. The complex with seven different plants will prepare nuclear grade uranium oxide and cladding material for the country's nuclear power plants. With the commissioning of this complex, an annual saving of foreign exchange worth Rs. 5.5 crore is expected.

* The trainer version of HF-24 Mark One, completely designed and developed by Indian engineers at the Bangalore Division of the Hindustan Aeronautics Limited, has been successfully test flown. The aircraft is capable of imparting advanced training with full armaments.

* India and West Germany have signed an agreement extending the Indo-German Export Promotion Project up to the end of 1971. Under this agreement the West German Government will provide the services of a specified number of experts in various fields of export promotion work and also provide training to Indian executives on the latest techniques of export promotion and international marketing.

* A new industrial unit in the co-operative sector with a capital of Rs 3.5 lakh has been inaugurated at Udaipur in Rajasthan. It will produce cups, bricks, various types of vases, basins and coloured toys.

* A 143-metre long bridge costing Rs 11 lakh has been constructed over river Gambhir in Rajasthan.

* The state trading scheme in firewood, timber and charcoal, undertaken by the Rajasthan Forest Department, has yielded a net revenue of Rs 26.46 lakh.

* The Minerals and Metals Trading Corporation has concluded an agreement for the export of iron ore worth Rs 4.23 crore to Czechoslovakia. The quantity of the ore under the agreement is 6 lakh tonnes.

* The foundation-stone of a television centre has been laid in Srinagar. To begin with, it will cover a population of twelve lakhs.

* The Centre has authorised the Kerala Agro-Industries Corporation to import and distribute 500 tractors from Czechoslovakia. specially manufactured for use on rice fields. These tractors would be sold to agriculturists either on cash payment or under a hire-purchase scheme.

* Exports from the state-owned Indian Telephone Industries, Bangalore, reached an all-time record of Rs 90 lakh last year, showing an increase of twenty per cent over the exports of the previous year. A notable feature was the receipt of contracts for installations in some overseas countries and for the supply of long distance transmission equipment to African nations.

* The International Development Association is to provide an interest-free credit of $35 million (Rs. 26.25 crore) to finance a Rs. 50 crore programme of agricultural loans in Gujarat. Under the programme, loans will be given to farmers for investment in minor irrigation works and farm mechanisation. The three year programme is expected to bring about an increase of over 60 per cent in foodgrain production in the farms covered by it.

Printed at Navin Press, Delhi-6 and Published by the Director, Publications Division, Patiala House, New Delhi