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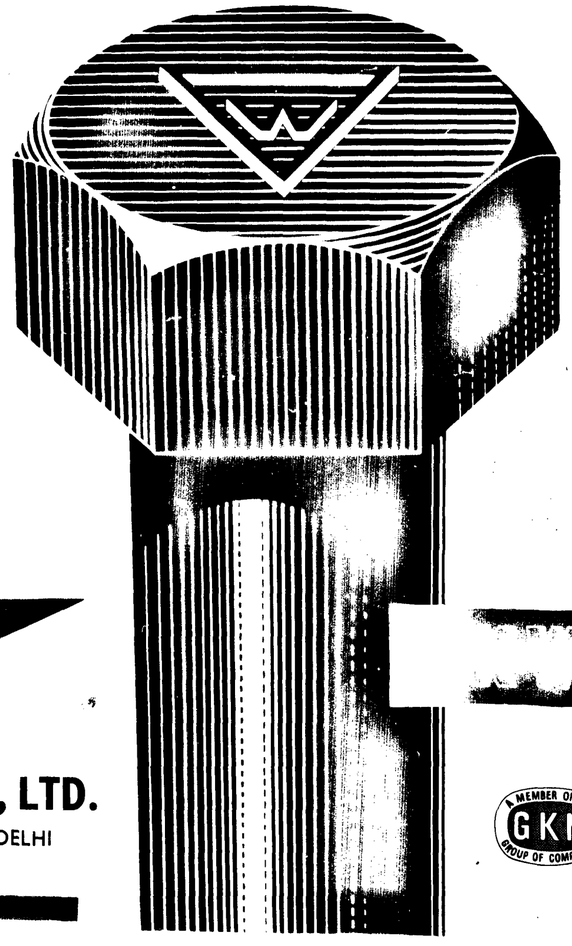

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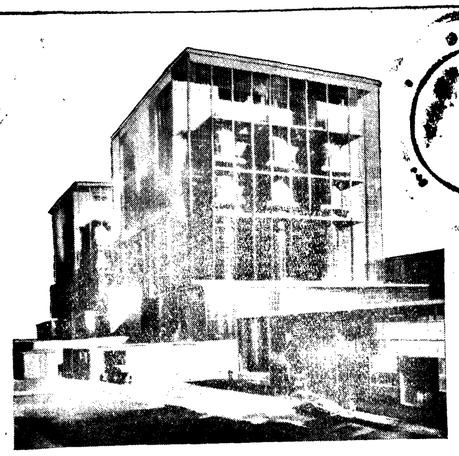
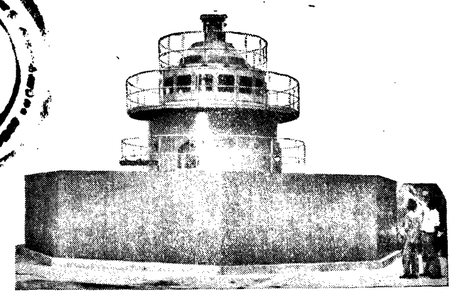
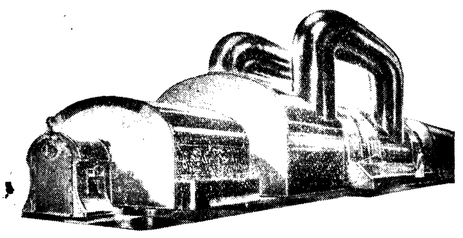


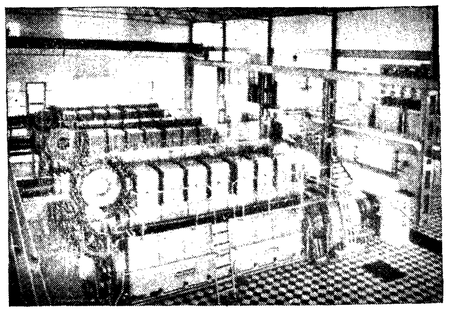
NUCLEAR. The first 500 MW Atomic Power Station is under construction at Hinkley Point, U. K., by the 'ENGLISH ELECTRIC'—Babcock & Wilcox—Taylor Woodrow Consortium. The English Electric Company is supplying six main 93.5 MW Turbo-Alternator Sets, three 33 MW Variable Speed Turbo-Alternator Sets and a fifteen-circuit 275 kV duplicate Busbar Switching Station. The Reactors to be used at this Power Station will be of 'ENGLISH ELECTRIC' design.



HYDRO. One of two 37.5 MW Water Turbine Generating Sets installed at Hirakud Power Station, Orissa. In the past 10 years the Company has supplied the entire plant for four major hydro-electric stations in India—Radhanagari, Nizamsagar, Sarda and Sengulam, and is manufacturing five—50 MW Water Turbine Generating Sets for the Rihand Power Station, U.P.



STEAM. One of five 200 MW Steam Turbo-Alternators which the Company is supplying for the High Marnham Power Station, U.K. Early this year the Company received an order for two 275 MW Steam Turbo-Alternators for the New Blyth Power Station, U.K.



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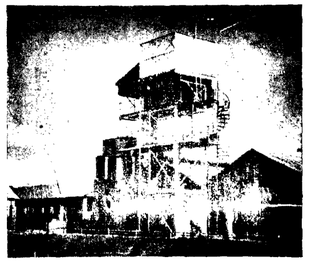

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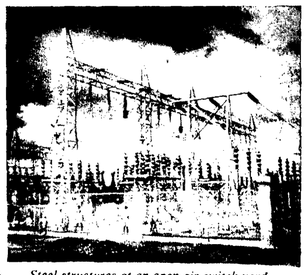

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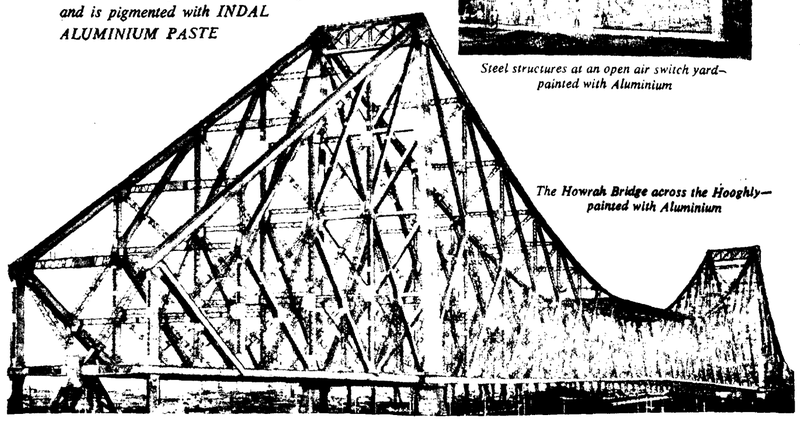

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Problems, Paradoxes and Prospects of Indian Planning

Mr. P. T. Bauer is Smuts Reader in Commonwealth Studies, Cambridge University, and Fellow of Gonville and Caius College. He is the author of a number of books and many articles on the problems of under-developed countries. His views have recently aroused considerable interest in academic circles because they represent a complete departure from what has now become the conventional, socialist-planning approach to economic development. In this article, he analyses the mistakes which India has so far made in her planning—and promises to repeat in the coming third five year plan—the wrong conceptions on which current notions about development are based, and then goes on to point out how much quicker progress could be if thinking were on more liberal and scientific lines. This view is of special importance in India today when conventional methods of planning are being subjected to increased criticism on the grounds of their costly failure, and when unyielding stubbornness in official circles and the poverty of alternative ideas among the dissenters, are threatening to lead to a third plan which will duplicate all the mistakes of the second, but this time with much more serious results.

By

P. T. BAUER

THE second half of 1959 is a suitable time for an examination of some major fundamental issues of Indian economic policy. The third plan is being formulated, and a draft of its major outlines, emanating from the Planning Commission, already circulates in the country. At the same time, public discussion may still be able to influence the shape of the next plan, as the Government is probably not yet committed formally and finally to particular policies and priorities; the second five year plan did not take final shape until the winter of 1954-55, less than 18 months before its official beginning in April 1956. Moreover, the events of the last year or two have thrown into clear relief some of the basic problems of Indian economic planning. Thus, on practical grounds, the present time is opportune for an examination of some of the underlying problems, which, besides, raise issues of considerable intellectual interest.

The principal related arguments of this article are as follows. Indian economic planning, as embodied in the second plan and the outlines of the third, is open to very grave criticism on social, political and economic grounds; current economic policy certainly obstructs the rise in general living standards, and exposes the economy to costly and unnecessary hazards; it also tends to promote a political system contrary to the traditional values of Indian society. Yet these criticisms of the specific plans and policies are not arguments for Governmental inactivity in the social and economic sphere, but for a re-orientation of Governmental effort, away from acts of economic extravagance and showmanship and restrictive control over economic life, towards measures calculated more generally and pervasively to increase the productivity, strength and flexibility of the economy and the release of the latent energy of the people.

Role of Agriculture

Substantial or sustained rise in general living standards in India requires appreciable improvement in the methods and output of agriculture. Without these advances, there can be no general rise in living standards even if there were rapid progress in other sectors. The food requirements of India must be largely satisfied from domestic production. Imports, whether purchased with the proceeds of exports or received as loans or gifts, can make only a marginal contribution. Thus, any substantial improvement even in food consumption by the masses of the people postulates greatly increased domestic food production. Agricultural improvement is also a condition of the development of viable industry on a sufficient scale to affect significantly the general economic position of the country. A substantial marketable agricultural surplus is necessary to provide a market for the products of industry and food for those working in it, and also to provide a substantial source of Government revenues.

The recently disclosed under-estimate of the population increase underlines the importance and urgency of agricultural improvement. The latest official estimates put the population increase at 1.8 percent to 1.9 percent annually, against the previous official estimate for the second plan of around 1.3 percent. Thus, the revised figures represent an increase of almost one half over the official estimates behind the second five year plan. The rate of increase for the third plan is now estimated at about 2 percent a year. On this basis, the decennial rate of increase would reach about 100 million in about 1966-68 without allowing for a further decline in mortality.

Although lip-service is paid to the importance of agriculture in official statements and in the planning literature, official Indian economic policy gravely under-estimates the importance and urgency of agricultural improvement, and much official action definitely obstructs it. The comparative neglect of agriculture in the second plan has often been noted, though its extent is rarely appreciated; and the adverse effect on the growth of agricultural production of many major measures of policy is widely ignored both by supporters and critics of official policy.

Priority for Industry

In the allocation of development outlay, a distinctive feature of the second plan is the emphasis on the construction of heavy industry—the development of machines to make machines to make machines, to quote the familiar and well-worn phrase. Although the general outline is familiar, some statistics indicating broad magnitudes of the distribution of emphasis may be of some interest. The volume of investment in industry originally envisaged under the second plan in 1956 far exceeded that in agriculture. Public development outlay on industry was projected at four times the combined development outlay on agriculture and animal husbandry; and the great bulk of the total development outlay in organised industry (*i.e.*, excluding cottage industry) was to be in heavy industry. The priority of heavy industry was confirmed and accentuated in 1958 when the plan was revised in view both of the foreign exchange crisis and the revealed under-estimate of the cost of several major projects, especially within the heavy industry programme in which, for instance, the cost of the three steel projects in the public sector exceeded estimates by one half. The heavy industry programme came to be officially designated as the core of the plan, and the Government decided to increase the development outlay on it sufficiently to secure the attainment of the physical projects of this programme. The higher costs of the core projects required some reductions elsewhere. Government expenditure, foreign exchange resources, and external assistance, all came to be harnessed towards the completion of the core projects.

Here are some indicators of the current priorities of the plan. After last year's revision, the cost of the heavy industry programme of the public sector amounts to about three and a half to four times the size of the development outlay on agriculture, and about four times that on roads. Yet agriculture and its ancillary activities occupy about 70 percent of the population and will remain for many decades the most important source of employment and income. Moreover, famine is, and will remain, a severe threat until agricultural output is greatly increased and the geographical mobility of men and produce greatly improved. It may be noted in passing that the plan outlay on agriculture and related activities also tends to emphasise spectacular large-scale schemes. Yet projects such as multi-purpose river schemes, or tractor stations, are unlikely to be of much benefit to the peasant who is largely unprotected against pests, uses few fertilisers, and whose standard equipment is a wooden plough. Again, the cost of one of the steel plants is double the total expenditure on elementary education, and this in a country where school facilities, even when available, are generally rudimentary, and where about four-fifths of all adults are illiterate. The inadequacy or absence of educational facilities and of a good road system retard social, occupational, and geographical mobility and thereby obstruct wider social contacts, the development of people's minds, the dissemination of new ideas, the most effective deployment of resources, and the disintegration of attitudes and customs harmful to material progress. Both the very modest Governmental effort under these headings, and the general tenor of the planning literature, show the official lack of interest in matters which are fundamental to material advance and vital for improving the quality of living.

Soviet Model

As has often been noted, both in India and abroad, the investment pattern of the second plan

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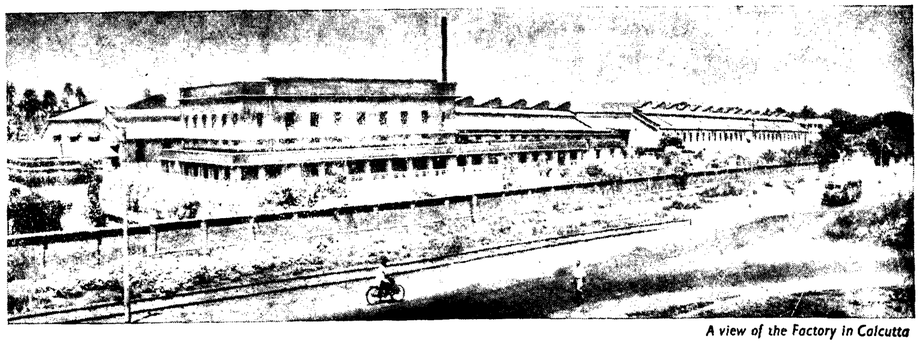

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(and also the prospective pattern of the third plan) is modelled on the Soviet five year plans. This has been aptly stated, for instance, by Mr. Andrew Shonfield, economic correspondent of the London *Observer*. He said in an address in London at the Royal Institute of International Affairs in 1957:

> "It is a Soviet-type plan. I do not use that label in any pejorative sense, but simply to indicate that it is a heavy-industry plan. And it is a Soviet-type plan which errs towards Khrushchev rather than Malenkov: that consumer gets a very small look-in. Within the total set aside for industrial development during the five-year period, rather more than half goes to steel alone, and a lot of what is left over goes into the capital goods industries. The change in the whole emphasis of Indian planning from the first to the second plan has been to reduce the proportion of agricultural investment and to increase that of industrial investment. And within the industrial sector, there is enormous emphasis on heavy industry, and, above all, on steel.
>
> "As far as the consumer is concerned, no effort at all is made in the industrial sector to fulfil his needs."

The far-reaching political implications of the adoption of the Soviet model need not be discussed here. They have been stressed in India repeatedly by Professor B. R. Shenoy, and also by Professor C. N. Vakil and Dr. P. R. Brahmananda in one of their memoranda published in the *Framework of the Second Five-Year Plan*. Nor need we go into the controversial question of the effect of Soviet economic planning on economic development and on living standards. It is, however, pertinent to note certain major relevant differences between the Soviet Union and India. The composition of available resources is quite different in the two countries, especially, of course, in the relatively greater abundance of land in the Soviet Union. Further, when economic planning in that country got under way, there was already a sizeable agricultural surplus, which the planners wished to divert to the towns and industrial centres; in India, however, the surplus is quite small and insecure. Moreover, Soviet planning has consistently paid far greater attention to education than does Indian planning, even though when it began the literacy rate was already far higher than it is in India; and Soviet planners were not faced with the immense problems presented by the scheduled castes and the prevalence of ancient and strongly entrenched customs inimical to economic progress. These are important and relevant differences between the Soviet Union and India.

Heavy Industry Wasteful

The heavy industry programme is almost certain to be economically wasteful. For instance, it ignores the highly relevant consideration of the actual or prospective demand for the products of the expensive capacity. It is the agricultural sector and the consumer goods industries which must ultimately provide the domestic market for the products of heavy industry; and their relative neglect by the planners has already been noted. In India, major branches of the consumer goods industries have for years been working far below capacity, revealing an insufficiency of market demand. The under-capacity working of several consumer goods industries is the result of a number of factors, notably the failure of the productivity of agriculture to rise significantly and the resulting inability to provide a growing market for industry; the high industrial costs which reflect in part the promotion of complex industrial activities at one end (especially in engineering), and of inefficient cottage industry at the other, and also the high level of taxation and the cost of the labour legislation; and the restriction of imported supplies essential to some industries. As the plan neglects agriculture, roads, and education, throttles private investment in branches of secondary industry where there might otherwise be an extension of capacity and subsidises high-cost cottage industry, it obstructs further the growth of the market for the capacity created under the heavy industry programme. Exports may eventually supply a market for part of this output, but this is unlikely to be a major factor. Much of the capacity is capital-intensive and/or in activities which require advanced techniques and skills, so that it is improbable that India will enjoy international competitive advantages in these activities. Moreover, other possible markets are in countries likely to be as autarkic as the Indian.

Motives behind Planning

The official explanations of the massive emphasis on heavy industry stress the necessity to develop the industrial base of the economy and the promotion of economic independence. In the words of Professor Mahalanobis's *Draft Plan Frame*:

> "In the long run, the rate of industrialisation and the growth of national economy would depend on the increasing production of coal, electricity, iron and steel, heavy machinery, heavy chemicals, and the heavy industries generally which would increase the capacity for capital formation. One important aim is to make India independent, as quickly as possible, of foreign imports of producer goods so that the accumulation of capital would not be hampered by difficulties in securing supplies of essential consumer goods from other countries. The heavy industries must, therefore, be expanded with all possible speed."

And according to the *Second Five Year Plan*:

> "The expansion of the iron and steel industry has obviously the highest priority since, more than any other industrial product, the levels of production in these materials determined the tempo of progress of the economy as a whole."

These explanations are unsubstantial. It is clearly incorrect that the prior development *locally* of a capital goods industry is necessary either for economic prosperity or for subsequent development of manufacturing industry. Countries can be both highly prosperous and industrialised without themselves having a capital goods industry; this is clear both from general reasoning, and from ample evidence from the experience and position of many developed and under-developed countries now and in the past. The meaning of the suggestion that development of heavy industry is necessary for economic independence is not clear. Professor Mahalanobis may mean the desirability of establishing a closed system, that is, an economy with only the minimum of external contacts, such as the Soviet economies. But even if this is the aim (in which case it should be brought out into the open), the heavy industry programme may still increase dependence on imports for a number of years by retarding the development of agriculture and thereby increasing the dependence on imported food. Altogether these explanations are in the nature of rationalisations rather than reasoned arguments for the paradoxical use of resources implicit in the plans.

Problem of Means

Besides the composition of development outlay and the distribution of emphasis, the aggregate investment under the plan, and its finance, also call for comment. The draft outline of the third plan as well as influential ministerial statements suggest that the lessons of the second plan in this sphere have been widely misconstrued. In particular, the relation between the size of the plan, the volume of deficit finance, and the foreign exchange problem needs to be clarified. The recent Indian exchange crisis was beyond any doubt the result of the over-ambitious nature of the second plan and of the large-scale deficit financing (that is, creation of money) which accompanied it. The large-scale deficit finance in the plan implicitly recognised the over-ambitious nature of the development programme. The necessity to finance a large part of development outlay by the creation of money measured the difference between the development outlay in the public sector and the resources at the disposal of the Government from taxation, voluntary savings, borrowings from abroad and drafts on foreign exchange resources at a rate deemed safe. It represented a shortfall of real resources, a difference between planned investment and real resources available for it. At least three economists in contact with the Government pointed out that the deficit financing envisaged in the second plan was excessive, and that it would result in inflation or a foreign exchange crisis, or both; they were Professors Milton Friedman, Nicholas Kaldor, and B. R. Shenoy.

Professor Shenoy in particular said repeatedly that the plan was over-ambitious, and deficit financing was excessive. He clearly foretold the result of large-scale creation of money. He also correctly traced the connection between the creation of money and the so-called exchange gap, a gap which again is essentially a gap in real resources, an aspect of the over-ambitious nature of the plan. It reflects the difference between domestic expenditure and domestic output at current prices. With a fixed rate of exchange, an excess of demand for goods and services at ruling prices over available supplies attracts imports and discourages exports by inflating home demand, and leads to an over-valuation of the exchange rate and a drain on reserves. It is still insufficiently understood, both in India and in the West, that the rapid running down of the Indian exchange reserves was caused by deficit financing and not by extraneous factors, such as higher import prices or bad harvests. Developments such as these do not in themselves affect the payments deficit substantially, because they result in corresponding changes in incomes and thus in the volume of consumption and investment, that is, in the volume of resources used. In themselves, they do not create or affect the foreign exchange gap. Import and exchange controls, although they are instruments of central control over the direction and composition of economic activity, are only palliatives and not remedies for a payments deficit, because they do not remove the excess demand.

Dangers of Deficit Financing

Short of complete regimentation of the economy, including direction of labour, deficit financing at anything near the level of recent years is certain to result again in internal inflation or a large external deficit, or both. And a plan of the size of the second one implies large-scale deficit finance unless there is massive foreign aid or a very great increase in taxation on the already heavily taxed exchange sector. A large increase in taxation is politically and administratively impracticable without drastic extension of State control over the economy, notably by means of Government trading monopolies, or the extension of the purpose and scope of the licensing of economic activity. Therefore, it is not accidental that the draft outline of the third plan, which is even more ambitious than the second, envisages not only further drastic increases in taxation, but also a large financial surplus from State trading in foodgrains on the Soviet model. Such policies, which are corollaries of the big, bold plans, obviously have far-reaching and pervasive social and political results, and these implications of the size of the plans need, therefore, to be understood.

The likelihood of recurring bouts of inflation and exchange crises is implicit in the espousal of big bold plans. It is increased by the widespread failure in India to appreciate the nature of the problem. Thus, it is widely believed that large-scale deficit financing can somehow activate otherwise unemployed resources, on the analogy with the possible effects of such measures during a trade depression in industrialised countries which reflects a lack of monetary demand. But in India there is not general unemployment of resources caused by a lack of effective demand, which would make possible large-scale creation of money without inflationary effects. Unemployment in India reflects essentially lack of complementary resources, not lack of effective demand. In these conditions, expansion of the supply of money is inflationary, if it exceeds the limited amount required for the additional cash balances needed for the growth of output at stable prices. It is also widely held that deficit financing will not raise prices if there is a subsequent increase in output. But such increase in output implies the earning of higher incomes, and thus cannot serve to offset the earlier creation of money, which will have already raised money prices and incomes.

Effect of Economic Policy

It is inappropriate to identify economic policy simply with development outlay and investment. Economic policy necessarily covers a wide range of matters besides the size and composition of investment expenditure, development outlay, and directly related matters. Many major elements of current economic policy distinct from development outlay and investment in India retard economic progress. In particular they retard the growth of agricultural productivity, the extension of the exchange economy and of agricultural production for sale, and they also obstruct wider social advance. The almost universal licensing of industry, transport, and commercial activity (outside the subsistence sector) raises costs and prices, retards the adoption of new methods and restricts the movement of people, ideas, and commodities. The ubiquitous restrictions on the trade in agricultural products and on their movement and transport, also have these effects; moreover, they restrict markets, which directly hampers production for sale and thus the increase in agricultural productivity. Furthermore, as such measures necessarily affect entire categories of commodities, they cannot be adjusted to allow for the conditions of particular areas, enterprises and individuals, which results in further waste. The effort, saving, and initiative which people put forward can be much influenced by the prospects of a higher or more varied level of consumption. This is particularly so in the transition from subsistence production to production for the market. The severe restrictions on both the local production and the import of consumer goods therefore affect adversely agricultural production for sale. Consumer goods serve as incentive goods for production for the market; and reduction or elimination of their supply, or a substantial rise in their prices, reduces the attractiveness of production for sale compared with subsistence production. Measures which have these adverse effects include the curtailment of the supply of locally produced and imported consumer goods, restrictive licensing of commercial and industrial activity and restrictions on the transport of agricultural produce, all of which raise the price the peasant pays for his purchases and reduce those he receives for his output; restrictions on factory production of consumer goods designed to assist cottage industry, which again raise the prices and curtail or even eliminate the supply of a wide range of consumer goods bought by the peasant; the prohibition of the sale of cheap alcoholic liquor such as toddy; and the heavy direct and indirect taxation of the exchange sector. The importance of the extension of the exchange sector and the effects of measures which remove the inducement to produce for the market, or even prevent it altogether,

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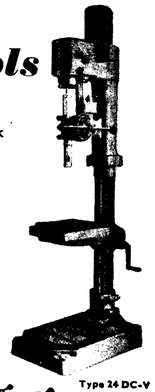

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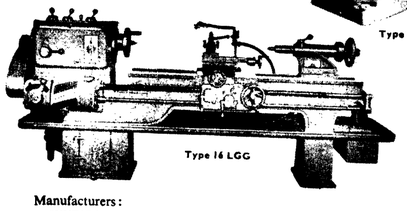

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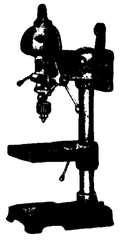

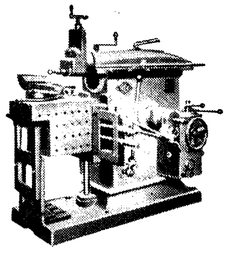

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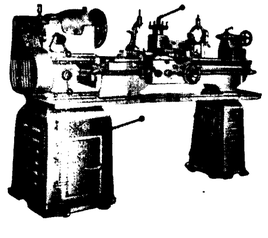

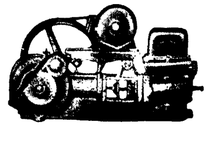

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seem to be largely ignored in economic discussion and policy in India.

Control of Private Sector

Investment and innovation in the private sector are obviously affected adversely by the extensive and close official powers of control over the private sector. Those controls based on the Essential Commodities Act and the Industries (Regulation and Development) Act place business enterprises at the mercy of the Government, so that they can function on sufferance only. The adverse effects of the extensive powers of control have been reinforced by the sudden acts of nationalisation, notably of life insurance and of the wholesale trade in foodgrains, by the steady penetration of Government into many branches of industry, commerce and transport, by the stream of hostile official utterances against the private sector, and the threat to the managing agencies. Some of the activities which have been, or are being, nationalised in India, notably life insurance and the wholesale trade, are not nationalised in any other country outside the communist orbit. Moreover, there was no suggestion in the Industrial Policy Resolution that they would not be left to the private sector.

Official policy as enunciated in the Industrial Policy Resolution of 1956 does, however, reserve a wide range of industrial activity to the Government. As a corollary of reserving a large (and increasing) sector of the economy for the Government, private enterprise and investment, both Indian and foreign, are banned from a wide range of industrial and commercial activities. This restriction and exclusion affect not only private Indian investment, but also the entry of foreign capital, enterprise and skill, which inevitably retards economic development. Such measures are thus paradoxical in view of the alleged emphasis on economic advance.

Effect of Taxation

The heavy taxation of the exchange sector both by means of direct and indirect taxes retards the spread of production for the market in various ways. And the heavy taxation of business enterprises has obvious disincentive effects on investment. Some of these measures, notably restrictive licensing and controls, and even the imposition of heavy taxation, often benefit established enterprises by discouraging or preventing the entry of newcomers, and the expansion of recently established competitors. This is perhaps one reason why, until comparatively recently, these measures evoked little protest from the private sector.

Certain features of land reform, especially the prescription of maximum size of holdings, the discrimination against non-cultivating landowners and the general legal uncertainty or arbitrariness surrounding the policy, obviously retard investment in agriculture, especially by commercially progressive people from outside agriculture, which again cannot fail to affect agricultural productivity adversely. The State enactments (such as those in Uttar Pradesh, Madhya Pradesh, Mysore and Rajasthan) which prohibit the slaughter of cattle, also have obvious and substantial adverse effects on agricultural output. Lastly, labour legislation, especially the minimum wage legislation, and the requirement of compensation payment to dismissed workers, inflate industrial costs, raise prices and retard efficient industrialisation. A notable result of such legislation is that it retards the absorption into employment of rural and urban unemployed as they cannot secure employment by offering their services more cheaply than the prescribed wages.

Paradoxes in Planning

In terms of economic development, social advance, and the raising of the standards of living, Indian economic planning is compounded of perplexing paradoxes. There is the large-scale expenditure on heavy industry, regardless of cost and prospective demand, at a level many times the expenditure on education and on agriculture; there is the relative neglect and small expenditure on agriculture in the face of manifest, urgent, and indeed desperate need to raise agricultural output; there are the severe restrictions or complete bans on the supply of imported or even locally-produced consumer goods when there is an urgent need to raise living standards and provide incentives to production for the market; there are the restrictions on efficient industrial capacity to promote inefficient cottage industry, when there is a manifest need for economy in resources; there is the neglect of roads, the official restrictions on road transport enterprises, and on the movement of agricultural products, in the face of urgent need to widen markets and promote the movement of people and commodities; there are the severe restrictions on the establishment of business enterprises when the widening of opportunities is another urgent need; and there is the exclusion of private Indian and foreign enterprise and investment from a wide range of industrial and commercial activity, in the face of urgent need to encourage viable economic activity. This list could be greatly extended.

These paradoxes are partly the result of the overriding political aim of Indian economic policy. This is the establishment of a socialist economy, an economy in which the most important key sectors are owned by the Government. the private sector is subject to close Government control, and the composition and direction of economic activity determined largely by the Government. This has been the explicit and dominant aim of policy since about 1954-55.

The pursuit of this goal largely explains some of the paradoxes such as the emphasis on heavy industry as in the Soviet model, the massive Government entry into trade and insurance, the general emphasis on industrialisation coupled with the exclusion of private enterprise from many lines of industrial activity, the extensive and close control over the private sector, the support of inefficient cottage industry dependent on Government departments, and also the massive subsidisation of the co-operative movement at the expense of private trade and industry.

Political Aims

Indeed, the primary political aim of industrialisation seems to have been recognised by Professor Mahalanobis himself. The *New Age* in September 1957 summarised an unpublished report by Professor Mahalanobis dealing with his recent visit to China. The following is an extract from this report as published there:

> "The Chinese planners had realised that without adequate progress of industrialisation it would be difficult to make any effective advance in socialist transformation. The rapid development of modern industries in the public sector gave the Chinese Government a dominant position in the national economy, ensured adequate and increasing flow of resources out of the profits of the State enterprises, and placed the Government in a strong position to make a rapid advance with socialist transformation. The Chinese planners appear to have worked on the basis of a grand strategy in which a rapid development of modern industries in the public sector was the first phase."

This suggests that the merit of industrialisation is essentially that it enables the Government to dominate the economy, not that it represents the most efficient allocation of resources. The pursuit of political aims cannot be assessed solely or even largely on the basis of economic reasoning, or by reference to economic results. But recognition of the primarily political aim of Indian planning does not make economic discussion irrelevant. An understanding of the economic implications is required for an assessment of the cost of the objectives of planning, which is relevant to their acceptability. Further, it is necessary also for an assessment of the cost of alternative methods of pursuing particular objectives. For instance, the neglect of agriculture, communications, extension of production for sale, and also of education, suggests that Indian economic planning is not designed to achieve the establishment of a socialist State in the most economic fashion.

Fallacious Ideas

Indian planning is much affected by certain over-simplified or outright fallacious ideas, which are widely held elsewhere also, but which seem to be particularly influential and pervasive in India. They are partly political in origin, in that their espousal may promote particular political aims, especially the establishment of a closely controlled economy. But they are widely held also by non-socialists; and, conversely, the pursuit of socialism does not require their acceptance. It is the pursuit of a primarily political aim in an intellectual climate permeated by over-simplified or outright confused economic ideas which explain the paradoxical and costly policies, which a poverty-stricken, materially backward country, with a large subsistence sector, can ill afford.

The first of these costly notions is the naive belief, which permeates the second plan, that economic development depends largely on investment expenditure. This grossly over-simplified approach results in wasteful policies. The growth of income is certainly not a simple function of the money expenditure termed investment. Expenditure does not become productive simply by calling it investment, an obvious general consideration confirmed by much evidence ranging in time and space from the Pyramids of Egypt, through the Moghul buildings of India, to the celebrated East African groundnut scheme. Even heavy investment expenditure in certain directions need not accelerate economic development compared with the advance that would have occurred with an alternative use of resources; and, conversely, there can be much economic development with little or no investment as a result of such changes as the spread of knowledge, or the growth of the exchange economy as a result of the spread of new wants or methods, or of changes in social attitudes. The tenuous and uncertain nature of a causal (functional) relationship between investment and the growth of income is underlined when much of investment is public investment financed by taxation. Taxation not only implies a transfer of resources from the private sector (where they would otherwise have been used for consumption or investment), but the collection of taxes further discourages private initiative, saving, and effort.

Impact on Exchange Sector

The literature and the discussions on Indian planning very generally consider Government development outlay as an equivalent net addition to resources, regardless of the origin of the funds, and of the repercussions of their collection. Moreover, not only is the fact of the transfer of the funds ignored, but the different effects of different types of taxation on the private sector, and especially on the spread of the exchange economy, are also disregarded. Taxation necessarily falls on the exchange sector and (with unimportant exceptions not relevant to India, notably the imposition of taxes such as poll taxes designed to force people to earn money to pay taxes) it reduces the relative attraction of the exchange sector compared with subsistence production.

The contemporary idea that development is primarily a matter of investment is responsible for large-scale waste throughout the underdeveloped world. By spuriously justifying all expenditure termed investment, it has encouraged spending regardless of cost in terms of alternative uses of resources, and of the repercussions of their transfer. And possibly even more significant has been the resulting neglect of other influences and factors bearing on the progress, such as the emergence of appropriate economic qualities and attitudes, the advance of technical knowledge, the widening of inter-regional contacts, and the increase in the supply of complementary resources, that is, resources other than capital.

Any functional relationship between investment and the growth of income clearly depends greatly on the composition of the investment, on its method of finance, and also on the institutions and attitudes of society. This should be obvious in India, where so many social customs and attitudes are adverse to material advance. Here, even more than elsewhere, it is inappropriate to think in terms of capital output ratios, or to concentrate largely on massive investment in heavy industry.

Economic Cost of Investment

Belief in Government-assisted, large-scale industrialisation as an instrument or even condition of economic advance far antedates the advent of planning in India. It has, however, become much more influential in recent years. Yet manufacturing is simply one form of economic activity. There is no general reason why this particular deployment of resources should be most economic. Indeed, wherever there is a need for large-scale Government assistance to develop manufacturing industry, there is a presumption to the contrary, as it implies subsidisation of this activity at the expense of the rest of the economy. Much of the discussion on this subject is confused because it regards the development of manufacturing industry as an equivalent addition to resources or activity, thereby ignoring the transfer of resources from other directions, and thus the cost of this activity. And these resources may in fact be transferred from activities where their contribution to output may have been higher; and the need for subsidisation indeed sets up this presumption.

Two widely canvassed arguments behind the influential advocacy of sponsored industrialisation may be noted briefly. One is the well-known suggestion that the higher degree of industrialisation of western countries is evidence of the inherently higher productivity of manufacturing. This mistakes a symptom for a cause, because usually both the higher level of development and the presence of manufacturing reflect the possession of valuable resources, including skill and experience. In developed countries, there are also usually more motor-cars and hair-dressers than in under-developed countries, but this is no basis for a suggestion that an increase in their number would promote development. Further, prosperity and the absence of manufacturing industry are not always closely related. There are many rich agricultural areas in America, Europe, and Australasia, and some of the most prosperous areas of the under-developed world, notably Ghana and Malaya, depend on a successful cash crop. There are also many comparatively poor industrialised areas including, for example, Puerto Rico, Hongkong and, indeed, parts of India. This is quite apart from the fact that all advanced industrialised countries were already prosperous when they

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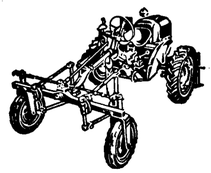

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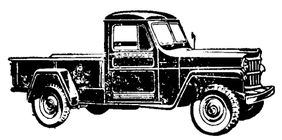

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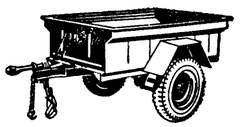

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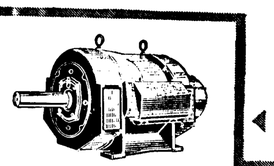

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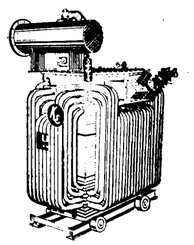

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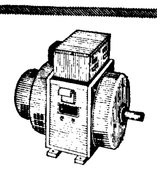

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were still agricultural and had much higher incomes than can be hoped for in India for many years ahead.

The presence of rural unemployment and the population pressure on land is often instanced as an argument for sponsoring industrialisation in India to provide employment opportunities. However, much of the land surface of India is still uncultivated and can be made cultivable by capital expenditure. It begs the question to argue that the cure for under-employment lies in sponsored industrialisation rather than in the development of agriculture or the improvement of communications. Indeed, if viable industry is to emerge in India on a substantial scale, agricultural output must first increase greatly to provide a market for industry and a food surplus for the industrial population. This consideration applies especially to the massive development of heavy industry unrelated either to the production of consumer goods or to the development of agriculture.

Comparisons with China

In recent years, it has come to be widely and influentially argued that without massive Government investment and large-scale Government-sponsored industrialisation, economic progress in India will fall increasingly behind that of China, which not only implies an avoidable retardation of economic development and of the raising of living standards, but also has grave political implications. This argument begs all the essential questions. It assumes axiomatically that such measures represent the most economic development of resources, promote development and raise the standards of living. It uncritically accepts the claims of the Chinese Government without questioning the reality of the scope of Chinese economic advance, especially in terms of the standards of living of the people. It disregards the rapid progress of the Chinese economy before the second World War, including the industrialisation in many parts of the country without central compulsion. Altogether, quite apart from the question of the content, meaning, extent, and cost of the Chinese economic advance, it is clearly inappropriate to suggest that the rate of economic advance in either China or India depends simply on Government action, especially on development planning of a particular kind.

Critical assessment of these ideas is, of course, of much more than academic interest. Not only have they much influenced the second plan but, as is clear from public discussion, ministerial statements, Congress Party resolutions, articles in the Press, and especially from the draft outline of the third plan, they are still very influential. The importance of massive investment, the simple relation between investment and income, the special rôle of heavy industry, all these are prominent both in these discussions and in the proposals for policy. The draft outline of the third plan even suggests that there should be no imports of foodgrains under that plan "in order to conserve the very scarce foreign exchange", as if there were anything more important than the most elementary of all necessities. To finance the massive investment of the public sector at a rate appreciably higher even than under the second plan, the draft outline envisages heavy additional taxation, including additional taxes on textiles and other industrial products, higher corporate, wealth and income taxes, new taxes on agricultural production, large surpluses of public enterprises (totalling Rs. 1,000 crores) and, most significant, a profit of Rs. 850 crores over five years on the trade in foodgrains. Such a profit would be possible only with determined exploitation of the Government monopoly of the trade in foodgrains, and may even require compulsory deliveries of agricultural products. Such proposals obviously have most pervasive social and political effects.

Functions of Government

Criticism of Indian economic planning and of the ideas behind it should not be mistaken for a plea for *laissez faire*, for Government inactivity in economic and social life. Some scaling down or postponement of the extravagant investment plans in the public sector does indeed seem necessary if complete regimentation of the economy outside the subsistence sector is to be avoided. But the recognition of this necessity does not imply serious curtailment of the effective rôle of the Government. In India, as elsewhere, economic advance requires the efficient performance by the Government of a wide range of complex and delicate tasks. The most important of these are familiar, which does not mean that they are generally adequately performed. They include: promotion of a suitable institutional framework for the activities of individuals; maintenance of law and order; adequate management of the monetary system; provision of basic health and education services; establishment and maintenance of basic communications; and often also the provision of agricultural extension work. These important, or even essential, functions devolve on the Government, since they cannot be performed by individuals or firms, either because they represent the establishment and adjustment of the institutional structure within which the private sector functions, or because some of these activities yield services which are desired but cannot be bought or sold in the market. It would be inappropriate to discuss these functions and their effective performance in detail. But their importance is evident; and so is the fact that their adequate performance would fully stretch the resources of any Indian Government for years to come. Thus, what is required in India is a redirection of activities away from emulation of the Soviet pattern, and away from policies which restrict the opportunities and the energies of the people, into directions which widen the opportunities and release the energies of the population.

There are large reserves of human energy and talent in India; their contribution to economic advance is obstructed by the adverse forces of custom, enhanced by the restrictive effects of Government policies. Relaxation of these inhibiting factors would not only promote development from within, but also facilitate the acceptance and absorption of the technical advances and achievements of other countries. There is much evidence of the presence of these latent reserves. It is suggested, for instance, by the rapid development of certain sectors of the economy, by the energy, enterprise and resourcefulness displayed there by large numbers of traders and industrialists. It is suggested also by the readiness of Indians to emigrate in order to improve their lot, and by their performance in their countries of adoption.

It is a formidable task to raise the living standards of the population of India, and to free it from the severe restrictions imposed by poverty, a harsh environment, and by customs uncongenial to material progress. But a Government dedicated to the pursuit of this aim also has important advantages. These include great reserves of industry and enterprise and much commercial and scientific talent among the people; many highly educated and devoted public servants; much respect for the Government and for education; access to technical achievements abroad; and also much goodwill in other countries. It will be of the utmost importance to the future of the country, and of much significance throughout the world, whether these assets will be utilised mainly for the development of the opportunities of the population, or primarily for the establishment of a Soviet-type economy.

Unpopular Ideas

Some of the arguments of this article should not be unfamiliar to readers in India, because they have also been advanced by a few Indian economists, notably Professor Vakil, Dr Brahmananda, and especially Professor Shenoy. But these arguments are not popular, and those canvassing them in the present intellectual and political climate of India are apt to be derided as unrealistic or even eccentric, or attacked as unpatriotic. But neither the ultimate influence nor the logical validity of an argument depends either on its popularity or on its political acceptability. In fact, those who fall in with fashionable or politically popular opinion generally exercise little influence as they are simply carried along by the prevailing current without affecting either the course of events or anybody's opinion. And those with the ability, discernment and courage to oppose misconceived but popular and influential ideas can often influence the thoughts of others, if only at first of a few people, and thus exercise genuine influence. They have Lord Keynes's support for the view that ideas prevail over vested interests, whether political, administrative, or intellectual vested interests. This is what he said in the *General Theory*:

> "... if the ideas are correct ... it would be a mistake, I predict, to dispute their potency over a period of time ... I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas. Not, indeed, immediately, but after a certain interval; for in the field of economic and political philosophy there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil."

And as for the charge of lack of patriotism or of public spirit, economists in India, as elsewhere, can usefully remember an injunction of Marshall's:

> "Students of social science must fear popular approval; evil is with them, when all men speak well of them. ... It is almost impossible for a student to be a true patriot and have the reputation of being one at the same time."

(Several of the themes and issues discussed in this article are considered in detail, and in relation to other problems, in a book entitled *An Essay on Indian Economic Policy* to be published by Allen and Unwin in 1960.)

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PROMOTING ECONOMIC GROWTH IN POOR COUNTRIES

THE PURPOSE OF FOREIGN AID

By

THOMAS BALOGH

THE basic question of our time is whether the non-communist economic and social systems (whether committed to a military alliance or not) will be able to stand up to the totalitarian challenge of planned economies and social revolutions. The answer to this question does not need great elaboration. It will depend partly on whether the rich, industrially fully developed areas can find an answer to the problem of combining a socially balanced growth with stability, and whether they will be able to devote to social, community purposes (including aid to poor areas) a rising share of their national income. It will depend as much or more on whether the under-developed areas in the non-Soviet orbit will be able to match the effort for economic development of the communists.

To neither question is there a reassuring answer. There has been a slowing down of growth in the highly developed areas, with deadly threat to the poor primary producers, mainly due to the reversion to prewar policies which know only unemployment as a cure for inflation, and the stimulation of extravagant private consumption as a cure for unemployment. Between these, social priorities at home and the needs of under-developed areas abroad, go by the board. This renewed vigour of orthodox economics after the wartime and postwar revulsion against them can only be explained on a sociological basis. From a purely techno-economic point of view, the war-economic system in the democracies was a brilliant success. Yet the internal economic controls, which have successfully enabled the countries of the West to undertake unparalleled efforts in their fight against Hitler's theory, have been removed. Gone with them is the social equality of a degree never attained before, including the capacity to devote for non-consumption purposes a large part of the national income. Yet the task of the democracies, developed and undeveloped alike, faced with a communist challenge, is precisely the mobilisation, for purposes of economic development, of a far larger share of the national income than would be made available on the basis of individual decisions, which are incapable of taking due account of the future needs of the nation as a whole. In this eclipse of the wartime planned economy, based on social priorities, economists played an important rôle, at least as satellites, providing the rationalisation and rendering respectable what otherwise would have appeared clearly as blatant class interest. If the situation even in highly developed rich countries is disquieting from this point of view, the problem confronting the poorer, less developed areas, among which India is by far the most important, seems all but desperate.

Mobilising Idle Labour

Victory in the mortal battle for development will go to those who know how to mobilise the idle labour of the countryside. Undeveloped areas have only one asset—their labour force. At the moment, this is used at best perhaps half the time, often much less. It is this less than full utilisation of an overwhelming majority—upwards to 85 per-cent—of the total manpower that explains the desperately low productivity and miserable standards of living. No doubt it is due to the lack of resources, land, capital and technical knowledge and skill, needed to use them more systematically that the process of growth will imply much more than a rural transformation. It will imply first of all *industrialisation* in order to provide alternative employment opportunities in most under-developed countries where land is exceedingly scarce relatively to manpower. But even in countries with abundant land (like South America), industrialisation is needed to provide a goad to energise the sluggishness of primeval agriculture. No doubt steps must be taken to mobilise to the utmost all other resources; but they are scant and the measures needed will be important mainly for their psychological impact on facilitating rural reorganisation. In particular, blatant *luxury consumption* and imports will have to be *cut* ruthlessly. No doubt a series of social, especially educational, measures will have to be put through to *provide technical* knowledge. No doubt *foreign aid* in terms of technical *knowledge* and resources is indispensable to help in reducing the area, and mitigate the degree, of compulsion which will be needed to ensure compliance with the desperate needs of the community. It may even provide marginal incentives in the vital transition period, the means to induce people to perform work rather than to enforce what is inevitably required in order to escape an appalling economic catastrophe.

But besides the mobilisation of rural manpower for rural growth, including the need for establishing a satisfactory food base, all other questions pale into relative insignificance. When all is said and done, under present social conditions, and especially with the prospective rate of increase of population, all efforts will be wasted, all success achieved in heavy industry and elsewhere will be in vain, if the mobilisation of the rural labour force fails, or, as now looks much more likely, does not even start.

Voluntary Work

It has been obvious for a long time now that the solution of the problem of rural poverty can only be found by somehow or other inducing the peasants to help themselves. This has been attempted in non-totalitarian countries by the so-called voluntary work. The high hopes which have been put on this solution have, unfortunately, not materialised. Voluntary effort has not been forthcoming with sufficient vigour, and only a few days' labour for vitally important investment, on the average, could be obtained. Moreover, much of the large-scale investment, planned and sponsored by Governments with foreign help, has not had the much needed results because the new resources provided for rural areas were not used, or wasted. This is especially true of irrigation, as shows, for instance, the example of pre-revolutionary Iraq. Much of Government investment in rural areas in under-developed countries has been dominated by what one might call a modified emulation or demonstration effect of the western welfare States, and is insufficiently contributing to the vitally needed increase in productivity. This term is used by economists to describe the sociological tendency to emulate the rich, to imitate them.

It has in uncontrolled market economies the effect of reducing savings as less affluent people get into debt in order to obtain the trappings of a higher social status. In some exceptional countries like the United States, this indeed is the social mechanism by which the community attempts to maintain demand at a level commensurate with the increase in the productive capacity. The alternative which will be socially, nationally and internationally more desirable—the increase in the share of social expenditure including such necessities as education, the provision of city planning commensurate with the wealth of the country, hospital services, and so on—is precluded by the intense and successful agitation against taxation. In less favoured countries, this tendency, especially if it results in trying to obtain the American type of durable consumer goods, is fatal. It necessarily reduces an already exiguous basis of savings through its burden on the national income, and the balance of payments necessitates a reduction of productive payments. Not less dangerous (if morally far better) is the attempt of well-meaning but foolish enthusiasts to emulate, in the poor countries, the social services and communally provided social amenities which have been won in more developed countries only after intense battles and whose viability is based on general wealth and commensurate self-discipline.

Apart from Japan, in most under-developed countries (especially in the Middle East), there has been a rapid acceleration of the increase in their population. This was the result of the medico-technical revolution which has been going on in the *rich* countries. The decline in the rate of mortality in the last century was followed by a fall in the rate of births in most advancing countries, as a natural outcome of an organic improvement in general well-being. The collapse of death rates in under-developed areas has been the result of advances made *not* in those countries but elsewhere. It has no organic relationship to any future evolution of birth rates. It is this contrast which makes the prospect of the population movement in under-developed areas so ominous. It overshadows the greater part of the world and threatens to nullify all efforts to increase the *per capita national income*. Here we are confronted with a problem which causes a grave split in the opinion of the free world, since an important fraction regards it as a religious issue on which compromise is not possible, and prevents effective action by international agencies. It would be essential to come to a solution by measures on a voluntary basis. There can be no doubt, however, that *some* solution will have to be found in the less developed areas, for otherwise all their efforts will be doomed to failure.

Simple Criterion

Proposed reforms in the economic field must, therefore, be judged on a simple criterion. Do they contribute to the creation of sociological conditions in which large-scale progress can be made in rural areas to match the efforts at industrialisation, itself in great need of further stimulus? And, secondly, is the cost of the measures in terms of the scanty administrative power commensurate with this contribution? Skilled manpower, the real *élite*, must be preserved to lead in expansion both in the private and public sectors and anything which unduly detracts from this vital requirement must be condemned, however appropriate it may seem under varying conditions in different countries. These two very simple rules have hardly ever been clearly stated. They have certainly been completely disregarded in most advisory work by economists from highly developed areas. They tried to show that in the long run, the primary producers have nothing to gain and much to lose by diversifying their economies by accelerated planned investment in industrialisation. Even if the whole of the international social unbalance, the growing discrepancy between the fate of the rich and the poor countries, were the fault of the latter (*e.g.*, the inability to curb the rise of population and mismanagement of investment), the increasing unbalance could not be regarded with indifference by the former. But it is evident that it might well result in an increasing attraction of the communist solution—especially in that it is seen to be "working". According to the *U.N. World Economic Survey for 1958*, the poor primary producing areas lost more as a result of the deterioration of their terms of trade than the whole of the foreign aid they received from the international agencies and under bilateral agreements from the United States and other richer areas. Thus, the hopes for an automatic solution of the problems of the under-developed areas have faded away.

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on monetary policy as the main, if not the sole, weapon of economic control. Monetary controls act through psychological shock and are brutal in operation. Restrictions placed on the choice of policy might, therefore, decrease the speed of development. This renders the bargaining position of the poor primary producers very weak. Thus primary producing countries, after a short period of relief immediately after the war, find it increasingly difficult to start or sustain accumulating capital sufficiently to induce sustaining growth. Their plight has been due to the policy of monetary restriction.

The traditional view—vociferously pushed by the dominant school of economists in the rich countries—is that no deliberate intervention is needed at all in the economic relations between the rich and poor parts of the world. According to this view, which is often buttressed by plausible, if misleading, examples from the nineteenth century, the *price mechanism* actuated by the profit motive and the flow of private capital seeking the highest remuneration will *automatically lead to an equalisation of incomes and welfare.* All that is needed is to clear away obstacles and safeguard the security of private investment. The rest follows.

Yet freedom of markets is not admitted to be an end in itself, but is claimed to be a means to general welfare. This claim is made because even its greatest supporters fear that economic freedom will only be accepted by a majority of voters if it also brings material benefit. Economic freedom in the main means privileges for the few rather than basic rights for the many. It will not be accepted as an over-riding aim for democratic governments if it has to be bought at the cost of forgoing expansion of income or security of livelihood. This ambiguity of claims puts the case of the "West" into a weak and vulnerable position in the non-committed world. If Russian progress continues to be far faster than that of the West, the political consequences might be formidable.

It is obvious that no equalisation process has been at work. Inequality between rich and poor countries of the non-Soviet orbit has not only not diminished as was expected by "liberal" economists but is increasing. It is equally certain that this cannot be entirely attributed to the decline in private investment due to the wickedness of the debtor countries, their inflationary policies, and the like. Indeed the opposite might be true: the failure was caused by the failure of investment, of mobilising the rural population. This, in its turn, was due to a failure to push through reforms in land tenure, in taxation, and in effective direct controls. It is not that the investment programmes of the under-developed non-Soviet area were too ambitious—they were *not ambitious enough.*

Political Risk

Yet their increase cannot be accomplished by the traditional means of market economics. The political risk is obviously much higher in the relations between the poor and the rich than it is within the rich countries themselves. There is no doubt, moreover, that technical progress in the highly developed areas has been so strong as to make domestic investment relatively attractive. Thus, it is only in certain specific instances, and mostly to exploit raw material resources either by way of plantations or by way of mines or wells, that foreign capital has flowed from the rich to the poor countries in any considerable quantity. (This contrasts considerably with the heavy export of manufacturing capital from the United States and other main manufacturing centres to other manufacturing areas.) It is an open question whether the rich countries in this way have exploited the poor ones. In some sense they have, and continue to do so. They obtain labour much more cheaply than they can at home, and they have access to favourable raw material bases. On the other hand, without foreign capital investment, the poor countries will be even poorer, and since progressive taxation has now been introduced in most areas (this contrasts strongly with prewar practice), the poor areas also participate in the profits earned. Thus, the rich countries, in a sense, exploit only the opportunities they themselves created. The solution to the fundamental problem of international inequality cannot be expected from private capital movements.

In the postwar years, Government aid in the form of low interest-bearing loans or outright grants, channelled either directly or through international agencies, has represented a very considerable contribution. In the years since the war, America alone provided $62,144 million in loans, and total bilateral and multilateral aid and technical assistance programmes represented $11,251 million between 1954 and 1957. Much was accomplished, yet if the vast amounts are taken into account, the achievements are disappointing. There is hardly a poor country where self-sustaining growth can safely be said to have been started. The reason for this is partly the magnitude of the task, the immense difficulties in finding suitable administrators and entrepreneurial ability in under-developed areas. It is also due to the multiplicity of the agencies in charge, the lack of co-ordination and the failure to take an overall view and apply aid and technical assistance at the points most likely to yield best results on the basis of an overall survey. It also suffered, in certain cases, from the financial myopia which dominates the International Monetary Fund, and which caused untold harm to the democratic cause in poor areas.

Foreign aid can and should play an important rôle. By putting additional resources at the disposal of the poor countries, the need for compulsion can be reduced and voluntary co-operation can be induced by enabling the peasant and the labourer to earn some immediate income if he participates in communal investment. By such *linked public works* financed by the Government with foreign aid, much of the liberties of the individual could be safeguarded. But foreign aid can only be *marginal,* the main effort must come from the country itself. This is only possible if a feeling of general participation is successfully evoked. Such a feeling is unattainable without far-reaching social and economic reforms, including mass-education. Foreign help needs, therefore, to be carefully planned to promote reform and to enable a general economic mobilisation. Hitherto, it was used, if anything, to induce the deferment of reforms. This is the basic cause of our failure. There is not much time to lose. The balance of economic power is slowly tilting against the non-Communist countries and will move faster if energetic measures are not taken.

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BUREAUCRATIC PLANS STIFLE ECONOMIC ENTERPRISE

The appearance of a new, right-wing, democratic political Party claiming large-scale popular support is probably the most significant development in Indian politics since Independence. In this article, Mr. Rajagopalachari—one of the most experienced and respected figures in Indian public life today—expounds some of the thinking underlining the philosophy of the new Party. Without in any way expressing the views of "Capital", this article should help readers in this country and observers abroad to assess for themselves the strength and logical validity of the discontent with Congress political and economic management which the new Party represents.

By

C. RAJAGOPALACHARI

IT is remarkable that in this scientific and rationalistic age, centralised economic planning by the State has been raised to the pedestal of a holy cult. The dominant theme in India for some years past has been the economic uplift of the masses, and centralised all-out planning has been resorted to as the means of promoting that object. And this in spite of reiterated lip-service to decentralisation. The major fault of centralised, comprehensive planning is that it imposes a monolithic burden on a people composed of diverse elements at all levels and in all occupations. The achievements that it might show in a few selected areas are bought at the cost of the freedom and enterprise of the individual. The individual and his creative ability are smothered by a proliferating bureaucracy and innumerable rules and regulations.

Proper Perspective

Planning should not be looked upon as an end in itself. It is essential to place it in its proper perspective and to realise its political consequences. In the life of a nation, 12 or 15 years is but an infinitesimally small period. Broader visions should not be obscured by momentary fancies or by the exaggerated importance given to certain things. Everyone knows that it was Soviet Russia which implemented first the concept of centralised, comprehensive State planning. When it was realised in the West that the industrial revolution of the seventeenth and eighteenth centuries had led to concentration of capital in a few hands, the socialist idea of State ownership of the means of production, distribution and exchange was developed in Europe in order supposedly to ensure equitable distribution of the goods and services produced by large-scale mechanisation. This movement took the form of a protest against the operation of *laissez faire* capitalism and a demand for parliamentary democratic methods to bring about complete State ownership. Communism went further and resorted to every weapon in its armoury, including force and fraud, to bring about the same end. Both sought to overlook the laws of the free market. Through central State planning, both socialism and communism brought into being and promoted the huge Leviathan of the State, subordinating the individual to the dictates of a small band of people who maintained their own power and covered all their sins of omission and commission with the fog of a coming paradise.

Command Economy

A "command economy" thus came into existence. The planners arrogated to themselves the wisdom required for assessing and mobilising all the resources of the country, determining a comprehensive scheme of priorities, ordering industrial and agrarian growth along certain pre-determined patterns, and fixing prices and patterns of distribution of the goods and services produced. They thus undermined the freedom of mutual service as well as democracy. It is yet to be shown whether this "command economy" of centralised, comprehensive planning guarantees efficiency in production. The odds are against it. On the distribution front, it has already been proved a tragic failure. During his visit to India a couple of years ago, Mr. Anastas Mikoyan acknowledged that the difference between the lowest and highest paid in Russia ranged from 1:59. According to others the difference is 1:100 or more. The figures, by themselves, do not give an idea of the distribution picture which was indeed the socialist carrot before the donkey. We have to include what cannot be expressed in terms of money, all the pain inflicted on the souls of people and all the bodily miseries they are made to undergo in the name of comprehensive planning.

Views of Mr. Nehru

After liquidating millions of people, communism has given birth to a new class and a new feudalism instead of abolishing class distinctions and privileges. Party members, less than 4 percent of the people, enjoy all the privileges of life in the name of over 200 million people who are forced to do hard work. So much for centralised State planning in a régime unencumbered by democratic notions. Though these things are well known, they need reiteration today because we are apt to be carried away into imitating communist policies and methods in our blind admiration for their achievements, overlooking the cost, which is a grim human tragedy. The Prime Minister, in his presidential address at the Lucknow session of the Indian National Congress in 1936, made a statement which looks pathetic today in the light of subsequent disclosures about the actual state of affairs in communist countries. I refer to it because Mr. Nehru is essentially the same man now as he was when he made this statement. His admiration of power and achievement is still misleading him. He said: "It is interesting to read in that monumental and impressive record, the Webb's new book on Russia, how the whole Soviet structure is based on a wide and living democratic foundation. Russia is not supposed to be a democratic country after the western pattern, and yet we find the essentials of democracy present in far greater degree among the masses there than anywhere else. The 600,000 towns and villages there have a vast democratic organisation, each with its own soviet, constantly discussing, debating, criticising, helping in the formulation of policy, electing representatives to higher committees. This organisation of citizens covers the entire population over 18 years of age. There is yet another vast organisation of the people as producers, and a third, equally vast, as consumers. And thus scores of millions of men and women are constantly taking part in the discussion of public affairs and actually in the administration of the country. There has been no such practical application of the democratic process in history".

Admiration Continues

As I have said above, Mr. Nehru's admiration of Russian success has not come to an end. It is taking different and various forms at national cost. Modern States all have to do some sort of planning to keep the economy on an even keel. But that need not necessarily be comprehensive, centralised planning which inevitably leads to the restriction of democratic liberties. Physical controls, rationing, inflation, forced savings, that is, large cuts in real wages, and a relentless subordination of life to dictatorship are required to achieve anything like near-success in that type of planning. The lesson from the history of our contemporaries is that planning should be subject to, and in consonance with, democratic principles. Such planning is practicable as well as desirable.

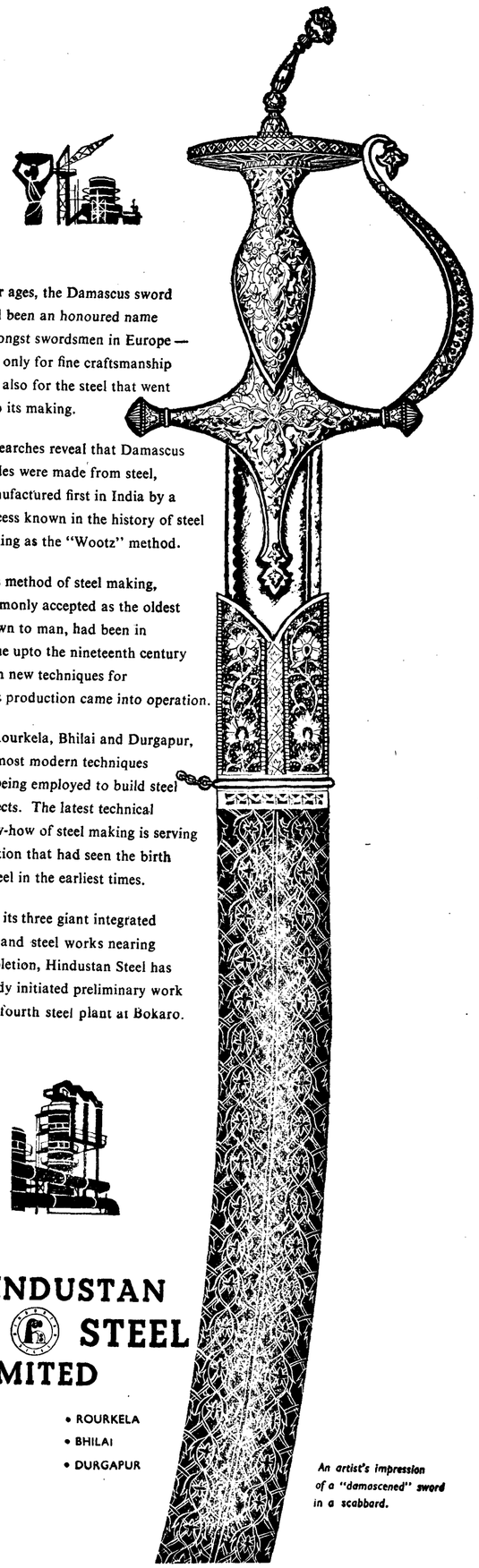
As against this, planning has proceeded in our country on the assumption that people do not know what is good for them and, therefore, they must be told what to do. It has proceeded on the basis that a few bright persons are omniscient and are capable of directing the destinies of the nation in an infallible manner. We have had many warnings to teach us humility. The Bhakra dam, which was described as the new and real temple for India, can be aptly described as the projection of our folly in thinking that big things are the best things. It must come as a revelation to all of us that, apart from crores of rupees sunk into this mammoth project, the dangers of anything going wrong with the dam would be an inundation of indescribable magnitude. The bigger a man builds, the smaller becomes his control over the things he builds. What I deplore is not the building of this particular dam but the megalomania for big projects. These projects have a political corrollary—the centralisation of all authority, to the detriment of the future of the nation. Until and unless we develop to a stage when the requisite administrative set-up, technical skill and, above all, conscience are all geared to the needs of such projects, it is foolhardy to venture on them.

Forced Mechanisation

Mechanisation saves bodily labour and ensures more leisure. For these reasons, mechanisation has to be welcomed. But to force mechanisation at a rate inconsistent with the availability of technical skills to deal with breakdowns in the vast rural area is to prescribe remedies worse than the disease. Agriculture is our basic asset for leading to the growth of a viable industrial sector. The machines and their operation should be introduced at a pace consonant with the needs and genius of our people. Changing the structure of ownership and tenures at a time when a food crisis is admitted would be like changing horses in midstream.

The application of misleading statistical standards to our economic performance is wrong. Our economy is still largely a barter economy. In the rural areas a number of transactions are not measured in terms of money. It is a common and good practice in villages to pay farm labour with foodgrains and a small cash sum rather than entirely in cash. Increases in the issue of salaries to Government employees and the expansion of the official set-up falsify calculations of the increase in national income. Apart from this, to emphasise the statistical methods in terms of money is to give a materialistic direction to the general mentality of the people by over-emphasising the money angle. This is a subtle evil which has already done great harm. Money is important, but unselfishness and moral qualities are more important even for economic progress.

The Government resorts to policies which depreciate the value of the currency. It pumps money into circulation in paying the bills for the ambitious projects it has undertaken. The fixed-income groups in all sectors suffer greatly as a result of deficit financing and are perplexed as to the means of livelihood for their future. Savings become



For ages, the Damascus sword had been an honoured name amongst swordsmen in Europe — not only for fine craftsmanship but also for the steel that went into its making.

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An artist's impression of a "damascened" sword in a scabbard.

meaningless because the value of money depreciates year after year. Without savings, there can be no investment and no increase in wealth.

The taxation side of planning presents a sad picture. The taxes levied on the wealthy have proved disappointing, which should have been anticipated. Now there is going to be a drive towards taxing the poor through indirect levies on all articles of consumption covered over with a fog of rising prices. It is mathematically true that in a poor country with a very large population all-embracing excises on articles of general consumption can alone bring in significant additions to revenue. But at the same time it would be the worst kind of oppression. It will not take long for the poor to discover that, in paying the price of commodities purchased at the little shop, they are paying indirectly levied tax to the Government which has done nothing for them.

Decentralisation Plans

Centralisation is the necessary corollary of present policies, whatever lip-service may be rendered to the doctrine of decentralisation. Such decentralisation as impinges favourably on electoral plans and programmes is favoured, and not that which really leads to efficiency. The policy of a regulated economy in the production and distribution of food has to be carried to its logical conclusion, as Mr. Ajit Prasad Jain confessed when he resigned from the Central Food and Agriculture Ministry. When socialists and communists talk of decentralisation, they mean decentralisation of minor powers in execution. The decision-making authority is always the élite, the small core, which arrogates to itself all wisdom and infallibility.

The megalomania that vitiates the present development policies is illustrated by the stupendous folly of the contemplated nuclear power station. What we need is not just big projects, but useful and fruitful projects. There is nothing inherently wrong with bigness, just as there is nothing inherently good in bigness. Big dams are good, but more essential are thousands of small projects which could be and would be executed by the enthusiasm of the local people because they directly and immediately improve their lives. So also in the setting up of industries, there should be encouragement to industries producing consumer goods, which give content and meaning to the phrase "standard of living" which can be produced in small and medium-scale industries. Private enterprise should be fostered by every means available and not treated as a dangerous enemy. Industrial enterprise would then spread at various levels in the countryside and reduce the tensions that attach to centralised industrialism.

The federal structure of India is not only not used but is sought to be sabotaged. For instance, although industries are today listed by the Constitution under the State Schedule (excepting strategic industries), those who wish to start industries must all rush to New Delhi for permits and comply with or otherwise negotiate a host of regulations. As a consequence, unemployment stands unchanged. It will be argued that there should be co-ordination and uniformity. But economic development takes place faster when diversity is permitted and the fullest use is made of local physical and social conditions by those who know them.

One of the most neglected aspects of planning in this country is the gearing up of the administrative machinery and the simplification of procedures. It is no use directing appeals of patriotism to clerks whose personal lives cannot permit room for any thought beyond their day-to-day home troubles. Unless conditions are radically changed to provide incentives, to remove inefficiency and to fix responsibility, economic development in this country will be hampered by the very administrative machinery which is supposed to help it.

A Catalyst

The rôle of the Government should be that of a catalyst in stimulating economic development, while individual initiative and enterprise are given the fullest play. The Government can do a great deal by way of providing a network of highways and village roads, in improving waterways and developing small harbours, improving communication and transit facilities, which would all serve to boost the economy. Many important things have been neglected because the Government has forgotten them in its obsession with a "command economy." Wise planning means Government help to foster private enterprise and self-help among individuals. Otherwise, there can be no real progress.

FOOD SHORTAGE REMAINS DESPITE RISE IN OUTPUT

COMPULSORY PROCUREMENT FROM BIG PRODUCERS REQUIRED

By

ASOKA MEHTA

FOR the vast majority of people, the indices of economic development are food and employment. The price of foodgrains affects most, and their mood, of frustration or satisfaction, is mainly determined by it. The stability of food prices is necessary not only for the planned development of the economy—since a rise in them runs through practically the whole gamut of economic life and distorts the cost structure—but also for the preservation of India's democratic institutions. For some years to come, her future is likely to be decided on the food front.

The food position has become acute, it needs to be remembered, not because of, but in spite of, the increase in foodgrains production and productivity. The lowest (unadjusted) production during the first five year plan was 51.2 million tons in 1951-52 and the highest 68.7 million tons in 1953-54. During the second plan, the lowest reached so far is 62 million tons in 1957-58 and the highest is 73.5 million tons in 1958-59. The base has undoubtedly been lifted up: the peak tends to be higher and the trough not so deep as before.

Heartening Conclusions

In two recent studies on productivity, heartening conclusions have emerged. Dr. V. G. Panse's study of trends in the yield of rice and wheat for the period 1946-47 to 1955-56 showed: "The average yield an acre was higher by 5.4 percent for rice and 11.8 percent for wheat in the plan period, compared with the preceding quinquennium. The increase in rice yield was contributed by three States—Madras, Andhra and West Bengal—and that in wheat by all the five States, although the increase in Bihar was not statistically significant." Another enquiry shows an increase of 7.5 percent in the yield between 1949-50 and 1956-57. That the rise has been confined to some States, and elsewhere there is stagnation, and the increases vary sharply from State to State are matters which deserve serious study and efforts for rectification. It is obvious that changes in the demand have been greater than the improvements in the supply of foodgrains, particularly when sustained and often rising imports are taken into account. But a discussion of the demand side will be taken up later.

It is unfortunate that the map of land holdings, prepared by the National Sample Survey, is over five years old. Recent land legislation and shifts in ownership, brought about in anticipation of such legislation, must have changed the map considerably. But as the only authoritative report available, it will be necessary to consider its analysis: "Forty-seven percent of households in rural areas owned (no land in the case of 22 percent or) less than one acre and their share of total land was only 1 percent. Seventy-four percent of households owned (no land or) less than five acres of land and had only 17 percent of the total area under their ownership. Another 13 percent of households owning between 5 acres and 10 acres of land had 10 percent of the total land under their ownership. The remaining 13 percent of the households had ownership holdings of a size bigger than 10 acres and among thousands they accounted for 64 percent of the total land owned. Five percent of the households, each of whose ownership holding size was more than 20 acres of land, owned altogether 41 percent of the total land. Furthermore, the share of 2½ percent of households, each owing over 30 acres of land, amounted to 28 percent of the total land, or one-fortieth of households was owning much more than a quarter of the total area." (Page 13).

Structure of Ownership

The figures above are, unfortunately, not in standard acres, nor does one know to what extent recent legislation has altered the picture. It, however, needs to be noted that households with large holdings have larger families; their members vary from 4.05 for those owning no land, to 10.46 in the case of those owning over 100 acres. This will partially correct the structure of the ownership pyramid and somewhat narrow the plateau at the top. But it is necessary to bring the picture into a clearer focus:

Owned or operated holdings	Percentage of owned land in the group	Percentage of operated land in the group
50 acres or more	15.60	14.43
30 to 49.99 acres	12.45 (28.05)*	12.76 (27.19)
20 to 29.99 ,,	13.01 (41.06)	13.10 (40.29)
10 to 19.99 ,,	22.95 (64.01)	23.29 (63.58)
5 to 9.99 ,,	19.22 (83.23)	19.63 (83.21)

(*Cumulative percentages in brackets.)

Thirteen percent of the households have holdings of over ten acres and they account for nearly two-thirds of India's cultivated lands. The households number about 8.5 million. Is it impossible for the country to organise assistance for them to step up production rapidly? Twenty-five percent of the households, or 16.5 million households, that have less than one acre of land each have no alternative to forming co-operatives. The land area is small—just 1 percent. Those having between 1 acre to 5 acres—27 percent of the households—will be better off in co-operatives. Those having more than ten acres have no need to pool their holdings. Is it possible to narrow the area of controversy on co-operative farming to those having between five acres to ten acres of land? After adjustments have been made for larger families which go with large holdings, and if the ceiling is fixed roughly at 30 standard acres, not much land will be available for redistribution. Because the scheduled castes predominate among the landless, even the marginal redistribution may have, however, considerable import of social justice. Anyway, the reforms need to be quickly carried out and the structure of land ownership which then emerges needs to be insulated against further shocks.

Marketable Surplus

The marketable surplus will be significant only in the large holdings. Just 5 percent of the households—3.3 million in number—have 41 percent of the land in holdings of 20 acres and over. Is it beyond the country's administrative capacity to work out a satisfactory procedure of procurement in return for assistance, economic and technical, provided to them? In a sense, this is the hard core of India's food problem.

One need not repeat here the recommendations which the Balwantrai Mehta team and the Raja of Nalagarh committee have made to improve the administrative set-up in agriculture. They are germane and urgent. But I would like to suggest two institutional innovations.

At least a million persons a year, drawn from the landless as well as the better placed agriculturists, should be pressed into a national service corps. Its organisation and supervision should be centralised, its functioning decentralised—roughly 2,000 persons a district. They should include some university graduates and some ex-Service men. The corps should be imparted literacy and such general cultural education as would widen their horizons. Rudimentary discipline in life and work including the habit of teamwork, should be imparted to them. For these tasks, the university men and ex-Service men need to be enlisted. This force should be used to deepen tanks, repair wells, dig channels, bund lands, plant trees, etcetera. If every district has its portfolio of works-projects drawn up, such a corps—recruited, trained and maintained by the Government—can provide a splendid instrument of development, which, in the process, will impart efficiency in work and team spirit to the ever expanding sections of rural people.

The expenses are likely to be Rs. 50 crores to Rs. 60 crores for a million recruits a year. It will be easier to induce village people to contribute in labour, when it means sharing in work *proceeding*, than it is by pure exhortations. Such a corps, with suitable modifications, can help reclaim waste lands and offer efficient men to settle on them and work on them, if need be, co-operatively. Reclamation should receive attention in areas, such as in Rajasthan, where new irrigation facilities are being provided. Elsewhere, improvement of existing lands will perhaps cost less than reclaiming waste lands. Over a period of time, with pressure on land, reclamation will, of course, be necessary. Just at present, the priorities should be kept clear.

We have over 900 colleges today. Each college should be invited to "adopt" a nearby village. The teachers and students, with such technical assistance as is necessary, will have to foster the development of the adopted village. With accumulation of experience, the scheme could be extended to high schools. It should not be difficult to bring in, to build-in as it were, in the senior institutions of learning the know-how of rural reconstruction and thus scatter a few thousand foci of development in the countryside.

Efficiency Potential

It is necessary to introduce a new efficiency potential in rural areas. Small (not cottage) industries will provide it: industrial estates have to be inter-woven with the efforts for improving agriculture. Such industries will bring or retain able, aspiring men in rural areas, enable village people to come in contact with new techniques, reduce social overheads of industrialisation and provide employment at wages not unremunerative to small entrepreneurs. In many developing countries the key rôle is played by peasant-workers, who supplement their income in farm (or factory) by work in factory (or farm). India must foster the growth of this class.

It is necessary to increase production to a level where the psychosis of scarcity is overcome. The present rate of increase has failed to do that. Not only the urban demand grows apace but producers, particularly the big ones, have learnt to hold. The agro-economic studies have uniformly uncovered this new tendency in recent months. If food production continues to hover at the margin, and if the price line is to be held, there is no escape from compulsory procurement from the big producers. If a scheme of effective assistance for such farms is worked out, the procurement may not prove painful.

As long as the Indian people do not get a balanced diet—and that depends on the growth of mixed farming—the pressure on cereals will remain and keep growing. A recent study, brought out by the National Council of Applied Economic Research, shows that the variation from the standard requirement can be as high as 110 percent. Agricultural prices must start with being reasonable, but the future trend will have to be downwards. It is through increased production that agriculturists must strive to augment their income. Here again if the problem of distribution of foodgrains is attacked independently of production, India can never succeed. The approach has to be production-*cum*-distribution oriented. Only rapidly increasing production can help to do away with restrictions, controls and procurement. If production is allowed to stagnate, restrictionism in agriculture is bound to increase. It is not a matter of political choice but of economic imperatives.

Unemployment Problem

The solution of the food problem and of the problem of unemployment in rural areas, of rehabilitation of the rural poor, do not wholly overlap. Socially, there is no doubt that the second problem is graver than even the first. But the two cannot be tackled, except partially, as a single problem. The solution of the first is the basis of that economic development which will enable the country to solve the other deeper problem. The priority here is clear and insistent. The food policy, therefore, has to be many pronged, sometimes conjointly executed; it is necessary to understand each prong separately and recognise its order of relevance in augmenting production.

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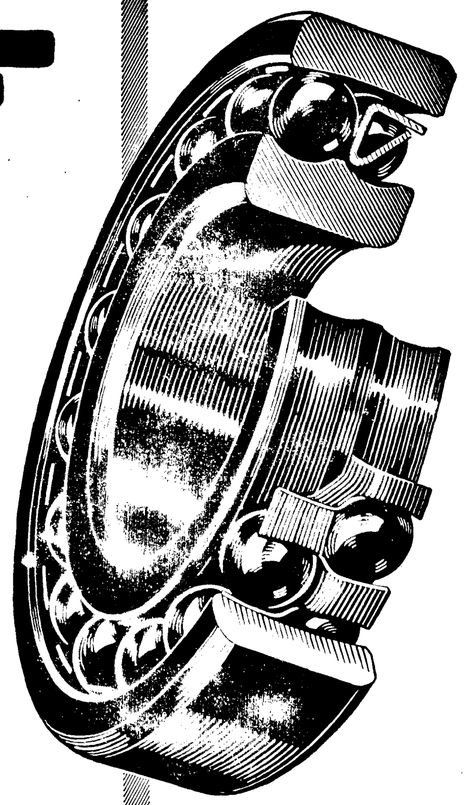

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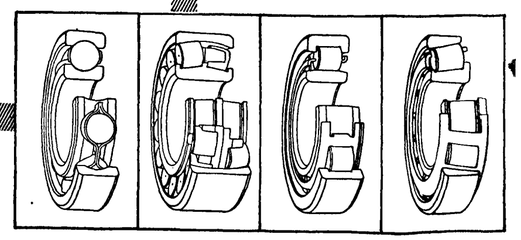

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REFLECTIONS ON THE RADCLIFFE REPORT

ROLE OF U.K. INVESTMENTS OVERSEAS

I MAKE no apology for writing about a blue book which is already more than four months old; least of all about this particular blue book. For, in its field, the report of the Radcliffe Committee on the working of the British monetary system is a best seller and perhaps the most complete historical and analytical description of the U.K. money market that there is. No such State document was available to the young undergraduate beginning his study of public finance at the end of the first World War; one had to wait till 1931 for the famous Macmillan Report, important sections of which were almost immediately sterilised by Britain's abandonment of the gold standard. Separated in time by more than a quarter of a century, both the Macmillan and the Radcliffe Committees took about two years to complete their enquiries and write their reports. Lord Macmillan and his colleagues were less fortunate than Lord Radcliffe and his: their labours coincided with the onset of a world trade depression and the great Wall Street crash. The background in which they wrote was one of profound economic pessimism which culminated in the suspension of the gold standard on 21st September, 1931, which, as I well remember, was followed by a three-day closure of banks throughout India and the introduction of an emergency autumn Budget by the then Finance Member, Sir George Schuster. Alas, not a few of the imposts, which Sir George then introduced as "temporary" measures to meet the situation, have lived on to become permanent features of the Indian fiscal system. But not everyone was plunged in gloom. John Maynard Keynes wrote: "There are few Englishmen who do not rejoice at the breaking of our gold fetters. At last we have a free hand to do what is sensible". In a few short weeks of crisis, the Bank of England paid out £200 million in gold, which was about half the total claims of foreigners on London, and it had done this at a time when the sums which London had re-lent abroad were frozen.

Sterling Devaluation

No such shadows overhang the Radcliffe Report. It is arguable that the sterling devaluation of 1949 was somewhat overdone, but its effects have long since worked themselves out of the system. Today, the pressure is on the dollar and the U.S. balance of payments. At least that is how the Americans see it and their present attitude of mind is important for India. It is true, too, that the world has had two mild recessions in international trade in recent years and their impact has been pretty sharp on the primary producers of under-developed countries, but not as significant as some of them claim in explanation of their balance-of-payments difficulties. Sterling underwent a period of strain at the time of the Suez crisis and again in the late summer and autumn of 1957, but there has been no breakdown of international trade such as characterised the years of the "Great Depression." By and large, Lord Radcliffe and his committee have investigated the working of the monetary system of an expanding economy and not one which is faltering or actually contracting.

The rapid postwar recovery of western Europe, as of Asia, is in large measure due to American "good neighbour" policies. To some extent, those policies have been based on self-interest, for a complete collapse of Europe would have the most serious consequences throughout North America. But there was also an element of disinterested generosity in America's actions which it would be mean and churlish to ignore. More recently, the U.S. administration has indicated that the time has come for Europe to take a bigger share of the burden of assisting the under-developed countries to finance their programmes of accelerated industrialisation.

Violent Swings

Postwar experience seems to suggest that the violent swings from boom to slump and back again to boom, which characterised the 1920's and 1930's, are not likely to be repeated. The extremes of the international trade cycle have been ironed out, and although commodity surpluses continue to plague individual economies, stock-piling, price support schemes and the like prevent local crises from infecting the main stream of world trade. The dominant economic problem of the second half of the twentieth century is not so much how to maintain international price stability as how to ensure an even flow of development capital to those parts of the world which most need it. And here, it seems to me, the Radcliffe Report (which purports, among other things, to consider the international rôle of the sterling system) is least convincing. It notes that the nineteenth century development of the non-European world occurred "round a largely British core and the growth of institutions, business connections and trade centring on London" and that "sterling area countries may not have been able to raise all the capital that they would have liked on the U.K. capital market since the war, but the United Kingdom has been their chief overseas source of capital".

The report gives some consideration to the amount of U.K. surpluses available for investment abroad and to the contribution which sterling makes to world liquidity and the availability of commercial credit. But no attempt is made to ascertain, in any detail, whether the sterling system measures up to the needs of the new type of Commonwealth borrower who has already come into being in Asia, and is beginning to emerge in Africa, and whose demands for capital are likely to persist for a long time to come.

Overseas Investments

The report makes due mention of many of the changes which, over the years, have affected London as one of the world's great capital markets

By

GEOFFREY TYSON

and it pays proper tribute to the overseas investments built up in the past by the United Kingdom, mainly outside Europe, which "have contributed to the cheapening of transport costs, the enlargement of the world market and the advancement of living standards through new trading opportunities". But it fails to draw what I regard as a vital distinction between the rôle of London in its heyday as a capital market and the terms on which it is now expected to perform its functions as a lender. Whereas in its pristine past, London invested in enterprises of whose desirability and business prospects it was the sole and final arbiter, it is today expected to provide investment capital for programmes and projects which, although wholly praiseworthy in themselves, are part of great schemes of social engineering from which any direct return to the foreign investor is likely to be long deferred. Profitability apart, the question arises whether such investments are compatible with Britain's somewhat changed place in the postwar world and the still inadequate reserves on which she has to finance the trade and investment of the sterling area.

Change in Conditions

It is a weakness of the Radcliffe Report that its arguments, when they touch on the external rôle of sterling, proceed as though the conditions of overseas investment today are not very different from what they were half a century ago. In his *Home and Foreign Investment, 1870-1913*, published some years ago, Professor Cairncross, who was a member of the Radcliffe Committee, points out that between 1875 and 1914, Britain's overseas investment rose from £1,000 million to approximately £4,000 million, or by some 250 percent. Professor Cairncross considers that the 'seventies were probably the least remunerative decade for overseas investment before the first World War and there were many defaults. He draws the following picture of the high noon of British overseas investment: "The redistribution of our holdings between different types of security after 1875 was all in favour of a high rate of return. Government bonds, the least remunerative of our foreign investments, shrank steadily to little more than a quarter of the total at the outbreak of the war, and very little of this quarter consisted of the bonds of Continental countries. The bulk of it was in the more or less gilt-edged stock of empire Governments. Private investments in shipping and mercantile establishments, foreign banks and so on increased rapidly before the war and may fairly be assumed to have earned large profits. Investments in rubber estates, oil companies, jute mills, gold and diamond mines, land and mortgage companies also formed an increasing proportion of our investments and paid, on the average, high rates of dividend. Foreign and colonial railways, in which the bulk of our capital was sunk, were with few exceptions consistently profitable. In all, British capitalists earned some £4,000 million in just over 40 years in interest and dividends on their foreign investments. An average income from overseas of almost £100 million a year was a tidy contribution to the national dividend which at that time was ranging between, say, £900 million in 1870 and £2,300 million in 1913".

Selective Attitude

The situation is very different today. Apart from the disinvestment brought about by two world wars, and the need to re-create the surpluses wherewith to finance both home and overseas investments, many of the territories to which British capital formerly flowed have adopted new and more selective attitudes towards foreign enterprise which they seek to direct into channels that are not always attractive to the foreign investor. This is a natural accompaniment of political freedom, but those who complain that foreign enterprise is slow to seize the openings offered by this or that country do not always appreciate that international capital flows quickest to those places where it seems to be most welcome and subject to the least restrictions. On some of its pages, the Radcliffe Report reads as though the field for overseas investment is just as open to British institutions as it was at any time during the last 100 years, and now that the recent break, occasioned by the second World War is behind us, there is no reason why those institutions should not resume their historic function subject, of course, to the availability of the necessary funds. Those who have given close thought to the trend of foreign investment in south Asia during the last decade know that this is far from the case. The investment receiving countries of the area are a great deal more "choosy" as to the kind of foreign investment they will accept than was the case a few years ago.

Proper Adjustment

The fact is that neither the recipient countries, nor the capital exporting countries, have as yet properly adjusted themselves to the situation that has arisen since the second World War, which was accompanied by a widespread European political withdrawal from Asia and part of Africa. However mistakenly, foreign capital is still associated with the memories of alien rule and ten or 12 years is a very short period in which to work out new lines of approach to a subject which engages deep-seated emotions. The best minds in East and West know full well that the under-developed low-income countries will continue to require access to the capital markets of Europe and America, but the mechanism and the terms by which this is to be achieved still remain to be finally decided. The Radcliffe Report throws no light on these difficult problems, and it is perhaps unreasonable to expect that it should go so far afield. Nonetheless, the report makes it clear that the United Kingdom remains a major source of both Governmental and private investment capital for all the countries of the Commonwealth. The U.K. Government has repeatedly emphasised that the rôle of private capital in financing economic development abroad is of decisive importance. A recent U.N. study of the international flow of private capital from 1956 to 1958 shows that while the flow of U.S. private capital to the under-developed countries exceeded U.S. Government grants and loans by 50 percent in 1957, the corresponding flow of British private capital was about three times as large as that of public capital, contrasting with an overwhelming proportion of public funds in French exports of capital. And as a postscript to its study, the U.N. remarks that Latin America remains the under-developed region most favoured by private foreign investors. There may be a moral in this.

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FROM IMPERIALISM TO INDEPENDENCE

DE-COLONISATION AND THE GROWTH OF INDO-BRITISH CO-OPERATION

GOVERNMENT OF WEST BENGAL 24 DEC 1959 PUBLIC DEPARTMENT

By NEIL McINNES

THE continuation of fairly close political and economic links between India and Britain since independence has been one of the most surprising chapters in the worldwide process of de-colonisation that is going on in the present generation. Previously, when a dependent nation attained, after long struggle, its sovereignty and hence its right to an independent economic policy, there followed immediately a period of discord and animosity between the ex-colony and the former ruler, which even the greatest goodwill on both sides could not abate. This happened even when the colonies in question were "colonies of settlement", that is, when they were peopled by folk of the same stock as the mother-country. The newly-independent United States was long at odds with Britain, while the 20-odd republics which issued from the break-up of the Spanish empire were first hostile and later indifferent to the mother-country until, today, the concept of *Hispanidad* (the supposed spiritual community that binds Spain to her former colonies) is the emptiest of notions.

The rupture, after independence, has been more marked between imperialist powers and their colonies in Asia. Almost nothing remains today, so few years after the attainment of independence, of the Dutch connection with Indonesia, or of the French connection with Indo-China. Those two Asian nations have awakened from colonialism as from a bad dream that leaves not a wrack behind. Their language and their intellectual culture will no doubt bear, for many generations, the mark of their former connection with Europe, but that is something that they cannot help, that they often regret and of which they are sometimes positively ashamed. In matters that they can help—where political intervention can be efficacious—the general tendency is to eradicate every vestige of colonialism, to snap every link left after political independence.

Sequence of Events

This sequence of events—in which the granting of formal independence was only the first step in a long divorce suit—had come to be accepted as the normal course of de-colonisation. The economists were not slow in offering an explanation, even a justification, of it. The Marxists, with their customary distinction between "political super-structure" and "underlying economic processes", naturally had an explanation ready-made. Colonialism, for them, is an episode in the evolution of European capitalism; it is thus fundamentally a network of economic relations, of which political hegemony is merely the instrument or the embroidery or the sanction. When the native *bourgeoisie* leads the struggle against this economic subjugation (which it does largely in its own interest as a capitalist class), its first objective is necessarily the conquest of political freedom. But the transfer of power is merely a first step, which affects only the super-structure. The real battle for "economic independence" then begins and it consists in the repudiation of all economic ties with the mother-country, which are the real substance of colonialism. Hence, inevitably, the post-independence period of friction that characterises the process of de-colonisation. If this period is not stormy and acrimonious enough, it is because the native *bourgeoisie* is not sufficiently progressive and must, therefore, be swept away by another native ruling class—if necessary, a military dictatorship which might indeed imprison communists but at least carries forward the work of de-colonisation in the economic sphere.

Mechanical Concepts

Relying less on the mechanical concepts of Marxism, other economists have put forward an explanation which is not substantially different. Gunnar Myrdal says in his *Economic Theory and the Under-developed Regions:* "In fact the national economic policies of under-developed countries will *necessarily* be directed in large measure, especially at the beginning, against those rich countries with whom they have traditionally had the closest relations. For those relations were the mark of colonial or quasi-colonial dependence, which must be eradicated. And this *naturally* goes against the interests of countries enjoying privileges which will *inevitably* be taken from them. It happens *necessarily* that in the course of this process, a large number of long-established economic relations between nations are broken". (It is I who have underlined the four adverbs, for they show how convinced Gunnar Myrdal is that a period of bitter struggle must follow political independence.) Myrdal's book, incidentally, is a revision of the lectures he gave in Cairo in 1955 for the centenary of the National Bank of Egypt. In explaining and justifying the phase of economic warfare that must follow de-colonisation, Myrdal not only uncannily anticipated the Suez Canal affair which developed in the next year, but he no doubt gave the Egyptian leaders the theory and the "rationalisation" of the policies they were preparing to implement. He has since been able to claim, not unfairly, that the Suez war was a striking justification of his theory.

Now these accounts of the post-independence relations of ex-colony and former imperialist are not implausible. They obviously fit much that has happened in the current process of de-colonisation, and I do not think that anyone would have been brought to doubt them had it not been for the apparently anomalous case of India and Britain. Britain, after all, is the "most imperialist" of modern nations, and India the largest nation ever to be a colony. British interests in India were immense and extensive, and they moulded her economy. Her post-independence plans are as ambitious as any nation's, and they presuppose a total re-moulding of her economy. If ever there were a case where the theory of inevitable post-independence discord were to be demonstrated, it should be here. And indeed relations between the two countries since 1947 have not been free of friction.

Tenuous Connection

First hopes that India would accept to remain a Dominion were soon disappointed, but the Republic did remain within the Commonwealth. This more tenuous connection was subject to dangerous strain at certain moments, as during the Kashmir and Suez affairs, and if at times it seems to be an empty or opportunist notion, at other times it has a solid content that is valued in both countries. Foreign policy took radically different lines in the two countries, and on some vital issues London and Delhi have been in total opposition; yet even this has not prevented amicable official relations nor, what is much more, a *de facto* alliance on certain other equally vital issues. India's economic independence has been asserted and increased in every sphere (the process had, in fact, begun long before 1947), and yet India has remained within the sterling area, even at a time when it was in some ways inconvenient to do so. She has accepted the discipline—the sacrifices as well as the advantages—of that monetary club at least as well as any of the other members; and the depletion of the famous sterling balances does not appear to have changed her attitude. Probably, on the whole, membership of the sterling area has been more advantageous to India than to Britain—what talk there has been of winding up the arrangement has come from the U.K., not from this country. So it was a good calculation, in terms of enlightened self-interest, to stay in the sterling area. But the theory of inevitable economic warfare after independence would lead one to expect, not only an unwillingness to co-operate in such clubs, but a complete inability to reconcile divergent national interests, even given a goodwill.

Imperial Preferences

Imperial preferences have continued to be whittled down and what remains of them is perhaps not very important, yet it still makes other industrial nations envy Britain's preferential access to the Indian market. There occurred a substantial measure of British disinvestment and there have been some Indian nationalisations, but nothing like what has occurred in most other ex-colonies. Far from there being any sign of a determination to root out the "economic relics of the imperialist phase"—in the blind way this was done, for instance, in Indonesia where Dutch property was expropriated simply because it was Dutch—there have been numerous examples of increased Indo-British co-operation. The terms of that co-operation have, naturally, been radically altered, and British firms which would not, could not, or were not wanted to, find a place in the new system of co-operation had to go; but their place has more than been taken by British firms which could fit into an expanding independent economy. Some of these latter, in fact, find that conditions are better for their activity in such an economy than in a colonial one. There are leaders of progressive parts of British industry who will tell one that selling to an unprotected colonial economy is not nearly as rewarding, either materially or morally, as manufacturing within the protective barriers of a young, nationalist and ambitious country. Far from old ties being painfully ruptured by the necessary protectionism of a nascent industrialism, they are simply transformed, and some of the keenest defenders of Indian protectionism are British firms established in this country. (Of course, they condemn the protection of their suppliers, but in that they do not differ from domestic industrialists; no producer favours protection for his suppliers).

Petty Crises

Finally, there have been numerous petty crises in what one might call the "public relations" of British industry, in its connections with the Indian Government and with Indian public opinion. These have concerned the Indianisation of staff, the taxation of traditional service privileges, the terms of transfer of some British concerns to Indian buyers, the unfortunate episodes in British collaboration with disreputable sections of Indian business, the import of characteristic British consumer comforts and some quite minor racial frictions in labour disputes and social life. This makes a longish list (and it is incomplete), and I would not say that all these questions have yet been settled to everybody's satisfaction; the adjustments that have been made have, in general, tended to make life in India less materially comfortable for the Briton, although (if he is made of the right stuff) more interesting and stimulating. The important point is that neither side has ever drawn the conclusion that co-operation was impossible, that the economic and political interests they represented were engaged in an inevitable phase of discord that goodwill could not surmount. At the worst of these conflicts, Indians, both officials and private citizens, have felt that if they could not get on *with* that Englishman, then there was another with whom they could get on; and British firms have known that if they could not work on *those* terms, then other terms could be found that made co-operation possible. And both these expectations have usually been confirmed by events.

Economic Co-operation

After a moment of surprise at this continued possibility of co-operation after independence (which was tinged with irritation among the advocates of a "war for economic independence"), Indians and Britons came to regard it as the most natural thing in the world. Given suppleness and ingenuity, why should an imperialist country not continue to occupy the same important place in the ex-colony's economy, why should not old-established economic ties be transformed and extended? Yet one has seen that this situation is not the most natural thing in the world, but is in contradiction with the experience of de-colonisation elsewhere and with the accepted view of how newly-independent nations must necessarily behave. Not content with providing an exception to the established theory, Indian and British officials and business men have gone on to put up a contrary theory. They will be astonished to learn that this new view of theirs is one of the most powerful ideas at work in the world today. Based entirely on what has happened in India in the past decade, it is influencing policies

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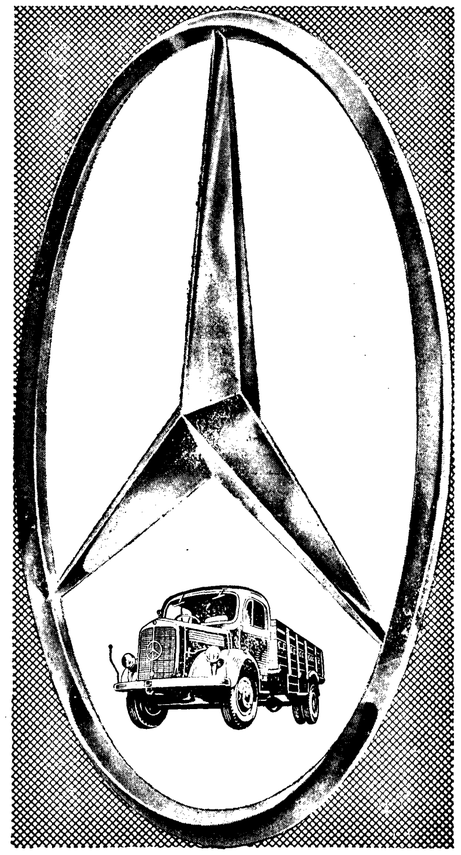

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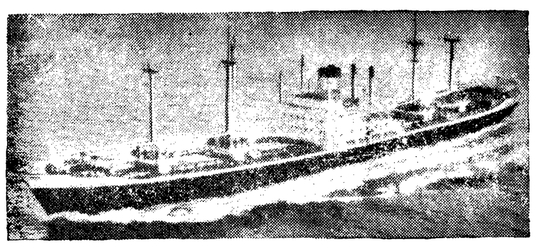

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in many other parts of the world on one of the weightiest problems of this age, de-colonisation.

The new view, briefly, is the contrary of the old one. A liberated colony is not bound, by economic necessity, to enter on a phase of economic warfare with its erstwhile master. Both sides must recognise that the sort of economic connection which typified colonialism (whatever good and whatever evil it produced) is no longer suitable and has to be thoroughly transformed; this transformation must take account not merely of political independence, but much more importantly, of the requirements of rapid national planned development based on protected industrialisation. Yet the change is consistent not merely with continued friendship and good relations, but with a continuation of the large rôle traditionally played by the ex-ruler in the ex-colony's economy. And to say that it is consistent is to put it too mildly. The new connection is *built on and emerges from the old one.* The "historical ties" (this being the euphemism accepted by both sides to denote the stormy colonial era), far from disqualifying the ex-imperialist, are precisely its principal credentials for a major rôle in the new epoch. The economic development undertaken by the imperialist power in its colony may have been as damaging, as selfish, as perverting and as exploitive as colonial economists say it was; but it nevertheless constitutes the basis for a new era of co-operation, and a basis which other industrial nations lack in that particular under-developed country. In a word, Clive Street may be the symbol of an economic relation that is dead and gone; but Netaji Subhas Road is the symbol of a new force without which national development will be infinitely more difficult.

Historical Ties

One scarcely sees a comment on present Indo-British relations where this new view is not assumed. The *Statist* was not aware of presenting any novelty when it wrote earlier this year: "The historical ties that have long united Britain and India constitute a favourable framework for British risk capital that seeks its chance in India". Yet the theory developed in such detail by Gunnar Myrdal, in the lectures referred to, is the opposite. The "historical ties", for him, mean simply the colonial system of "imposed bilateralism" forced on the colony by the mother-country, and this must necessarily—because of economic laws inseparable from the process of national development—be rooted out by force. All talk of "close cultural and economic links" between a former colony and the imperialist power is a sophistical hangover from this earlier period, which will cease as soon as the ex-colony perceives that continued close connection with one industrial nation is inconsistent with its free development. All talk of traditional bonds between two such countries is, says Myrdal, "ideology and phraseology", empty ideas which are just the rationalisation of dead economic interests. For an ex-colony to maintain intimate cultural, economic and political connections with its former ruler is the sign of persistent backwardness, of incomplete independence. It must pass, and its passing will be inevitably accompanied by bad blood, and that in turn—by one of those "cumulative cycles" of which Myrdal is the exponent in social theory—will make it hard for the ex-colony to get capital from *any* advanced industrial nation.

New Theory

Indian experience, to date, gives the lie to this version, or at least constitutes an immense exception. But before any enquiry was undertaken into the special causes that are responsible for that exception, a whole new and adventurous theory of de-colonisation has been built on it. This new theory is exemplified in the current British conception of the Commonwealth, in the policies Britain is following in her African colonies and in the idea of the French Community launched by the Fourth Republic and taken further by General de Gaulle; it has just begun to make its influence felt in Belgian thinking about the future of the Congo. The idea at work in all these ventures is that the unprecedented and quite unexpected effects of de-colonisation in India can be repeated elsewhere if only both sides avoid the mistakes made in Egypt, in all the Near Eastern countries, in Indo-China and in north Africa. In all those places, de-colonisation took exactly the course described by Myrdal: political independence, even when it was handsomely and peacefully granted as in Tunisia and Morocco and not wrested in a long war as in Indo-China, was just the first phase in a painful divorce which ended in the complete eradication of the metropolitan country's influence. The pessimistic theory of de-colonisation seems to have been confirmed just lately in Guinea, which attained its independence in a way that no colony has ever done before: it simply voted for it, whereupon sovereignty was handed to it on a silver platter—and yet since that day Mr. Sekou Touré's Government has followed a policy of discrimination, denigration, expropriation and hostility directed against the former ruler with a bitterness not exceeded by nationalists who have had to fight for freedom through every sort of disappointment.

But such cases, it is now urged with India in mind, were unfortunate and unnecessary exceptions. De-colonisation can be managed more or less painlessly—not indeed without the sacrifice of certain metropolitan interests too closely identified with the colonial situation, but without surrender of the metropolitan country's overall economic interests in the ex-colony. If metropolitan industry and commerce are supple and resourceful enough, all the fatal breaks described by Myrdal can be avoided, and the colonialist connection can be converted into the privileged basis for a new and equal type of relation. What is implicit in this notion, and what is sometimes openly stated, is that a colony can be conducted to independence without falling into the excesses of Nasserite nationalism, without offering the least foothold for a new domination by Russia or by American capitalism, and yet without hampering the necessary economic revolution which must follow self-rule. In the economic re-modelling of a colonial society, the former imperialist power can win itself a rôle as the privileged partner, this privilege not resting on any special treatment (for it is assumed that national independence be real and complete) but on the "historical ties" of long association and a community of language and culture. Indeed, because of the much greater backwardness of those territories which are still colonies, it is supposed that the rôle of the ex-imperialist in the new situation will be much greater than Britain's is in India since 1947.

Ambitious Philosophy

In its fullest development, this new view of de-colonisation forms an ambitious philosophy of history in which the empires of the nineteenth century undergo a total change—and yet retain the same boundaries. They become "commonwealths" or "communities" of truly independent nations, none of whose relations recall the old colonialism and yet who all remain tied together by "historical bonds". I do not believe that these grand designs conceal any fraudulent intent, that they are the cover for a sinister "neo-colonialism". Indeed, they are accepted by political leaders in the African colonies themselves, especially those who are as much impressed by India's history since 1947 as they are by the methods the Congress Party used before 1947 to win freedom. Rather, they are sincere beliefs about the possibility of transforming empires into free associations of rapidly developing nations without the need to pass through the phase of divorce, isolation, virulent nationalism and autarchy. They do indeed have considerable influence in the metropolitan countries in reconciling conservative, colonialist interests to the prospect of national independence for the colonies; but that persuasive, propagandist use does not prove them to be insincerely held.

In the current crisis of Belgian and French imperialism, a colonialist conservative is a man who says: "Look what happened in Indo-China," and a progressive liberal is a man who says: "Yes, but look what happened in India." The confidence that "what happened in India" (needless to say, foreigners have an idealised and simplified picture of it) can be repeated elsewhere is so great that Britain is willing to try it again in large parts of Africa—she has already started with Ghana, with the most ambiguous results so far—while de Gaulle has conceived the bold idea of carrying the *whole* French African empire (less Algeria) through this process at the same time. The assumption in both cases is that the most fundamental and far-reaching political and economic changes can be undertaken and yet leave at least the amount of unity represented by India's continued membership of the Commonwealth and the sterling area, to say nothing of the present volume of British investment, technical help and business activity in this country. The model in each case is Nehru's India; the counter-models include Nasser's Egypt, with its expropriation of British and French property and the systematic eradication of west European influence, and the more peaceful but scarcely less thorough nationalism of other European ex-colonies from Indonesia to Tunisia.

Grand Designs

Now these are indeed very grand designs, and they have no precedent in history save the 12-year period of post-independence co-operation between India and Britain. Ever since the disintegration of Alexander the Great's satrapies in Asia, the break-up of empires has included a long period of national isolation for the ex-colonies and a more or less intense phase of animosity between them and their ex-rulers. And nowadays, when national independence is followed by a national economic revolution, the apparent necessity for such a disintegration seems to be fortified by the incompatibility which economists show to exist between the relics of colonialist bilateralism and the requirements of development in under-developed economies. That disintegration will ensue on the dissolution of colonial connections is assumed by the foreign policies of Russia, America and most other advanced nations. Their common vision of the aftermath of de-colonisation is a world of poor and isolated under-developed nations who have broken every link with their former rulers and have as yet failed to establish any new links between themselves (apart from demonstrations such as the Bandung conference). Such isolated ex-colonies will then be ready for, either, a new and indirect type of domination by Russia or the U.S.A., or else, for disposition into bands of buffer States mutually supported perhaps by both Russia and America. (Egypt has so far tried all these alternatives). Gunnar Myrdal foresees another possibility: after all the ex-colonies have had their Suez war, of greater or less violence, with the ex-imperialists, they will join together in the United Nations to form a vast and aggressive coalition to blackmail the advanced countries into giving them the economic aid they need.

Visions of the Future

These visions of the future of the world leave no place for the "communities" of former colonies and imperialist powers which are based on the Indo-British experience and which both France and Britain are trying to build in Africa and elsewhere today. If such communities are realised, they will no doubt be much looser than the projected French African commonwealth, whose architects seem to have exaggerated the extent of the enduring Indo-British connection—which, in fact, retains little sign of imposed bilateralism and is consistent with extensive Indian co-operation with both Russia and America. But if the future of de-colonisation inclines to the Indian pattern rather than to the traditional disintegration one has seen recently in the Near and Far East, this will be quite enough to transform the outlook for tomorrow. My own opinion is that the conventional account given by economists of the necessity of total economic disintegration as a sequel to de-colonisation is substantially true, although overdrawn. The Indo-British exception, although of immense and happy significance to these two countries, remains an exception which must be explained in terms of the characters of these two peoples and by the fact that both are very large trading nations who could ignore each other only with the greatest difficulty, no matter how little they wanted to co-operate. I think that the extrapolation from this one case to grandiose plans for "empires-become-commonwealths" is exceedingly hazardous. But, like other men of goodwill, I should be happy to be proven wrong about this.

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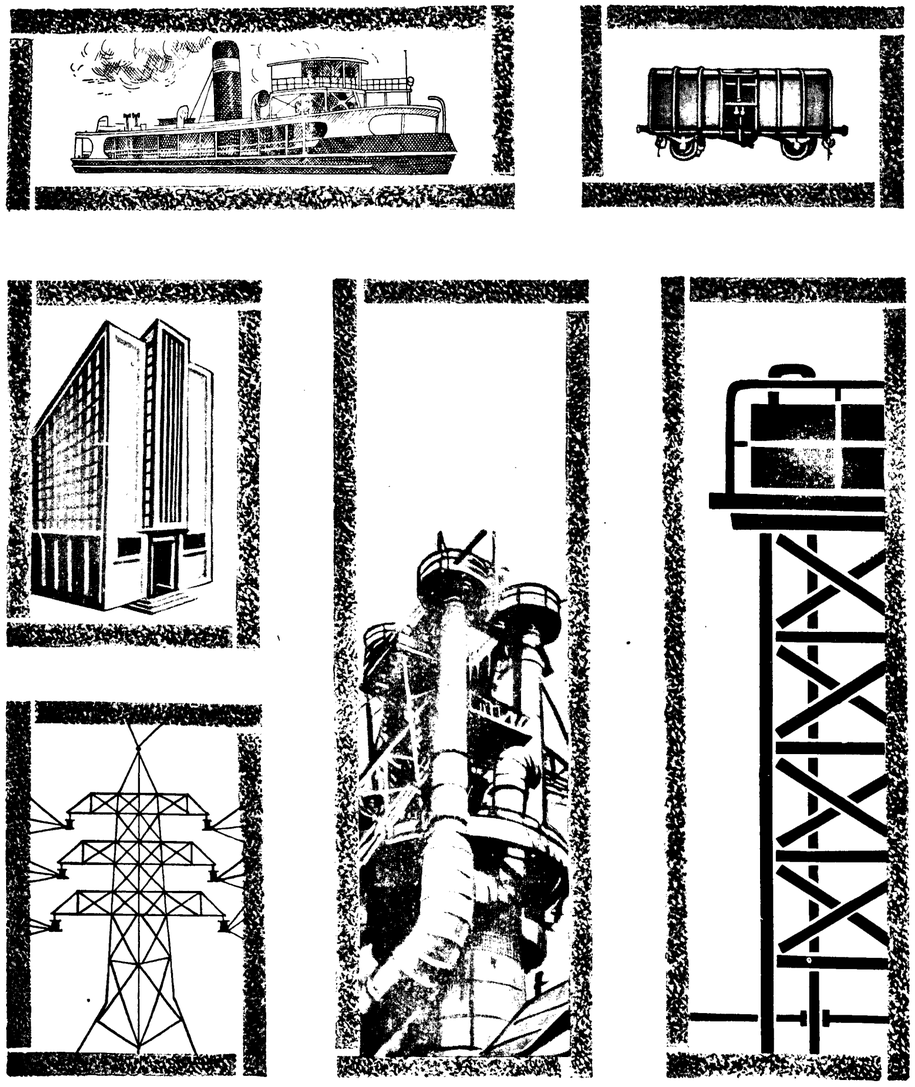

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NEW COMPANY TAX SCHEME HITS SHAREHOLDERS

Lower Rates Necessary: Further Simplification Urged

THE most important change made in the Indian fiscal structure in 1959 was the radical streamlining of the scheme of company taxation, as proposed in the Budget of the Government of India introduced in February 1959 and incorporated in the Finance Act, 1959. Very substantial alterations are to be made in the scheme of direct taxation of companies, in order to maintain the gross revenues of the Government and yet simplify the working and administration of company taxation. A proper assessment of the impact of the new scheme of company taxation can be made by first comparing it with the previous scheme.

Old System

Under the old system, companies were subject to seven different types of direct taxes. There were four recurrent taxes which they had to pay annually—income tax, corporation tax, excess dividends tax and wealth tax. First, companies had to pay income tax at the rate of 30 percent, plus 1.5 percent surcharge, making a total of 31.5 percent of their assessed annual profits. The income tax paid by companies was refundable to the shareholders. When companies declared dividends out of their taxed profits, the shareholders received credit in their personal income tax assessments for the income tax paid by the companies—this was known as the process of "grossing" of dividends. Second, companies paid a non-refundable super-tax at the rate of 20 percent of their annual assessed profits. This was known as corporation tax. Third, companies paid the so-called excess dividends tax. Dividends paid by companies amounting to between 6 percent and 10 percent of their paid-up capital were taxed at the rate of 10 percent, dividends between 10 percent and 18 percent of the paid-up capital at the rate of 20 percent, and dividends over 18 percent of the paid-up capital at the rate of 30 percent. Fourth, companies had to pay wealth tax at the rate of ½ percent of their net wealth in excess of Rs. 5 lakhs.

In addition to the four recurrent taxes, companies were subject to three special or "penal" taxes—the capital gains tax, the penal super-tax for non-distribution of profits under Section 23A of the Indian Income Tax Act, and the bonus issue tax. These taxes were payable only under certain circumstances. Their details are discussed later, especially since the Finance Act, 1959, includes only minor or marginal changes in these taxes.

Administrative Problems

The old scheme of company taxation highlighted certain severe administrative drawbacks connected with the process of grossing of dividends. If the dividends had been grossed at the full rate of income tax applicable to companies, there would have been no difficulties; if the rate of company income tax was 31.5 percent, every Rs. 100 paid as tax-free dividends would have entitled the shareholders to credit in their personal tax assessments of Rs. 46. Unfortunately, under the old scheme of taxation, the dividends were not always grossed at the full rate of company income tax. The rate of grossing depended on the effective rate at which the companies' profits were initially subject to tax and that was often slightly below the full rate. The effective rate of tax depended on the composition of the companies' income—that is, the proportion of profits subjected to tax as compared with the profits exempt from tax. Thus, some companies had income from agriculture which was not subject to Central income tax, or they had income from tax-free securities which made the rate of grossing of their dividends fall below the full rate. Further, where dividends were paid out of reserves accumulated from past profits, the effective rate of tax depended on the rates of tax at which profits were taxed in the past.

Ascertaining the effective rate of tax on the basis of which dividends were grossed involved extremely complicated, cumbersome and elaborate calculations, which were often beyond the grasp of individual shareholders or assessees. It involved the tax administration in a tremendous amount of paper work, calculations, red tape and supervision. Moreover, until the assessments of various companies were completed, the effective rates of tax applicable for grossing up their respective dividends could not be ascertained. This correspondingly delayed the completion of the assessments of the shareholders. There can be no doubt that under the old scheme of company taxation, the process of grossing of dividends was extremely complicated. It was so difficult to administer promptly and efficiently that the need for reform was obvious.

The new scheme of company taxation proposed in the last Budget, and introduced by the Finance Act, 1959, attempts to eliminate the administrative complications caused by the previous system of grossing of dividends. Indeed, the entire procedure for grossing has been abolished in the case of dividends declared for accounting years ended after 31st March, 1959. Hereafter, it is proposed to levy income tax and corporation tax on companies at rates which will be prescribed in the annual Budgets. But shareholders will not get any refunds or credits for tax purposes on the income tax paid by the companies on their annual profits. Shareholders will lose the benefits of

By
Professor
RUSSI JAL TARAPOREVALA

grossing in relation to dividends declared for the accounting years ended after 31st March, 1959, even if the dividends are paid out of past accumulated profits or reserves. On the other hand, the excess dividends tax and the wealth tax on companies have been abolished and the total rate of income tax and corporation tax is to be reduced.

Rates of Tax

The rates of income tax and corporation tax applicable to companies under the new scheme will be fixed in the coming Budget. But the rates of these taxes for the purpose of advance payment of tax under Section 18A of the Indian Income Tax Act for the accounting year 1959-60 have been prescribed. The rate of income tax has been fixed at 20 percent of the annual assessed profits. The rate of corporation tax has been fixed at 25 percent of the annual assessed profits. For the present analysis, it is assumed that these rates of tax which have been prescribed for advance payment of tax will be the actual rates of tax payable under the new scheme of company taxation.

Thus, under the new scheme of company taxation, the provisions and statutes applicable to companies have been totally divorced from the taxation of shareholders of the various companies. It has been provided that before companies can declare dividends to their shareholders under the new scheme, they must deduct tax from the dividends at the prescribed rates—which are 30 percent in the case of individual shareholders and 45 percent in the case of corporate or institutional shareholders. Such tax deducted at source on dividends paid will naturally be credited to the shareholders in their tax assessments.

The new scheme of company taxation should be welcomed in principle. It represents a long overdue step towards simplifying and rationalising a highly chaotic structure of company taxation. The abolition of grossing of dividends is likely considerably to simplify and speed up the working and administration of direct taxation of both companies and individuals. The abolition of the excess dividends tax and the wealth tax is a bold step in the right direction. These were unjustified levies which hit companies arbitrarily, inequitably and harshly. They had been widely, almost universally, condemned in principle. Their abolition will make the tax structure more equitable.

Increased Burden

The main criticism of the new scheme of company taxation relates to the proposed rates of tax. It has been claimed by many that the burden of tax on companies and their shareholders will increase. On the other hand, the Government has categorically declared that its intention is only to maintain its total revenues and not to increase it as a result of the changes in the scheme of company taxation, so that there will be no additional tax burden involved. Unfortunately, a detailed statistical break-down of the taxes paid by companies in the past is not available. As such, it is impossible conclusively and accurately to assess the exact impact of the new scheme. Yet, various calculations seem to show that it will involve a definite increase in the overall burden of tax on companies.

Comparison of Tax Burden

The broad impact of the scheme can be gauged by comparing the flat, non-refundable total rate of income tax and corporation tax of 45 percent of the assessed annual profits of companies (with deduction of tax at source on dividends at the rate of 30 percent for individual shareholders) with the previous scheme consisting of refundable income tax at the rate of 31.5 percent of the assessed annual profits of companies, a non-refundable corporation tax of 20 percent of the annual assessed profits, the excess dividends tax and the wealth tax. The change in the burden of tax as a result of the provisions of the Finance Act, 1959, will vary from company to company, depending upon its capital structure and reserves, its earning power and its dividend distribution policies.

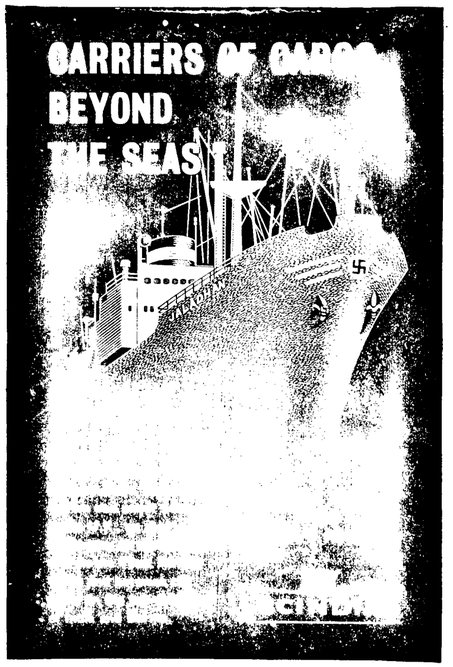
But four generalisations can be made. First, companies earning high rates of profits in relation to their paid-up capital will be affected less adversely by the new scheme (or may in some rare cases even benefit slightly) than companies earning lower rates of profits on their paid-up capital. Second, companies distributing a smaller proportion of their annual profits as dividends will be affected less adversely (or in a few cases may even benefit) as compared with companies distributing a larger proportion of their annual profits. These two general propositions follow from the abolition of the excess dividends tax. Third, companies which did not pay wealth tax as they were exempted from it—like banks, shipping companies and insurance companies—will be adversely affected. Finally, companies which had large reserves in relation to their paid-up capital will be affected less adversely (and in a few cases may even benefit) than companies with no reserves or small reserves. This follows from the abolition of the wealth tax.

Statistical Comparisons

The table on page 31 shows calculations made on the assumption that companies distributed their entire after-tax profits as dividends and that dividends were grossed up under the old scheme at the full rate. At one extreme, there are companies which under the old scheme paid the least rate of tax. They paid no excess dividends tax and were exempt from the wealth tax. Table A shows that such companies will be affected most adversely by the new scheme of taxation; their total tax burden will increase by 19.4 percent, their net dividend will be reduced by 20.6 percent, and their gross dividend will be reduced by 22.3 percent as compared with the previous levels.

On average, it may be assumed that in the past the total burden of the excess dividends tax and the wealth tax amounted to 5 percent of the annual gross profits of companies. Table A shows that even the "average" companies covered by this assumption will be adversely affected by the new scheme of taxation. Their total tax burden will increase by 8.8 percent, their net dividend will decline by 11.5 percent, and their gross dividend will decline by 13.4 percent as compared with the previous levels.

At the other extreme, it can be assumed that there are a few companies which paid a very high proportion of their annual profits, assumed at 10 percent, by way of the excess dividends tax and the wealth tax in the past. Table A shows that such companies will hardly be affected by the new scheme of taxation. Their total tax and their net dividend will remain unchanged.



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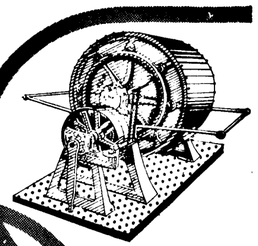

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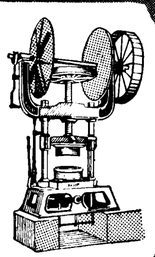

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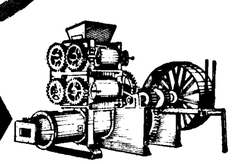

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while their gross dividend will be reduced by only 2.1 percent. But it must be stressed that such companies will be in a very small minority. Beyond this, the new scheme of taxation will benefit those rare companies which in the past paid more than 10 percent of their annual gross profits as excess dividends tax and wealth tax.

On average, it appears that the new scheme and rates will impose a heavier burden of tax, and will reduce the dividends paid by companies to their shareholders. Of course, the above calculations are based on the assumption that the entire after-tax profits are distributed and that dividends in the past were grossed up at the full rate. To the extent that these assumptions do not apply fully in practice, the adverse effects of the new scheme of company taxation will be mitigated. The higher the percentage of gross profits ploughed back to reserves and the lower the past rate of grossing of dividends as compared with the full rate, the less will be the increase in the burden of tax.

Other Comparisons

Various attempts have been made to compare the net increase in the burden of tax resulting from the new scheme of company taxation on the basis of the different figures published about companies. Thus, other writers on taxation have tried to use the figures published by the Reserve Bank of India for 1,001 selected companies and the Central Board of Revenue's All India Revenue Statistics. These calculations seem to show that the new scheme will increase the tax burden; but they are open to the criticism that they are based on published figures which are either not comprehensive enough to cover the entire corporate sector or do not break down the figures sufficiently to allow accurate tax calculations. On a very approximate basis, it can be estimated that the new scheme will probably raise the tax burden by at least 8 percent, and more likely around 10 percent over the previous level.

Preference Share Dividends

Some detailed implications of the new scheme of company taxation can now be analysed. The Finance Act, 1959, has a specific provision to protect the interests of holders of *tax-free* preference shares. It has been provided that the companies must pay on these shares the same cash dividend as has been paid hitherto. Thus, the companies will have to pay the tax deductible at source for the dividends on tax-free preference shares. As a result, companies having 5½ percent tax-free preference shares will have to declare a 7.85 percent taxable dividend on them; companies with 6 percent tax-free preference shares must pay a 8.57 percent taxable dividend; companies having 6½ percent tax-free preference shares must pay a 9.28 percent taxable dividend; and companies having 7 percent tax-free preference shares must pay a 10 percent taxable dividend. In spite of these provisions, holders of preference shares will stand to lose slightly. Under the old scheme, the recipient of a Rs. 100 tax-free preference dividend got a tax credit of Rs. 46 if the dividend was grossed at the full rate, so that the total gross dividend was Rs. 146. Under the new scheme, the recipient of a Rs. 100 net preference dividend will get credit for only Rs. 43 as tax deducted at source, so that the total gross dividend will be Rs. 143, or 2.1 percent less than that received under the old scheme.

Nevertheless, the worst sufferers will be the ordinary shareholders, because in effect the burden of the benefit of grossing dividends which preference shareholders used to get previously at the cost of the Government's revenues has been shifted under the new scheme to the companies. The companies have to pay so much more as preference dividends out of the residual profits available after payment of tax, thus leaving less for distribution to ordinary shareholders as dividends. This change will upset substantially the gearing ratios in the capital structure of various companies. It will make the cost of preference share capital finance to the companies and their ordinary shareholders much higher than under the old scheme.

Inter-corporate Investments

The new scheme of taxation will involve a substantially higher tax burden on inter-corporate investments. Partial rebates and even full exemption from corporation tax have been available to companies on dividends received by them from shares held as investments in other companies. Thus, a rebate of half the basic rate of corporation tax was given on dividends received by companies from their Indian subsidiary companies. Under Section 56A of the Indian Income Tax Act, dividends received by companies from other companies were totally exempt from corporation tax if the paying companies were engaged in certain specified industries covered by the Industries Development and Regulation Act. Although these provisions concerning corporation tax will continue under the new scheme of company taxation, the abolition of grossing of dividends will sharply raise the burden of tax for inter-corporate investments. It will reduce the dividends received and retained after tax by companies and their shareholders from inter-corporate shareholdings.

TABLE

STATISTICAL COMPARISON OF TOTAL TAXES, NET DIVIDENDS AND GROSS DIVIDENDS OF COMPANIES UNDER THE NEW SCHEME OF TAXATION AND UNDER THE OLD SCHEME OF TAXATION FOR COMPANIES DISTRIBUTING ALL THEIR AFTER-TAX PROFITS AS DIVIDENDS.

Types of companies / Items	New Scheme of Taxation		Old Scheme of Taxation					
	All types of companies		Companies not paying excess dividends tax and wealth tax		"Average" companies paying excess dividends tax and wealth tax equal to 5 percent of their gross profits		Companies paying excess dividends tax and wealth tax equal to 10 percent of their gross profits	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Annual gross profits before tax ..		100.00		100.00		100.00		100.00
Income tax ..	20.00		31.50		31.50		31.50	
Corporation tax ..	25.00		20.00		20.00		20.00	
Excess dividends tax and wealth tax (assumed) ..	nil		nil		5.00		10.00	
Tax deducted at source on dividends ..	16.50		nil		nil		nil	
Total tax ..		61.50		51.50		56.50		61.50
Net cash dividend ..		38.50		48.50		43.50		38.50
Gross dividend ..		55.00		70.81		63.51		56.21
Percentage change in the total tax paid by companies as a result of the introduction of the new scheme of taxation ..			+19.4%		+8.8%		nil	
Percentage change in the net cash dividend paid by companies as a result of the introduction of the new scheme of taxation ..			—20.6%		—11.5%		nil	
Percentage change in the gross dividend as a result of the introduction of the new scheme of taxation ..			—22.3%		—13.4%		—2.1%	

Dividends Paid from Reserves

Under the new scheme of company taxation, shareholders will lose the benefit of grossing of dividends even if they are paid out of past profits or reserves. It can be estimated that on 31st March, 1959, the total reserves of companies were at least Rs. 500 crores. Even assuming that the average rate of income tax borne by them over the past so many years was 20 percent, the amount lying to the credit of shareholders in relation to their reserves of Rs. 500 crores would be around Rs. 125 crores. Under the new scheme of company taxation, this sum will be lost to shareholders. In principle, it is wrong arbitrarily to confiscate this amount belonging to shareholders and lying with the Government. However, if the new scheme of taxation is to be effectively implemented, it is unlikely that the old procedure of grossing of dividends can be continued for dividends paid out of reserves.

But there is a very good case for giving some *ad hoc* relief in future for such dividends. One suggestion is to provide that companies would not deduct tax at source on dividends declared from reserves, and they would be deemed to have paid the tax to be deducted at source to the Government. Shareholders would get credit for the amount thus deemed to have been paid as tax deducted at source (even though in fact the companies would not pay it). Such provisions, which would be similar to the provisions applicable to preference share dividends under the new scheme of taxation, would give a fair and substantial relief for dividends paid out of reserves and would not disrupt the working of the new scheme of company taxation.

Capital Gains Tax

The Finance Act, 1959, has introduced marginal changes in the three special or "penalty" taxes payable by companies. First, under the old scheme of taxation, companies were required to pay tax at the rate of 31.5 percent on all capital gains made by them. The new Finance Act has reduced the rate of tax payable by companies on their capital gains to 30 percent. This is a very minor, almost insignificant, relief.

Section 23A Companies

Second, under the provisions of Section 23A of the Indian Income Tax Act, a penal super-tax was imposed on private companies and closely controlled public companies if they did not distribute the minimum statutory percentages of profits. The rate of tax was 37 percent of the entire undistributed profits in the case of industrial companies, and 50 percent of the undistributed profits in the case of investment companies. Thus, the tax was so harsh that it forced companies to distribute the statutory percentages of their profits. The tax became payable if the companies failed to distribute at least 45 percent of their

industrial profits and 60 percent of their non-industrial profits remaining after tax. Under the Finance Act, 1959, these statutory percentages have been raised to 50 percent and 65 percent, respectively. The Government considers the change necessary so as to ensure that the profits retained by companies covered by Section 23A after the introduction of the new scheme of taxation, without being subject to the penal super-tax, remain at the same level as under the old scheme. The change introduced by the Finance Act, 1959, in the statutory percentages of profits to be distributed in order to conform to the provisions of Section 23A of the Indian Income Tax Act (and so as not to pay the penal tax under the Section) is not very substantial in quantum. But it must be criticised severely in terms of the extremely undesirable economic effects of the provisions of Section 23A which have been stressed in the past by official bodies, eminent economists, the National Council of Applied Economic Research and Professor Nicholas Kaldor. The provisions of this Section severely retard the growth of many companies by not allowing them to plough back a larger proportion of their profits. They impede the industrial growth and progress of the country. Under the circumstances, the provisions of the Finance Act, 1959, aimed at maintaining the *status quo* concerning the net impact of Section 23A are to be deplored. At a time when the entire scheme of company taxation was being revised, it was especially necessary either to abolish the provisions of Section 23A or at least to make them less harsh. This the Government has regrettably failed to do.

Bonus Issue Tax

Perhaps the most deplorable step in the reform of company taxation was the change introduced for the bonus issue tax in the last Central Budget. In the past, companies had to pay penal super-tax at the rate of 30 percent of the face value of the bonus shares issued by them. However, bonus shares issued out of premiums received in cash on shares in the past were exempt from the bonus tax. The Finance Minister has now proposed withdrawing this exemption when the new scheme of company taxation comes into force. This will increase the burden of the bonus issue tax. Moreover, the taxation of bonus shares issued out of premium money paid by shareholders is tantamount to a straight capital levy on cash amounts contributed in effect as capital payments by shareholders. The continuation of the bonus issue tax, and the abolition of the exemption in favour of bonus issues made from share premium accounts, is a retrograde step. Even under the old scheme, there was no economic justification for the bonus issue tax. Its inequitable nature and its undesirable economic effects on the capital structure of companies have often been pointed out. The tax has been condemned by many, including the Indian Taxation Enquiry Commission, the Royal Commission on the Taxation of Profits and Income of Britain, the National Council of Applied Economic Research and Professor Nicholas Kaldor. Thus, there is a strong body of expert opinion which opposes it.

In the past, the bonus issue tax was justified by the Government as being necessary to prevent companies from evading the excess dividends tax by increasing their paid-up capital through the capitalisation of their reserves by issuing bonus shares—and even this was shown to be only a lame excuse for continuing the tax. However, since under the new scheme of company taxation the excess dividends tax is to be abolished, even this justification for the bonus issue tax has vanished. Indeed, the tax now lacks the slightest possible rationale. It will arbitrarily and inequitably discourage companies from making their capital structure more realistic by reflecting the true value of the capital invested in the business, as could be done by capitalising the ploughed back profits or reserves and issuing bonus shares. Further, with the abolition of the excess dividends tax, the issue of bonus shares has ceased to offer any short-term tax advantages. Hence, under the new scheme of taxation, the continuation of the bonus issue tax at the present high rate is unlikely to bring any substantial revenue to the Government because the companies will just not issue bonus shares. Under these circumstances, it is to be hoped that the Government will abolish the bonus issue tax soon. This is essential for any long-range effort to rationalise the structure of company taxation.

The Finance Minister deserves to be congratulated for making the first bold effort to rationalise and simplify the scheme of company taxation. If the intention of the Government is to maintain its revenue from company taxation, the total rate of income tax and corporation tax under the new scheme should be fixed at a figure between 35 percent and 40 percent of the annual gross profits of companies. Special *ad hoc* relief or concessions should be granted for dividends paid out of past taxed profits which have been ploughed back by the companies as reserves. Some concessions may also be granted for inter-corporate investments, the dividends of which will be severely affected by the present provisions. The provisions of Section 23A of the Indian Income Tax Act and the bonus issue tax should be abolished. Ultimately only one non-refundable tax on the gross profits of companies should be charged at a flat and reasonable rate. This should be the goal of the Finance Minister in his attempt to simplify and improve the scheme of company taxation. It may not be unrealistic to hope that the goal could probably be achieved if Mr. Morarji Desai continues to guide the policies of the Central Finance Ministry.

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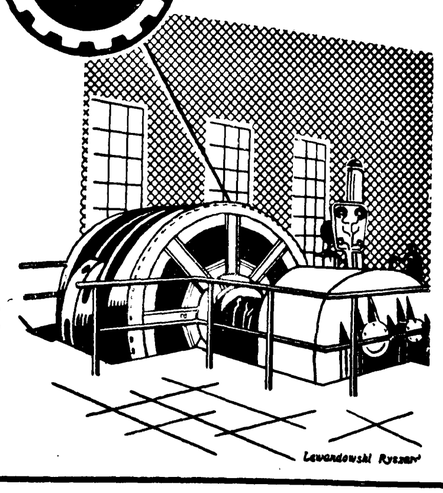

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A Critical Survey of the Second Plan

Income Growth not Faster than Population Increase

By

Professor B. R. SHENOY

THE objectives of the second five year plan are four-fold : (1) an increase of 25 percent in the national income in real terms, or, the rise in population during the quinquennium being assumed to be 6.3 percent, an increase of 17.4 percent in the *per capita* real income from Rs. 281 to Rs. 330 a year at 1952-53 prices ; (2) rapid industrialisation with the emphasis on basic and heavy industries ; (3) a large expansion of employment opportunities ; and (4) to "take a few steps" in the direction of reducing inequalities in income and wealth, the goal to be eventually reached being a ceiling on personal incomes, after tax, of Rs. 4,125 a month (i.e., 30 times the national average income a family).

The production and investment programmes of the plan were formulated by reference to those income targets. It was estimated that an increase of 25 percent in the national income (which, it was thought, may lead to an increase of 20 percent in national consumption) would demand a total investment outlay of Rs. 7,200 crores, comprising Rs. 7,000 crores of current and imported savings and Rs. 200 crores drawn from the currency reserves (past savings). Of this total, the share of the public sector was Rs. 4,800 crores and of the private sector, Rs. 2,400 crores. By implication, the full amount of the drafts on currency reserves was meant for the public sector.

Investment on this scale implied a rise in the rate of savings, which was 7 percent of the national income (Rs. 10,800 crores)[1] in 1955-56 to 9.72 percent in 1960-61, the income in the latter year having been assumed to be at the plan target figure of Rs. 13,480 crores. This involved an increase of 39 percent in savings. During the first plan period, savings rose from 6 percent of the national income in 1950-51 (Rs. 9,190 crores) to 7 percent in 1955-56 (national income, Rs. 10,800 crores), a rise of 15 percent. In terms of marginal savings, the second plan assumption meant a saving of 25 percent of the increase in *per capita* income target at the close of the plan, the corresponding percentage for the first plan being 16. The second plan document recognised that if the people were left to themselves, this jump in savings may not materialise. It, therefore, proposed to resort to "special and persistent effort at restricting consumption through fiscal and other devices" although the nature of the "persistent effort" and of the "other" devices were left unexplained.

It will be useful to examine the achievements of the second plan during its first three years under the four heads of its objectives. During the first two years, 1956-57 and 1957-58, the national income in real terms (at constant prices), rose by 3.34 percent or an annual average of 1.67 percent ; this was the net outcome of a rise of 4.96 percent in 1956-57 and a fall, from the level reached in the first year, of 1.55 percent in the second year. The figure of the national income for 1957-58 is provisional.

Higher Birth Rate

Current population growth in India is placed at 2 percent a year, as against the earlier rate of 1.5 percent. The rate would seem to have been on the ascendant for some time past. The Indian citizen at the close of the first two years of the second plan was, thus, poorer than he was at the close of the first plan. The annual average *per capita* income during the three years ended 1957-58, presents a picture of stagnation, the national income during the period having risen by 5.4 percent and population by about the same measure, 4.5 to 6.0 percent. *Per capita* income in 1954-55 was Rs. 272 a year and in 1957-58, Rs. 276. Thus, in spite of all the planned effort at economic development, the national income in recent years has not risen noticeably faster than the population. In 1957-58, the national and *per capita* incomes declined relatively to the preceding year. This is the first time since the beginning of the present series of the national income statistics that the curve of real national income turned downwards and the second time that the *per capita* income declined, the first time of the latter being in 1950-51. The highest annual increase in real national income, 6.13 percent, was achieved in 1953-54, the next high being 4.96 percent, in 1956-57. These jumps above the annual average (3.60 percent for seven years) have coincided with good weather conditions and a bumper agricultural harvest.

Indian national income statistics do not tell the whole story of the poor progress in the well-being of the people since planning began. The construction of plant and machinery, investments in river valley schemes, additions to roads, railways and canals, and such other items of capital formation augment national income figures, regardless of whether the resulting increase in production capacity is used to the full or was wholly necessary. To the extent these investment activities have only built up unused excess capacity, for the duration this excess capacity remains idle, the equivalent national product is a waste. In so far as the immediate economic well-being of the community is concerned, it is little better than a case of, to give an analogy made famous by Keynes, digging holes in the earth and filling them again. The use of irrigation water from the river valley projects and some canal schemes is of the order of 50 percent (or less) of the available supply and the use of electric power of the order of 80 percent of capacity. It has been estimated that in 40 industries, excess capacity of between 40 percent and 90 percent exists, the bulk of the excess falling in the range of 40 percent to 50 percent. Planning, with the concomitant control over resources, produces a built-in bias for constructing excess capacity. Shortage of resources induces the authorities in the public sector and the entrepreneurs in the private sector to plan for and create excess capacity as a "precaution" against increased resource scarcities later. Although such excess capacity may augment output in the future, when it is drawn on to the full, its incidence on the flow of income immediately is adverse ; in addition to the fact that it yields no current income, servicing of foreign loans would involve a draft on the unaugmented current flow of output. If this factor is allowed for, the increase in incomes from the plan effort is even less than what the national income statistics indicate.

Record of Growth

India's record of economic growth compares very poorly with that of most countries in the world. Statistics of national income of 29 countries given in the table below show that the highest rates of increase in real national income, varying from 8.6 percent a year to 18.9 percent a year, have obtained in countries (Israel, West Germany, Turkey, Japan and Italy) where free market economies prevail. In these countries, there is, in general, little interference in the working of the free market and in the allocation of resources. There being no overall national planning, the wastages of human and material resources which are inherent in planning because of the usual errors of judgment on resource allocations and the built-in biases attending the urge somehow to overfulfil the targets against quality, efficiency and due care of equipment is greatly avoided. In their case, the self-correcting pricing mechanism continually tends to minimise wastages of effort and resources so that a given supply of the means of production are put to their best possible uses and the national product attains the permissible maximum.

Fulfilled Investments

A comparison of the actual investments in the second plan, during its first three years, with the financial targets in the plan is exceedingly difficult. There are figures of the investment outlay in the public sector. There are some rough estimates of the investments in the corporate private sector. But there are neither statistics nor estimates (on a comparable basis) of the investments in the rest of the private sector. The assessment, therefore, must perforce be limited to the achievements in the public sector. The outlay in this sector during the first three years of the plan amounted to Rs. 2,466 crores. This is Rs. 414 crores less than three-fifths of the investment projected for the full five-year period. This, at first sight, might suggest that the investment achievement of the plan, during its first three years, is about 85.62 percent. A closer scrutiny, however, shows that the achievement is very much less. The plan document had envisaged foreign aid and drafts on currency reserves (for the public sector), for the entire five-year period, at Rs. 800 crores and Rs. 200 crores, respectively. The total of foreign aid used during the first three years of the plan amounted to Rs. 743 crores of which the share of the public sector was Rs. 438 crores (official estimate) and draft on currency reserves Rs. 528 crores ; the draft in the first year alone was Rs. 221 crores.

In assessing the achievement of the investment targets, allowance has, therefore, to be made for the "excess" use of the two put together—the excess is Rs. 365.8 crores—over three-fifths of the projected amount (Rs. 600 crores). With this adjustment, the amount of the investment achievement is Rs. 2,100 crores, or about 73 percent of the target figure. This is not a refined figure. The amount of the achieved investment is at current prices, while the investment target is at 1952-53 prices. Expressing the former, too, at 1952-53 prices,[2] the amount of the achieved investment would be Rs. 1,890.38 crores (Rs. 2,256.18 crores at 1952-53 prices *less* Rs. 365.80 crores[3] of the "excess" over the sum of withdrawals from the currency reserves and foreign aid used), or about 65.64 percent of the target figure. It is interesting to see that this performance approaches the present

[1] Figures of Indian national income, except when otherwise stated, are at 1952-53 prices.

[2] Computation is based on monthly average of price indices.

[3] The rupee being over-valued at the prevailing exchange rate, this figure is an under-valuation.

TABLE I

NATIONAL INCOME OF SOME COUNTRIES

(at 1953 prices)

	Country	(1) 1950	(2) 1957	(2) as percentage of (1)	Annual Rate of Increase %
1.	Australia (billion £A)	3.28	4.37	133	4.7
2.	Austria (billions of schillings)	58.87	86.40	147	6.7
3.	Belgium (billions of francs)	281.1	388.9	138	5.4
4.	Canada (billions of Canadian $)	14.75	23.13	157	8.1
5.	Ceylon (billions of Rs.)	3.93	5.02	128	4.0
6.	Columbia (billions of pesos)	6.48	8.34	129	4.1
7.	Cuba (billions of pesos)	1.75	2.39	137	5.3
8.	Denmark (billions of kroner)	21.84	25.49	117	2.4
9.	Finland (billions of markkas)	565.8	795.2	141	5.9
10.	France (billions of francs)	9641	14519	151	7.3
11.	West Germany (billions of D.M.)	76.02	151.2	199	14.1
12.	Greece (billions of drachmas)	34.56	53.93	156	8.0
13.	Guatemala (millions of quetzales)	382.5	559.2	146	6.6
14.	Honduras (millions of lempiras)	396.0	551.4	139	5.6
15.	India (billions of Rs.) (Year beginning 1st April)	94.9	110.3	116	2.3
16.	Israel (millions of Israel £)	804	1865	232	18.9
17.	Italy (billions of lire)	7413	11875	160	8.6
18.	Japan (billions of yen)	4831	7859	163	9.0
19.	Mexico (billions of pesos)	47.5	67.6	142	6.0
20.	Netherlands (billions of guilders)	17.29	26.99	156	8.0
21.	New Zealand (millions of pounds)	785	884	113	1.9
22.	Norway (billions of kroner)	16.40	20.19	123	3.3
23.	Pakistan (millions of Rs.) (Year beginning 1st April)	21558	19799	92	−1.1
24.	Philippines (billions of pesos)	6.04	8.89	147	6.7
25.	Sweden (billions of kroner)	36.85	47.81	130	4.3
26.	Switzerland (billions of francs)	18.48	25.98	141	5.9
27.	Turkey (billions of liras)	9.14	18.05	197	13.9
28.	U.K. (billions of pounds sterling)	13.19	15.25	116	2.3
29.	U.S.A. (billions of U.S. $)	257.3	342.5	133	4.7

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writer's estimate that the investment achievement of the second plan may be, at best, of the order of 65 percent of the target in the public sector.[4]

Some critics had apprehended that any attempt at investment on the scale of the second plan document, involving deficit financing of Rs. 1,200 crores, might cause uncontrolled inflation, one estimate of the rise in prices during the five-year period being 60 percent to 67 percent, or an annual rise of 12 to 13 percent.[5] During the first three years of the plan, the general index of prices rose (from 99.2 at the close of 1955-56 to 111.7 at the close of 1958-59) by 12.60 percent, or by about a third of the apprehended rate. Yet deficit financing during the period (comprising formal Budget deficits *plus* or *minus* the increase or decrease in the permanent debt holdings of the banking system, including the Reserve Bank of India), amounted to Rs. 1,018 crores, or about 41 percent more than the three years' proportionate share of deficit financing contemplated for the five-year period (Rs. 1,200 crores). This is no indication that, in the Indian climate, inflation is not harmful or that deficit financing is capable of adding significantly to the investment resources, without causing inflation.

The facts of the situation, however, are different. Deficit financing of Rs. 1,018 crores should have added in the circulation equivalent of central bank money. Through augmenting the reserves of commercial banks and a consequent secondary expansion of bank money (*via* increased loans, advances, discounts and overdrafts), theoretical reasoning and past experience suggest that total expansion of money might rise by about twice the amount of deficit financing (a little over Rs. 2,000 crores). The volume of money in circulation at the beginning of the second plan being Rs. 2,184 crores, this would have meant a doubling of the money supply in three years, instead of in five years as had been apprehended by the critics. If so, the price rise might have been very much faster than had been feared.

These developments, however, were prevented by drafts on currency reserves and a certain amount of general purpose foreign aid. The two together in large part neutralised the Budget deficits of the period, so that net additions to the monetary circulation during the three years, including the expansion of money by commercial banks, amounted to Rs. 314 crores. The mechanics of this phenomenon is easily seen. When the currency reserves are meant for use in the public sector, equivalent Treasury bills are lodged with the Reserve Bank; the bills having taken the place of the reserves used to pay for the import needs of the public sector, the assets and liabilities of the Reserve Bank, and, therefore, the central bank money in circulation, would remain unaffected. Although the amount of the Treasury bills issued in these cases would represent deficit financing, no central bank money would pass into circulation. There would be deficit financing only technically.

A certain general purpose foreign aid to the public sector has a similar neutralising effect on the monetary expansion resulting from Budget deficits. When aid takes the form of wheat imports—which is a variant of the general purpose foreign aid, as the proceeds of the wheat may be used for any purpose—under P.L. 480, and it is sold by the Government to the public, equivalent moneys are withdrawn from circulation. This would cancel in an equal measure moneys issued out through Budget deficits already incurred. But the wheat loan transactions are somewhat complicated. The wheat is paid for in rupees, the latter being raised through the issue of Treasury bills to the Reserve Bank. The rupee payments made to the T.C.M. in New Delhi are, then, loaned back to the Government of India and a part is used to meet the rupee expenditure of the U. S. Embassy in India. The sale of wheat will cancel the expansion of money representing deficit financing already increased only to the extent the rupee payments received by the T.C.M. are not drawn upon and used up either by the Government of India or the U.S. Embassy; when they are so used, the neutralising effect of the sale proceeds gets cancelled. Considerable sums of the rupee payments made to T.C.M. remain, however, unused. When these funds remain idle, the net effect of the transaction is that, although deficit financing will have taken place, there will be no additions to the monetary circulation, the initial expansionary issue of money being withdrawn *via* the sale of wheat and used by the Government to cancel the Treasury bills created to pay for the wheat to the T.C.M. The total aid for the second plan under P.L. 480 amounted to Rs. 270.67 crores, and the amount of it used, as at 30th September, 1958, Rs. 160.09 crores.

Loans from the I.M.F. have a similar monetary effect. These loans are paid for in rupees to the credit of the No. 1 Account of the I.M.F. with the Reserve Bank of India, the rupees being raised by the issue of Treasury bills to the Bank. The rupee proceeds of the sales of the foreign exchange acquired from the I.M.F. will be a case of withdrawal from circulation of the expansion of money resulting from past Budget deficits, the proceeds being used to cancel the Treasury bills issued to raise funds for crediting to the No. 1. Account of the I.M.F. The amount of the loan from the I.M.F. during the period which is being considered was Rs. 95.23 crores.

Other categories of foreign aid, such as outright grants and tied loans (*e.g.*, I.B.R.D. loans), prevented inflation, too, by providing resources for second plan investment. The only difference is that, unlike in the case of wheat loans (and certain other general purpose loans), the transactions relative to the grants and tied loans do not leave behind in the Budget accounts Treasury bill liabilities, which show up as deficit financing. In the one case, inflation is, so to speak, "cured" and, in the other, prevented. The total amount of foreign aid of all categories provided 23 percent of the investments during the first three years of the second plan in the public sector and the corporate private sector.

Pace of Industrialisation

Available statistics of the sectoral investments in the second plan are dated May 1958. Assessment of the rapidity of industrialisation during the first three years of the plan is, therefore, based on "anticipated outlays", the "actuals" being only for part of the period. In the revised plan, allocations in the public sector for "Industries and Minerals" (Rs. 880 crores) represented 18.3 percent of the total outlay (Rs. 4,800 crores) and "Transport and Communications" (Rs. 1,345 crores) 28 percent, "Irrigation and Power" (Rs. 860 crores) 17.9 percent, "Agriculture and Community Development" (Rs. 568 crores) 11.8 percent and "Social Services" (Rs. 863 crores) 18 percent. The distribution pattern of the "anticipated outlays" during the first three years of the plan was 17.1 percent in "Industries and Minerals", 32.6 percent in "Transport and Communications," 19.5 percent in "Irrigation and Power", 10.6 percent in "Agriculture and Community Development", and 14.7 percent in "Social Services". It will be noted that the pattern of distribution follows, more or less closely, that contemplated in the revised plan, although the ratios of the investments in "Transport and Communications" and in "Irrigation and Power" have gained somewhat at the expense of investments in "Industries and Minerals", "Agriculture and Community Development" and certain others.

The immediate objective of low income economies should be as steep a rise in production as possible. This would require that the bulk of savings should flow into industries in which there is an established position already, progress in other directions being left to depend upon the growth of incomes and savings, under the general guidance of market indicators; the latter ensure individual as well as social advantage very much better than the arbitrary fiats of ivory tower administrators, who have little knowledge of, or contact with, markets and their needs. Add to this the fact of the extreme poverty of the people and it becomes obvious that in developmental schemes, priority of attention should be given to the basic needs of the people, namely, food, water, housing, clothing and the ordinary requirements of manufactured goods in the production of which there are comparative advantages. For a republic, which for decades has been producing, say, bananas, and for which it is best equipped by a combination of institutional and other factors, to draw away the bulk of its savings prematurely into iron and steel plants and into the heavy engineering industries for turning out machines to produce machines may be economically disastrous, as this may involve a comparative neglect of the banana industry and, therefore, may impinge adversely on the overall flow of incomes and savings, and also on employment. This would retard, instead of hastening, the economic development of the banana republic. Following the line of production where nature, circumstances and institutional arrangements have endowed an economy with comparative advantages is much more likely to speed up development and industrialisation, through maximising incomes and economic surpluses, than a wasteful use of meagre savings into capital goods industries much before the economy may generate (through an expansion of output) sufficient demand for the products of these industries.

Expansion of Employment

Any precise assessment of the employment achievements of the second plan is not possible. Satisfactory data on the subject do not exist. The plan document states that an inadequacy of data rendered "even the formulation of the problem difficult" (pp. 112). On the assumptions of an increase in population of 5 million a year and a labour force of about 40 percent of this increase, the new entrants during the second plan period were estimated at 10 million. To this was added the backlog of unemployment of 5.3 million, the excess of the current additions to the labour force (9 million) during the first plan period and the additional employment resulting from the first plan (4.7 million). The employment potential of the second plan was placed at 9.5 million. This was later revised to 8.6 million as a result of the increase in the cost of the projects, the implication being that with the increase in costs, the "real" magnitude of the investments and, therefore, their employment potential declined. These figures, which rest largely on conjecture, have led to the conclusion that "the investment effort in the economy is still not up to the mark for ensuring employment sufficient to absorb the annual additions to the labour force."[6] The massive rural underemployment has continued largely unchanged. Attempts have been made to assess the trend in the employment position with the statistics of registrations for employment at the employment exchanges. But these statistics are not a dependable measure of the trend of unemployment, and it is hazardous and misleading to draw inferences from them.

These conclusions would seem to be somewhat puzzling. They suggest that the average of 7 percent to 11 percent of the national income, the range of investment of the second plan, is not yet the demographic rate in India, *i.e.*, an investment rate which is sufficient to absorb into employment the natural growth in the labour force. If the formula

[4] See B. R. Shenoy, *Problems of Indian Economic Development*, Madras 1958 p. 29; also see *Minute of Dissent to the Memorandum of the Panel of Economists*, New Delhi, 1955. Para 13.
[5] B. R. Shenoy, *Problems of Indian Economic Development*, op. cit., p. 125.

TABLE II

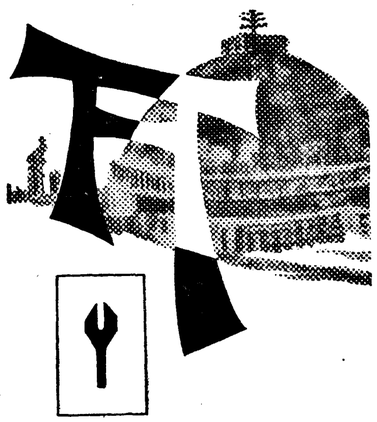
INVESTMENTS IN THE SECOND PLAN

(Crores of Rs.)

	1956-57	1957-58	1958-59	1+2+3
1. Plan outlay (Centre and States)	639.00 (606.33)[3]	846.00 (780.44)[3]	981.00 (868.91)[3]	2,466.00 (2,256.18)[3]
2. Capital formation in the private sector (estimate)	270.70	260.00	265	796.00
3. 1 + 2	909.70	1,106.00	1,246.00	3,262.00
4. Drafts on currency reserves	221.30	259.90	46.60	527.80
5. Utilised foreign aid	128.90	252.80	361.10	742.80
(a) public sector[1]	38.00	100.00	300.00	438.00
(b) private sector[2] (5 — a)	90.00	152.80	61.10	304.80
6. Current domestic savings drawn into the plan (3-4-5)	559.80	593.30	838.30	1,991.40
7. Net issue of money resulting from (1) Budget operations and (2) the public debt (including small savings) transactions of the banking system (including the Reserve Bank of India)	7.35	342.12	609.91	959.39
8. Plan finance by created money (7-4-5)	—	—	202.21	202.21
9. 4 + 5	350.20	512.70	407.70	1,270.60
10. 9 as percentage of 3	38.48	46.36	32.72	38.95
11. 4 as percentage of 3	24.32	23.50	3.74	16.18
12. 5 as percentage of 3	14.16	22.86	28.98	22.77
13. Increase in money supply	128.57	75.94	109.04	313.55
14. Percentage increase in the general index of prices	5.94	0.95	5.28	12.60
15. Savings less created money	559.80	593.30	636.09	1,789.19
16. Deficit finance[4]	211.77	497.78	308.01	1,017.56
15A. 15 as percentage of national income	4.95	5.22	?	?

[1] *Appraisal and Prospects of the Second Five Year Plan*, May 1958, New Delhi. p. 17.
[2] Derived figure (5-a).
[3] At 1952-53 prices.
[4] Formal Budget deficit + or—the increase or decrease in the permanent debt holdings of the banking system (including the Reserve Bank).

[6] *Appraisal and Prospects of the Second Five Year Plan*, May 1958, p. 26.



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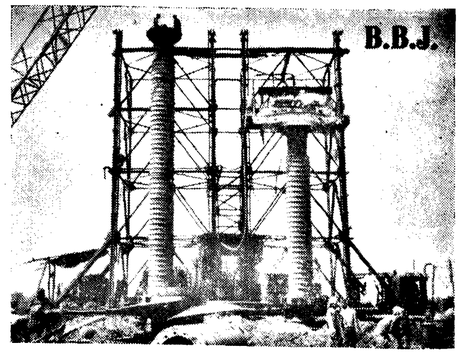

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TABLE III

SECOND FIVE YEAR PLAN ALLOCATIONS AND ANTICIPATED OUTLAYS*

(Rs. crores)

Heads of development	Five year plan allocations (Revised)	Percentage of total	Anticipated outlays for 1956-59	Percentage of total	Anticipated outlays for 1956-61	Percentage of total
I. Agricultural and community development	568	11.8	261	10.6	510	11.3
II. Irrigation and power	860	17.9	479	19.5	820	18.2
III. Village and small industries	200	4.2	91	3.7	160	3.6
IV. Industries and minerals	880	18.3	420	17.1	790	17.6
V. Transport and communications	1,345	28.0	800	32.6	1340	29.7
VI. Social services	863	18.0	360	14.7	810	18.0
VII. Miscellaneous	84	1.8	45	1.8	70	1.6
Total	4,800	100.00	2,456	100.00	4,500	100.00

* *Appraisal and Prospects of the Second Five Year Plan*, May 1958

suggested by Mr. Colin Clark[7] should be roughly applicable to India, the population growth being 1.26-2.0 percent, this rate should be 5 percent to 8 percent of the national income. This would seem to lend support to the view that statistics of unemployment and of the employment potential of the two plans must be treated with caution.

Employment is a function of the national product. Anything that adds to the national product will, therefore, add to the demand for labour. It follows that the demand for labour and, therefore, wages will rise if everyone, including workers, worked harder, the available capital resources were more effectively employed instead of being forced into low return public sector investments, domestic savings, which were meagre, were supplemented by imported savings (foreign aid) and rationalisation (and automation) was extended wherever such extension added to the net national product. The adverse incidence on employment of labour saving devices is sectoral and temporary; moreover, it may not be noticeable in a rapidly developing economy. Their longer run effect is decisively in the direction of larger demand for labour and higher wages.

Social Injustice

Passing on to the fourth objective of the plan, namely, social justice, the achievements here have been negative. This has resulted principally from two factors, inflation and controls. Inflation puts into the pockets of the people money to which no physical output corresponds. When they spent it either on investment or on consumption, the money incomes of some people in the economy are bound to involve (windfall) gains in excess of the normal returns as measured by their contribution to the physical volume of output. Logic and experience show that these beneficiaries of inflation are traders, business men and industrialists and other people in the upper income brackets. Simultaneously and correspondingly, through the device of the price rise, the real incomes of the rest of the community, the wage earners and other fixed money income groups, are adversely affected. Inflation, thus, inevitably produces an anti-equalitarian shift in national income.

Social injustice has resulted, too, from controls. Although a number of controls introduced during and after the war have been abolished, exchange control and import restrictions, and control over the distribution of certain commodities, notably, iron and steel, continue; controls are being reintroduced on foodgrains and sugar; they may be extended to other commodities. Although these are imposed in the name of order, they produce economic and social disorder. Interference with the free market gives rise to black markets. The incomes earned from the latter accrue generally to traders and business men, the better-to-do classes of the community, and being "black" earnings they are income-tax free. Exchange control and import restrictions (the "worst form of disorder", to quote Professor Ludwig Erhard, West German Minister for Economic Affairs), have caused a gap between the internal and the external prices of imported goods and of gold, which inflation has accentuated. They have led to gold smuggling and a scramble for, and traffic in, import licences. The benefit of the price gaps accrue (tax free) to people in the upper income groups, the civil servants and others to whom illegal payments are made for the issue of the import licences, the recipients of the licences, and the gold smugglers and their accomplices.

Allowing for the income changes in the socialistic direction of social legislation, the net amount of the anti-socialistic income shifts resulting from inflation and controls may be of the order of Rs. 300 crores a year, or about 3 percent of the national income, the largest bulk of this representing the unmerited gains ensuing from exchange control and import restrictions. Thus, the bulk of the annual increases in India's national income has been flowing into the pockets of the comparatively rich and the richer sections of the people, the benefits accruing to the lower income groups in general being comparatively small. In other words, even while the repeated policy pronouncements of the Government have been promising the speedy attainment of a socialist pattern of society, the doings in the field of finance, money, controls, import restrictions and international payments have led to the pattern of distribution of the national income becoming more anti-socialistic than before the Avadi session of the Congress or before independence.

The comparative prosperity of the urban population, especially in the metropolitan cities and, in particular, of the business and industrial classes, which contrasts with the still persisting stark poverty of the countryside, does not reflect expansion of the national product. It reflects the unmerited gains ensuing from inflation, the prevailing arrangement for the issue of import licences, commodity controls, and the benefits of the (direct and indirect) subsidies to industrialists. It is, therefore, largely a measure of the anti-socialistic shifts in income distribution, which have resulted from these policies.

The grinding effect of this four-fold pressure of stagnant *per capita* incomes, the inflationary price rise, commodity and price controls and restrictions on imports and payments has been particularly heavy on the fixed money income groups, which constitute the largest bulk of the middle classes. This is shown in their frayed and thread-bare wear, their consumption of milk, vegetables and fruits, the condition of their furniture, the strain on their accounts, the depletion or absence of their savings, and their changed attitude to dependents and guests, who are now no longer as welcome as they had been for ages. The middle classes, from which have sprung the leaders and the hard core in the professions, in the administration, in the sciences and the arts and in politics, are being fast wiped out.

Prospects for the Third Plan

A full-dress policy pronouncement on the size and structure of the third plan is yet to be made, so it is not certain how many cars (among other good things of the world) India will have by 31st March, 1966, and who among the people will have them. A firm picture of the plan will be available by early next year. The figure of Rs. 10,000 crores, often cited in the Press as its order of magnitude, is a projection of the second plan document in line with the scheme of doubling Indian national income by the year of Grace 1971. The validity of this figure as a possible policy objective has been considerably enhanced from its endorsement by the A.I.C.C. Seminar on Planning early last June in Ootacamund, where had assembled, in addition to the Prime Minister and other leading statesmen, some of the crack shots among the strategists, policy experts, administrators, statisticians and economists.

The Seminar also endorsed, as an irreducible minimum, the objective of an increase in the national income during the third plan, to 6 percent a year, 2 percent to balance the increase in population, 2 percent to add to the level of living *per capita*, and 2 percent for capital formation for bequeathing the capital basis to level up further the standards of living in the coming years. The national income rose by 3.7 percent a year during the first plan period (as against a target of 2.2 percent) and, as has been seen, by 1.55 percent during the first two years of the second plan (as against a target of 5 percent).

Total plan investment cannot exceed the sum of current domestic savings, past savings held as currency reserves and imported savings (foreign aid). Any attempt to invest beyond this limit through credit creation would be self-defeating. It would cause inflation, increase consumption, reduce savings, divert part of the savings away from the plan into gold hoards, capital exports, or socially less essential investments and thus be instrumental in slowing down development. Accelerated economic growth rests on the restriction of investment to the available volume of physical resources.

The financial problems of the third plan are already there. During the first three years of the second plan, a total investment of Rs. 3,262 crores (including the public sector and the corporate private sector) was financed by Rs. 1,789 crores of current domestic savings (Rs. 596 crores a year), Rs. 743 crores of utilised foreign aid, Rs. 528 crores of drafts on the currency reserves and credit creation ("forced saving") of Rs. 202 crores. Current savings (voluntary), thus, represented 55 percent of the investment outlay, imported and past savings accounting for 45 percent. In the first two years of the second plan, the savings gap was covered mainly by withdrawals from the currency reserves and partly by foreign aid and, in the third year, mainly by foreign aid and partly by drafts on the currency reserves (see Table II in Page 35). With the currency reserves nearly all gone—the surplus reserves as at 30th October, 1959, amounted to Rs. 116 crores over the legal minimum reserves of Rs. 200 crores—plan investment from now on has to rely wholly on current domestic savings and foreign aid.

In the current financial year, taking foreign aid at the Budget figure of Rs. 337 crores and assuming the flow of savings into the plan to continue at the average of the past three years, the savings gap, on a projected investment of Rs. 1,121 crores, would be of the order of Rs. 300 crores. This gap cannot be covered by credit creation without further jeopardising the plan. Following two past precedents, it is open to the Government to amend the law concerning minimum reserves and avail itself of the whole of the remaining reserves to cover the gap. Thereby, the problem will be only carried further by one year, not solved.

Simple arithmetic shows that the dimensions of the third plan would have to be severely limited. Assuming the flow of savings into the plan at an annual rate of Rs. 500 crores and placing foreign aid at Rs. 300 crores—both of which figures are unduly liberal—the investment outlay of the plan in the public sector and the organised, manufacturing private sector cannot exceed an order of Rs. 4,000 crores. This predicament is mainly the natural outcome of the policies which have, on the one hand, adversely affected the overall flow of savings and, on the other, diverted a part of the savings away from plan investment.

Official Thinking

Official thinking, further clarified by the Ootacamund Seminar, seeks an exit from this stubborn position through "institutional and organisational changes of a comprehensive character affecting both governmental and non-governmental agencies". Given these changes, the "conclusion" of the Seminar is "that it would be possible to mobilise resources" of the "order of Rs. 10,000 crores of which two-thirds was assumed to be in the public sector." The changes visualised include drastic measures of additional taxation, extension of State trading and co-operative farming.

Overall national savings cannot be expected to rise significantly by merely shifting profits from private trade to the coffers of the State by extending State trading or through increased taxation, especially because past experience has shown that rises in revenue receipts are apt to be balanced by larger non-investment expenditures. The savings habits of a people do not change because they now draw their incomes from a State agency instead of from private firms. Co-operative farming is of value for plan finance only to the extent it may augment the output of farms without augmenting equally the consumption a worker on the farms. This is expected to result from the application of modern methods of cultivation which the integration into optimum farms of the fragmented units might permit. A universal extension of co-operative farming may take decades to achieve, among other reasons, due firstly to the fact that the integration of fragmented units is a formidable task in itself, secondly, the additional capital requirements of the reform would limit its progress and, thirdly, the personnel with the necessary competence and character to run the farms are far too scarce. This is too speculative a proposition to rely on for third plan finance.

The planners first fancied deficit financing to be an Alladin's lamp, within limits; after two and a half years of discussion and a rise in the general index by 91 points (27 percent), they are convinced of the futility of relying on it for capital formation. Attention then shifted to the tax instrument and two years' experience has demonstrated its limitations. It is earnestly hoped that the contrivance now in favour—institutional changes—will be abandoned, in its turn, before too great damage is done to the magnitude of the national product. As has been seen, there is no safer device of maximising this product than through free-market economic policies. This is also in line with the best heritage of tolerance of this land.

[7] Colin Clark, "Population Growth and Living Standards", *International Labour Review*, August 1953, p. 116.

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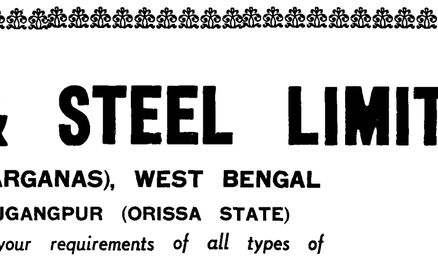

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CHARACTER OF INDIAN INFLATION ANALYSED

REDUCTION IN DEFICIT FINANCING ESSENTIAL

By

P. C. JAIN

INFLATIONARY conditions, which are marked by a relatively greater increase in the people's purchasing power than in the supply of goods and services on which this increased purchasing power could be spent, have persisted in India for quite some time. The present wave of inflationary rise in prices began in February 1958, with some relaxation in the closing months of 1958 and early in 1959. Consequently, the general index of wholesale prices has increased from 105 in February 1958 to 116.5 in September 1958, and after a temporary decline to 107.6 in April 1959, to a peak level of 118.5 (estimated) in October 1959. The prices continue to rise, and the end of the inflationary spiral is not yet in sight.

Monetary Phenomenon

Inflation is primarily a monetary phenomenon but, in order to find out the place of monetary policy in overcoming it, and to judge the extent to which the monetary policy of the Reserve Bank has actually been successful in this direction, one has to find out whether inflation in India is due to an excess of money supply or an excess of purchasing power in the hands of the people due to deficit financing. It must be emphasised here that if the money supply is increased to sustain the increased national output brought about by greater investment (through deficit financing or otherwise), it is not inflationary. It is only when the money supply is increased more than is necessary to sustain the increased national output, then it would be inflationary in nature. In other words, there would be an inflationary rise in prices if the purchasing power in the hands of the people is increased without there being a corresponding increase in the supply of goods and services, even if the money supply in the system has not increased disproportionately.

The basis of the Reserve Bank's monetary policy is that the inflationary price rises are due to an excess of money supply. In his speech at the 32nd annual meeting of the Indian Institute of Bankers on 20th August, 1959, the Governor, Mr. H. V. R. Iengar, observed that between 1951-52 and 1958-59, the increase in monetary demand, that is to say, the combined increase in the rate of growth of both money supply and the income velocity of money, has been 32.8 percent, and that of national income at constant prices 26.2 percent. From this calculation, Mr. Iengar inferred that the primary cause of inflation in India is an excess of money supply. It is unfortunate that Mr. Iengar did not reveal the data he used for finding out the "income velocity of money", because on that would depend the reliability of his calculation. But if it is correct to assume that over short periods of time, "the income velocity of money" tends to remain more or less constant and does not change much, the conclusion which Mr. Iengar has reached would not be correct if tested with the statistics of the total money supply with the people. In fact, it is possible to go further and say that there has been no close correlation between the increase in the total money supply and changes in the general price level. Between February 1958 and September 1958, the money supply with the people actually declined from Rs. 2,329 crores to Rs. 2,314 crores, but the general index of wholesale prices increased from 105 to 116.5 over this period. Many such examples could be given. On the other hand, the inflationary rise in prices since February 1958 is easily explained by the increase in the people's purchasing power because of deficit financing totalling Rs. 458.58 crores in 1957-58, Rs. 256.69 crores in 1958-59 and Rs. 221.44 crores in 1959-60 (Budget estimate), while at the same time, the index of agricultural production actually declined from 123.8 in 1956-57 to 113.4 in 1957-58. It is only in 1958-59 that it is expected to increase to 125. Industrial production is rising, but at a slower rate; the general index of industrial production shows that the rate of growth in 1958 was only 1.5 percent, compared with 3.5 percent in 1957 and 7 percent to 8 percent a year in the previous two years. The conclusion seems to emerge that the purchasing power of the people increased as a result of deficit financing and has risen at a faster rate than the supply of goods, thus resulting in inflation.

Policy of Reserve Bank

In view of this, it is not surprising that the Reserve Bank's monetary policy which consisted in (i) raising Bank rate from 3½ percent to 4 percent with effect from 16th May, 1957, (ii) effecting a *net* sale of Government securities worth Rs. 90 crores in 1958-59, compared with Rs. 87 crores in 1957-58 through its open market operations, and (iii) the policy of selective credit control rigorously followed since May 1956, have failed to check inflation and bring the price level down. In their *Report on Currency and Finance for the year 1958-59*, the Bank authorities point out that "the efficacy of the selective credit controls should not be assessed mainly in terms of their positive influence on prices, since the latter primarily depend on the availability of supply of the relevant commodities relative to demand. The success of these controls is to be judged in a limited sphere, namely, their impact on the pressure of demand *originating from bank credit;* in this sense, the measures should be deemed successful; but for their operation it is likely that the price situation might have been somewhat worse" (Page 32). The correct policy for the Reserve Bank was to point out, as it actually did after much damage was done, that in order to check inflation, the Government should curtail the volume of deficit financing and make a concerted effort to increase production.

What is more important, the policy of selective credit control assumes that the basic cause of rising prices is the speculative hoarding, of foodgrain stocks, of sugar and groundnuts, through bank credit. The fact is that bank credit supplies only 5 percent to 10 percent, or even less, of the total amount of money invested in speculative hoarding of stocks, and even the complete stoppage of bank credit for this purpose would make no material difference in the price level, especially in view of the fact that on a large non-monetised sector in India, the policy of selective credit control can have no effect. Besides, most of the hoarding of foodgrains, sugar and groundnuts is done not by speculators with bank credit but by the producers themselves.

Selective Credit Control

Finally, the policy of selective credit control is based on the wrong analysis that it is not an excess of purchasing power but an excess of money supply which is responsible for the inflationary rise

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in prices. The increase of Rs. 153 crores in bank credit in 1956, when viewed in the light of increased production, was not such as to make the Reserve Bank authorities resort to selective credit control. An expansion of this order in bank credit was the most natural thing to happen and it did no damage to anybody. Similarly, the subsequent increase in bank credit, including the increase of Rs. 181¾ crores in the 1959 busy season from Rs. 838¾ crores to Rs. 1,020½ crores, was not such as to justify the further tightening of controls by the Reserve Bank. It must be said to the credit of the scheduled banks that they have fully co-operated with the Reserve Bank in its policy of credit control. For the 1959 slack season, which ended officially on 31st October, 1959, the Reserve Bank authorities had asked the scheduled banks to reduce bank credit by about Rs. 100 crores, so as to leave it at the end of the slack season 10 percent higher than at the end of the previous season, in order that bank credit might not be excessive and, at the same time, it might provide adequately for the requirements of an expanding economy. The scheduled banks were successful in reducing their credit in the 1959 slack season by Rs. 89½ crores to a level of a little more than Rs. 930 crores at the end of October 1959. The thoroughness, with which they have carried out the Bank's policy of selective credit control and have abided by its credit restriction policy, has actually resulted in restricting the supply of credit to industry and trade for even genuine purposes of business. In some cases, this has actually reduced production, thereby intensifying the inflationary pressures.

If this analysis is accepted, the conclusion is irresistible that monetary policy, in the conditions prevailing in this country, is not an effective instrument for controlling inflation. The Government of India has adopted certain fiscal measures such as increasing the level of taxation and increased public borrowings to reduce the volume of purchasing power in the hands of the people. It has also used some fiscal measures such as reducing the incidence of import and excise duties on industrial costs with a view to increasing production. But these policies have not been effective in checking inflation because (i) there has been no co-ordination between the Reserve Bank's monetary policy and the Government's fiscal and production policies; (ii) in some cases, increased taxation has actually proved inflationary in so far as it has increased dissaving and has raised the cost of production, and (iii) increased public borrowings have been inflationary in so far as they have been quickly invested, thereby still further increasing the purchasing power in the hands of consumers without a simultaneous increase in the supply of goods and services.

Co-ordinated Policy

In order to deal with inflation in India no single policy—monetary or fiscal—would suffice. What is needed is a co-ordinated monetary, fiscal and production policy which, in addition to regulating the money supply according to the requirements of the economy, would ensure, firstly, that the level of deficit financing is reduced to a more reasonable level of, say, less than Rs. 100 crores a year. If the volcanic forces of excessive deficit financing are constantly throwing the economic system out of gear and are creating inflationary pressures, no amount of credit control or other monetary policies will be able to keep the inflationary forces in check. It is perfectly possible to reduce the level of deficit financing if either the size of the third plan is reduced or, if the size is kept at the proposed high level of Rs. 10,000 crores of net investment, and the share of the private sector in net investment during the third five year plan is increased to the proportions of the first plan, if not higher. The methods of finance used by private enterprise are much less inflationary than deficit financing.

Secondly, some positive measures should be taken by the Government to secure an increase in industrial and agricultural production. In India, the people, and especially the producers, have suffered not only from excessive taxation, but also from small increases in postal charges, railway fares and freights, fees and prices charged by different Government departments which have added up to a substantial amount as far as costs of industrial production are concerned. In order to encourage industrial production, the incidence of taxation on the costs will have to be reduced.

Planning necessarily involves some long-period investment which would increase production after a considerable time. But, in the particular conditions prevailing in India, it is necessary to phase the different projects in such a way as to increase the output of some selected commodities in the short period, from year to year, so as to absorb the increased purchasing power in the hands of consumers as a result of increased public investment. Finally, in spite of the fact that India is faced with a foreign exchange crisis and the need for importing investment goods is very great, the Government's import policy should provide for importing a substantial amount of consumer goods to absorb part of the consumers' increased purchasing power. If we have to choose between a greater deficit in India's balance of payments and increased inflationary pressures in the country, the former is to be preferred under the prevailing circumstances, since stability should be restored to the value of the Indian rupee, which has been steadily going down.

Period	General Index of Wholesale Prices (1952-53=100)	Total money supply with the public (Crores of Rs.)	Extent of deficit financing by the Government (Crores of Rs.)	All commodities index of agricultural production (Year ended June 1950=100)	General index of industrial production (1951=100)
1956-57	105.1	2,313	184.75	123.8	132.6*
April 1957	107.3	2,362			
August 1957	110.9	2,238			
November 1957	108.6	2,243	458.58	113.4	137.3**
February 1958	105.0	2,329			
March 1958	106.1	2,389			
April 1958	107.6	2,447			
September 1958	116.5	2,314	256.69	125.0†	139.7***
March 1959	111.7	2,499			
April 1959	107.6	2,447			
October 1959	118.5†	2,500†	221.44‡	(a)	(a).

* Refers to 1956. ** Refers to 1957. ***Refers to 1958.
† Estimated. ‡ Refers to the financial year 1959-60.
(a) Not yet available.

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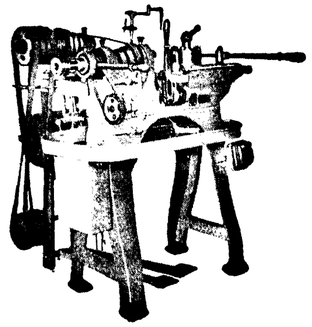

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Need for a Broader Spread of Share Ownership

THE cry against "concentration of economic power and wealth in a few hands" has recently been raised in India, largely to condemn private enterprise and to provide justification for expanding activities in the public sector. It has been urged that since one of the four principal objectives of the second five year plan is "reduction of inequalities in income and wealth, and a more even distribution of economic power", the State must act swiftly to prevent such concentration. First of all, it is necessary to be clear what the phrase, "concentration of economic power in a few hands," actually means. Generally speaking, such concentration arises through monopolies. This has been the case particularly in the U.S.A. and, to some extent, in the U.K., Germany and Italy. In these countries, concentration has manifested itself in the form of trust, cartel and holding company, and has extended even beyond national boundaries.

In the U.S.A. in particular, concentration of economic power can be seen in the fact that a few large corporations (sometimes a few individuals) control most of the productive capacity and distributive machinery in that country. There were so many cases of restrictive practices, cartelisation, trustification and interlocking, both financial and managerial, that the U.S. Congress had to enact a series of legislative measures (*e.g.*, the Sherman Act, the Clayton Act and the Federal Trade Commission Act) to curb these unwholesome tendencies. Even so, concentration could not be checked. In 1956, 250 big corporations owned 45 percent of the total assets owned by all the corporations (joint-stock companies) in that country, and more than one-third of the directorships were held by just 400 *men*. In the sphere of employment, less than 1 percent of the corporations employed more than 50 percent of the workers.

The growth of these gigantic industrial units and combines was facilitated by certain facts and circumstances inherent in the economic situation —particularly by technological advance and increasing use of mechanical power. As markets expanded and consumer demand became more discriminating, the need was felt for more intensive research and also for a certain degree of understanding between firms producing identical, similar or complementary goods. In a sense, it was competition which paved the way for the elimination of competition.

The Nature of Monopolies

It has been argued that what has emerged is not monopoly, but duopoly or oligopoly. It is a new type of competition in which the "fewness of sellers" has not necessarily meant exploitation of the consumer: as a matter of fact, the consumer has actually benefited from the optimum allocation of economic resources and more efficient operation under the duopolistic or oligopolistic system. "Big business has facilitated the efficient production and distribution of basic commodities, strengthened the nation's security and even promoted human freedom and enterprise". In spite of the advantages of efficient operation under the duopolistic and oligopolistic system, the fact remains that concentration has tempted firms to resort to various kinds of restrictive practices, some of which at least have not been in the public interest. The recent Grand Jury investigation into the affairs of one of the largest corporations in the U.S.A., was not ordered lightly. In the U.K., the setting up of the Monopolies and Restrictive Practices Commission in 1948 and the passing, eight years later, of the Restrictive Trade Practices Act, also show that the dangers are by no means imaginary. The spate of "take-over bids" in recent years leading to the amalgamation and merger of a number of large British firms has been explained on the ground that it would promote efficiency, but few have defended the "ethics" of such bids and fewer still have said that these would not lead to a further concentration of power. In the U.K., according to the taxation statistics for 1958, something like 37 percent of all company profits were made by 400 companies and 75 percent of all profits by only 5,700 companies.[1] No wonder that political disquiet has been caused by the further mergers which are taking place and it has been suggested that immediate steps should be taken to bring under control these "self-perpetuating oligarchies" and the "warfare among themselves".

It is developments of this type which cause concern to the community. The question, therefore, is whether concentration of economic power in the accepted sense is a feature of the Indian economy today. No detailed investigation (of the kind conducted by the U.S. Congress during 1938-41 or by the Monopolies and Restrictive Practices Commission in the U.K.) has yet been attempted in India. Nevertheless, it cannot be denied that there does exist in industry a certain degree of concentration of productive capacity and also of management control. For example, a major part of the net product of industry is produced by a handful of higher medium-sized and large-sized companies. In 1955, 5 percent of such establishments produced over 60 percent of the manufactures (in terms of value). From the employment angle, in the same year, 4 percent of the big factories accounted for 61 percent of the total

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Dr. N. DAS

employment. Managerial devices of various kinds have also led to concentration of control over assets and finance even without a corresponding ownership of capital. In spite of the new Companies Act, heavy management concentration continues in all major industries: if there is less of interlocking directorships now, there is more of both horizontal and vertical combinations.

Pattern of Share Ownership

It is sometimes argued, both in Western countries and in India, that there can be no concentration of economic power as long as the pattern of shareholding interests remains broad-based. In a study of shareholdings as they existed in the U.K. in 1955, it was found that individuals held a total of £7,000 million worth of ordinary and preference shares and debentures out of a total of £10,635 million. Similarly, in the U.S.A., more than 7 million people share in the ownership of more than half a million corporations.[2] In India also, shareholding, it is said, is widely diffused. For instance, the Tata Iron and Steel Company Ltd., the largest unit in the private sector, had on its share register (on 31st March, 1958) as many as 51,746 shareholders, of whom individuals accounted for 51,147. Of the total number of shareholders, as many as 24,336 were those whose holdings were of the value of less than Rs. 1,000, 20,025 were those whose holdings ranged between Rs. 1,000 and Rs. 5,000, 4,113 were those whose holdings were between Rs. 5,000 and Rs. 10,000 and only 3,272 persons had shares worth Rs. 10,000 and above.[3] Is it not difficult, one is asked, to visualise concentration of economic power in the context of such diffused public ownership of share capital and voting rights? These figures do not reveal three important facts. The first is that although ownership of share capital is widely diffused in most companies, it is not so in some. Secondly, although the number of persons holding shares above a certain value may be relatively small, in many companies the quantum held by them is quite large—at least large enough to place in their hands the desired power. Thirdly, howsoever diffused shareholding may be, it is well known that shareholders as a class are unorganised, weak and apathetic practically all over the world. Diffusion of ownership and possession of voting rights, therefore, may not have much significance. As a matter of fact, even the safeguards introduced in the new Companies Act in the interest of shareholders, cannot adequately check the exercise of oligarchical power.

Shares for Employees

Attempts are, therefore, being made in some countries consciously to diffuse concentration. The issue of "employees' shares" in the U.K. is a typical example. The notion of worker-proprietors is being canvassed energetically in the U.S.A. also. "People's shares" are being sold in France and West Germany on terms which are specially designed to favour the small investor. Even in India, a few progressive companies are taking steps in this direction. Even so, the fact remains that, in 1957-58, 2,603 companies in India, out of a total of 8,379, had less than 50 shareholders each.[4] It would also be useful to consider certain other facts. According to a special survey made by the Government of India, in 1956-57, there were 115 companies at work with a paid-up capital of Rs. 1 crore and above. These were only a small fraction (0.4 percent) of the total number of companies at work (22,779). In terms of paid-up capital, however, they accounted for roughly one-third of the total paid-up capital of all companies at work. What is more significant, the first 10 companies had a total paid-up capital of Rs. 112 crores out of Rs. 294.7 crores for the first 100. The net profits after taxation and depreciation were Rs. 18.8 crores for the first 10, out of Rs. 32.7 crores for the first 100. A slight change appears to be taking place in recent years. New registrations in 1956-57, 1957-58 and 1958-59 were as follows:

	Number of companies with an authorised capital of Rs. 1 crore and above	Total number of companies
1956-57	28	848
1957-58	28	961
1958-59	22	1,095

The average authorised capital of a newly-formed giant company (i.e., of a company with an authorised capital of Rs. 1 crore and above) was Rs. 10.8 crores in 1958-59, against Rs. 6.1 crores in 1956-57 and Rs. 2.4 crores in 1957-58. These figures, however, include a number of giant Government or quasi-Government companies floated during these years, the authorised capital of which runs to many crores of rupees. If these are excluded, the drift towards large companies in the private sector does not appear to be very pronounced. An analysis of the companies at work in 1958-59 shows that 105 Government concerns accounted for 28 percent of the total paid-up capital of the entire corporate organisation of the country: the actual figures were Rs. 417 crores out of a total of Rs. 1,509 crores. The paid-up capital of Government undertakings had increased by about Rs. 351 crores between 1955-56 and 1958-59 while the increase in the paid-up capital of non-Government companies during the same period was Rs. 135 crores only.[5]

Highly Centralised Management

Much more relevant, however, is the question whether, in spite of the diffusion of ownership, concentration of economic power exists or not. Here, the experience of Western countries (including the U.S.A.) is definitely in the affirmative. Even an apologist like Professor Massino Salvadori, who speaks in terms of "People's Capitalism," concedes that in the U.S.A., management of the means of production is "highly centralised in many cases, particularly in a dozen big industries..... To a large extent, ownership and management have become distinct and separate from each

[1] The *Economist* (London), 4th July, 1959.
[2] *The Times* (London), 2nd March, 1959.
[3] *Annual Report of the Tata Iron & Steel Co. Ltd. for 1957-58.*
[4] *Annual Report of the Department of Company Law Administration, Government of India, for the year 1957-58.*
[5] These and other figures relating to India have been taken from reports published by the Department of Company Law Administration, Government of India.

Here are a few examples of Simon-Carves' ability to combine their long experience of engineering design and construction with the specialised technical knowledge of their clients and to accept reponsibility as main contractors for complete industrial plants on a major scale.

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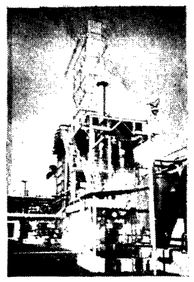
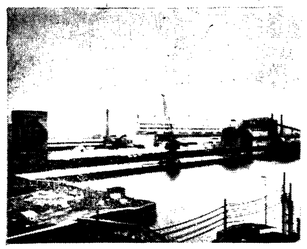
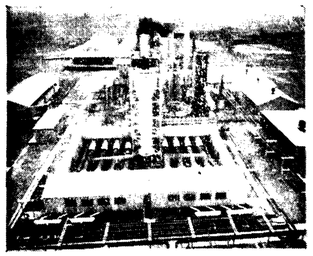


India's first 3,500 tons per annum Polythene Plant at Rishra, West Bengal, set up by the Alkali and Chemical Corporation of India —Simon-Carves were the main contractors for engineering and for detail design and construction of plant and buildings.



Over 40 million lb. of phosphorus from phosphate rock are produced from this factory at Portishead, U.K., every year for Albright & Wilson; Simon-Carves were main contractors for civil engineering and building and for detail design and construction of plant and buildings. Two travelling pneumatic unloaders were supplied by Simon Handling Engineers.

The Indian Explosives Factory at Gomia, Bihar, where Simon-Carves were responsible for design, construction and erection of the sulphuric acid and oleum plant, for construction and erection of the denitration and acid blending unit and ammonium nitrate plant, and for erection of the nitric acid plant.



60,000 lb. of carbon black are daily manufactured in this plant by the "furnace process" for Cabot Carbon Ltd. (wholly-owned subsidiary of Godfrey L. Cabot Inc. of USA) at Stanlow, Ellesmere Port, U.K. Simon-Carves were main contractors for the entire plant on a green-field site.

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other. It is no exaggeration to say that management has achieved a unique position in American industry".[6]

The trend is not confined to the U.S.A.: it can be seen all over the world. As the latest edition of the *Directory* published by the U.S. journal, *Fortune*, shows, some of the largest U.S. corporations can be matched, both in sales and assets, by almost equally large corporations having their head offices in Great Britain, Holland, West Germany and Italy. The managements of these corporations wield a power which is completely out of proportion to their direct financial stake. It is sometimes argued that various countervailing factors (*e.g.*, consumers, trade unions and the State) ensure that this power is not exercised by the management arbitrarily or selfishly. For instance, Professor J. K. Galbraith writes: "There are undoubtedly large frozen (monopolistic or oligopolistic) sectors of the American economy. In spite of these frozen sectors, however, competition fulfils its rôle in promoting business mobility, eliminating inefficiency and keeping the door open to new industries and new technological inventions".[7]

The Power Elite

While the above is true to some extent (competition even among these giants keeps the economic system at a high pitch and helps to make available to the consumer a large variety of products at reasonable prices), it cannot be denied that there has grown up in the U.S.A. (as also in many European countries) an inner circle of the "power *élite*". The big rich, the politicians and the corporation executives form a centre of power that is highly knit and basically irresponsible. In the words of Professor C. Wright Mills, "this power *élite* is *not* an aristocracy, *i.e.*, it is not a group based upon a nobility of hereditary origin. But members of this group come from the upper third of the income and occupational pyramids. Moreover, while it does not necessarily follow that all such men are selfish and alive only to the interests of their own class, there is a kind of reciprocal attraction among the members of this fraternity, flowing directly from psychological affinities. As a result, we see, to the point of virtual totality, the continuance in power of a set of men who, by training and bent, are professional organisers of considerable force and who are unrestrained by democratic training".[8]

Concentration of Power in India

To what extent do these remarks apply to India? This writer analysed the situation in 1956 and came to the conclusion that the process of concentration of control in a few hands was accelerated after the second World War. It was then found that a large number of directorships was held by a minority of influential persons. In the coal industry, out of 56 companies, 51 companies with 247 directorships were controlled by 28 persons, seven of whom held 64 directorships. In jute, 267 directorships were held by 130 persons, four of whom had 82 directorships. In joint-stock companies as a whole, 61 persons held 1,038 directorships (an average of 16 to each person), while 20 of them held 805 directorships (an average of 40).[9] More or less the same picture emerges from the study made by the Department of Company Law Administration, Government of India. According to this study, in 1954-55, excluding Government companies and banking and insurance companies, 54 percent of the joint-stock companies were under the charge of managing agencies: out of these, 17 top managing agencies managed between 10 and 40 companies each and the total paid-up capital of these managed companies came to Rs. 114 crores.[10] Although, as a result of the coming into force of the new Companies Act, there has been a perceptible shift towards management of companies by boards of directors instead of by managing agents, a further study made by the author for the year 1958-59 indicates that, as far as directorships are concerned, there has been hardly any diffusion of control since 1956.[11] It would, however, be unwise to draw adverse conclusions merely from these figures. As in Europe and America, in India also, concentration of control is the direct consequence of modern industrial enterprise. Industry nowadays requires huge capital, considerable enterprise and resourcefulness plus a high degree of technical know-how. These cannot be procured by the small entrepreneur. Secondly, in the competitive buyers' market which is the normal feature of modern capitalism, none but the most efficient units can survive.

An interesting feature of the situation in this country is that there is much less concentration of market power. In Western countries, trade associations wield considerable power, performing as they do a multiple rôle—they are a research organisation, a lobby, a statistical agency, a trade promotion unit and a device of monopoly. In India, in spite of their wide coverage and high-sounding objectives, trade associations are very weak *vis-à-vis* the growing powers of the State. Although temporary cornering of goods and services is not unknown, restrictive practices of the type prevalent in the West are still few and far between in India.

Power Concentration in Bureaucracy

The dangers of concentration of economic power in a few hands has impelled the Indian Government to act as the "countervailing power" against the "original power of monopolistic capitalism." As already stated, the Government has taken the line that a more even distribution of economic power can be achieved only through all-embracing State action. Assumption of greater power by the State may, however, mean merely a shift in the seat of concentrated power and not a diffusion of it and economic democratisation. In many socialist countries, State capitalism is being substituted for so-called private capitalism, placing both workers and consumers at the mercy of the leviathan State and the new bureaucracy of the public sector. This should no longer be a matter of indifference to the people. If great accumulation of private power must always be a matter of public concern, great accumulation of public power must equally be of concern to the mass of private citizens, because the use of that power affects the whole community. The situation is aggravated by the fact that the majority of those liable to bureaucratic oppression are, in most countries and more so in India, too uneducated to defend their rights. And, of those who are educated, many reckon that since the outcome of their challenge to the power of the State is uncertain, the enormous time and trouble involved are not worth the risk of an adverse verdict, with the prospect of further oppression. One thus finds oneself on the horns of a dilemma. It cannot be denied that there is need for some curb on the concentration of economic power in a few hands in the private sector, but as soon as the State is invested with the necessary authority to do so, the latter itself becomes a repository of concentrated power and a new set of power *élite* takes over.

What should the private sector do in these circumstances? In the writer's opinion, its approach should be two-fold. First, it should endeavour to secure a very wide dispersal of the ownership of equity capital. At present, the ups and downs in the profitability of industries are a matter of concern to a class of shareholders who are numerically insignificant in relation to the population. When not only wealthy capitalists, but lower middle-class salary earners, industrial workers and peasants become shareholders, the masses will have a stake in the stability and progress of private industry. The word "capitalist" would then cease to be a term of opprobrium: a broad-based public opinion would then demand that the Government refrain from policies which tend to undermine the profitability of industry. Secondly, managements must abide by a more enlightened code of conduct—a code which would place them above reproach in the eyes of the public. They must strive assiduously not to create a situation which might compel the State to assume strong countervailing powers. In other words, the countervailing powers should come from within the managements themselves. Freedom and democracy in the economic field can be rightfully demanded by private enterprise only when it is imbued with a social purpose and does not seek power for a limited few.

[6] Massino Salvadori: *American Capitalism* (London) 1955.
[7] J. K. Galbraith: *American Capitalism* (New York) 1952.
[8] C. Wright Mills: *The Power Elite* (New York) 1957.
[9] Vide my *Industrial Enterprise in India*. Second Revised Edition published by Orient Longmans Private Ltd., 1956.
[10] *Report on Managing Agencies in India* published by the Department of Company Law Administration, Government of India, in 1958.
[11] The study has been made from data given in the latest issue (1959) of the *Investors' India Year Book* published by Messrs. Place, Siddons and Gough, Calcutta.

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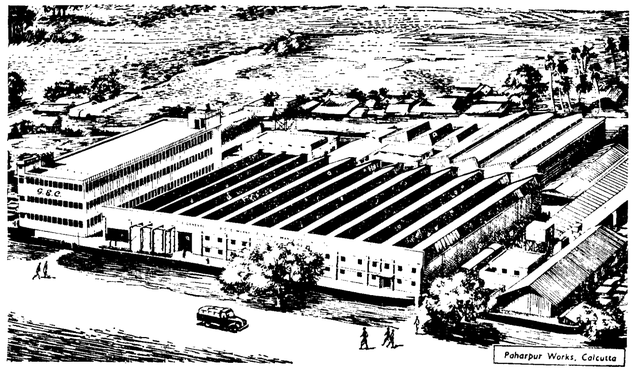

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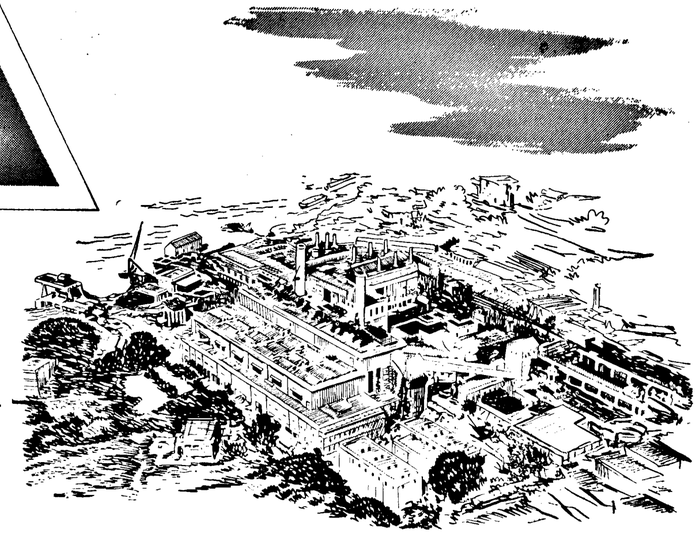

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Need for Economy in Development Outlays

THERE is remarkably little serious thinking on the institutional aspects of Indian public finance, yet it is badly needed if one is to be able to make correct assumptions about the place of Governmental activity in the national economy. One has to bear in mind the impact of modern macro-economics on public finance as a factor influencing the form and level of expenditure. The enormous increase in public expenditure under the influence of new ideas of State policy calls for greater control and scrutiny of public expenditure.

One may distinguish broadly three degrees of control of public expenditure. The first is the accountability control, which requires machinery to ensure that public funds are spent in authorised ways. Secondly, there is efficiency control, the aim of which is to ensure that no more is spent on particular forms of expenditure than are required for the purpose in view. The third is what might be called economic control, the aim of which is that aggregate spending by the Government is consistent with the desired distribution of resources between public and private uses. Accountability control is largely concerned in countries like Great Britain with Public Accounts Committee. Accountability deals with the scrutiny of events in the past. Efficiency control is concerned with the present and the future. Some criteria of efficiency have to be evolved, and somebody must apply them. This scrutiny has been the function of the Estimates Committee. The convention is now accepted that the estimates of expenditure are the concern of the Government in power and, given majority rule, the Government must decide on the criteria. In England, the Estimates Committee has frequently come into conflict with the Governments and in as far as the application of criteria is concerned, the Estimates Committee in Great Britain has been frowned on by the Treasury which considers that any cross-check of estimates is a reflection on its efficiency.

In England, the checks in the control of expenditure by Parliament are of two types: legislative check is intended to ensure against possible exploitation by a strong Government to force through a Budget; the administrative check is designed to ensure that money voted by Parliament is spent only for the authorised purposes and without dishonesty or fraud. These two types of checks, although distinct, are complementary and dovetail into one another. The (Parliamentary) Public Accounts Committee uses the administrative offices of the Department of the Exchequer and Audit as its secretariat.

Modelled on U.K. System

In India, which follows more or less closely the British system of financial administration, institutional democratic and administrative checks are set up on the British model. For example, expenditure calling for additional funds should emanate from the President, that is to say, virtually from the President's Ministers; again there is the Public Accounts Committee and the Estimates Committee and a day is usually reserved for Parliamentary discussion of the reports of the Public Accounts Committee, and the reports of the Estimates Committee, like its British prototype works in close co-operation with a strong department of audit whose composition also follows largely the British system.

On the question of audit, it may be desirable that there should be one organisation that should draw up programmes and priorities and another that should assess achievements and examine failures. In fact, the Prime Minister, Mr. Nehru, has recently made the same suggestion by saying that what is needed is not so much financial audit as achievement audit. In the context of the vital changes taking place in the national economy, the more important thing to measure is the change effected and not the money spent. It may be said that financial audit comes to the same thing since such audit is of spending on a particular project estimated to cost a particular sum of money. But there is an essential difference; in financial audit, one thinks of the money and in the last resort, one is satisfied even if the thing planned is not done as long as the money is not wasted. In achievement audit, on the other hand, one looks at the concrete changes effected, and blame will normally attach to the executor for not having completed a planned task, even though he may plausibly defend himself by saying that he might in that case have incurred more expenditure than originally planned. In other words, the accent is on results and not on penny-pinching. From this point of view, the best auditor would be the technical man and to that extent, the financial auditor who merely concerns himself with the technicalities of orthodox spending has only a minor rôle to perform. The function of the Auditor-General must not be considered overridingly important so as to make actual achievement impossible by fear of what he may have to say on how it was done. In this connection, one cannot ignore the serious difficulty of sanction from the Finance Ministry every time something is to be done. Of late, it is said there have been many instances of how technical men have been thwarted by financial officials who do not have the technical knowledge to evaluate the need for expenditure. It is to avoid such frustrating check on expenditure that has made Mr. Appleby to suggest extensive delegation of powers to the men on the spot.

Criticisms of Mr. Appleby

On the other hand, protagonists of the present system maintain that the Indian audit system

By

V. G. RAMAKRISHNA AIYER

has been criticised by Mr. Appleby without sufficient knowledge. In the appraisal of the function of the Comptroller and Auditor-General of India, he treads a somewhat unfamliar and controversial ground when he says that the function of audit is a strictly negative one. It is, of course, true that the Government audit is a financial audit and audit criticism is limited to financial criticism based on the accounts. But one cannot deny that it is the duty of audit to bring to notice the wastefulness in public administration and infructuous expenditure. One has only to glance through the pages of the audit reports on appropriation accounts to have an idea of the innumerable cases of misappropriation of public funds and infructuous expenditure. The maintenance of a high standard of public morality and sound financial administration has been the constant endeavour of audit. The fundamental object of the Audit Department is to secure value for the taxpayer's money by seeing that expenditure is not irregularly and wastefully incurred and Parliament has, therefore, attached great importance to the rôle of the Comptroller and Auditor-General of India and accorded him the status of an independent constitutional authority.

If the work of enforcing economy is to be done with efficiency, it cannot be left to those whose representation and power depend upon spending; it must be given to another authority whose power and reputation will depend upon his efficiency in economising public resources. Hence the need for a division of functions, and thus out of the three agencies of financial control, audit functions in a dual rôle both on behalf of the Executive (Finance Ministry or Department) and on behalf of the Legislature, that is, Parliament As a matter of fact, the present system of Indian audit has done much to point out cases of leakage of public funds and pinpoint irregular practices. The rôle of audit has been the positive one of suggesting and helping to take corrective action in the light of past experience and not merely a negative or pedestrian one of watching the mere application of rules and orders, and it has been remarkably useful both in the matter of acting as financial adviser to the Government and in its helpful suggestions and assistance in the field of budgetary and financial control in India.

Trends in India

The powers of sanction and control of expenditure have become important at present and will be much more so in the coming years. In a modern developing economy like India's, the budgeted expenditure on various development schemes is becoming colossal, and with it the powers of the persons who exercise the control over sanction of enlarged expenditure increase. In the pre-war period, prior to 1939, the budgeted expenditure of the Central Government stood at about Rs. 86.61 crores and out of this, defence absorbed about Rs. 47.35 crores, leaving Rs. 39.26 crores for civil expenditure. The function of the pre-war Central Government was mainly that of a police State to look after law and order only, while since Independence, the ideal has changed into that of a welfare State. Further, the Government has assumed the responsibility of directing the activities of various Ministries and State Governments to the attainment of optimum economic activity. Central Government revenues have now begun to reach a level of over Rs. 500 crores and before the end of the second five year plan, they might go well above Rs. 800 crores. Besides, the Government has begun to increase expenditure through loan floatations and deficit financing. The Finance Minister recently stated that in order to tackle the problem of unemployment even to a moderate degree, the Government would have to spend Rs. 1,000 to Rs. 1,200 crores a year. The need, therefore, for utmost restraint on the growth of public expenditure, both non-developmental and developmental, whether of the Centre or the States can hardly be over-emphasised. During a phase of intensive development effort when targets in terms of expenditure assume a certain degree of significance, there is likely to be even within the developmental sector of expenditure some room for economy and avoidance of waste. The power to sanction and exercise control over the huge volume of expenditure has become important.

Regulation of this huge volume of expenditure towards the implementation of the Governmental plans will mean considerable powers for the Finance Ministry. Some powerful Ministers have already begun to chafe at the growing authority of the Ministry of Finance, and it is mainly against the constant and irksome interference of the Finance Ministry that other Ministers have begun to plead for greater decentralisation over the control of expenditure. Attempts are being made to decentralise the power over sanction and control of expenditure from the hands of the Finance Minister as much as possible. It will be recalled that this attempt led to a veritable crisis in July 1954, when the then Finance Minister, Mr. C. D. Deshmukh, threatened to resign from the Cabinet over the Chanda Report, which had suggested decentralisation in relation to the sanctioning and control over expenditure. The Appleby Report which was recently discussed in the Lok Sabha on the pattern of decentralisation of financial control and audit brought the issue to the fore, namely, that the present system of too many checks and counter-checks sapped administrative initiative and delayed action.

Proposed Reform

In essence, the proposed reform facilitates the scrutiny of expenditure in detail by the Finance Minister before the Budget estimates are drawn up by the various administrative Ministries for the next financial year. It is an offer to these Ministries to exert themselves and fulfil in as many details as possible their schemes and their standing charges for scrutiny and approval by the finance officers before submitting the expenditure estimates, so that once the estimates are approved by Parliament, they can save themselves the delay and uncertainty in the actual incurring of expenditure which seems to be inherent in the present practice of seeking the sanction of the Finance Ministry for specific expenditure on innumerable items of details after the grants are voted by Parliament.

A very large volume of the financial scrutiny under the existing system takes place in the post-

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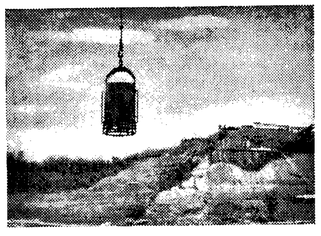

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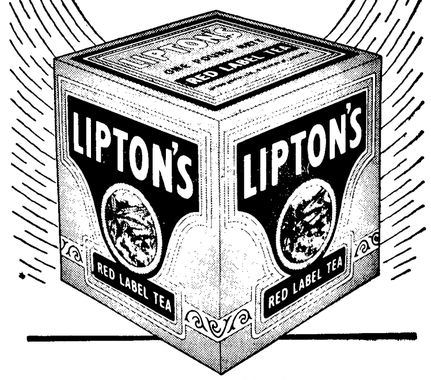

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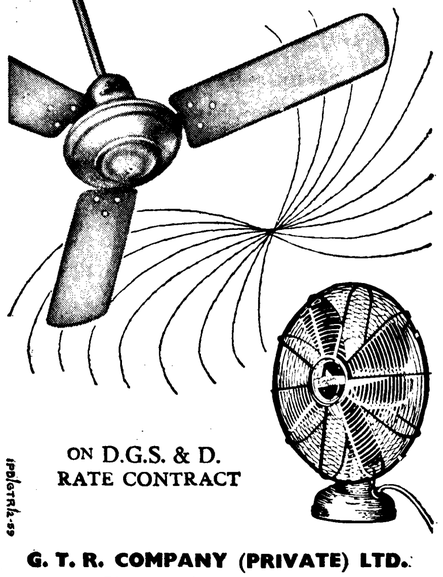

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Budget period and probably a relatively small proportion at the pre-Budget stage. When this position is reversed, it would become possible, as envisaged in the present reforms, "to transfer increasingly the administrative responsibility for expenditure to the Secretaries of the administrative Ministries and to give them a certain amount of latitude concerning expenditure provided it is already budgeted for".

U.K. Example

It is a well-understood principle of Treasury control in the United Kingdom whose practice in this matter is the basis of the Indian system, that when spending departments present their estimates to Parliament, they must be armed with the Treasury's agreement to details in advance. In theory, it is probably so in India too, but in practice, it has come to be accepted that the expenditure of the budgeted amount under every head must be carefully scrutinised at some stage—not necessarily in advance. It is not always that this scrutiny can be completed before the figures in relation to every scheme are included in the estimates. The figures must come in by October to be included in the Budget of the following February but many of them do not. They come much later, and so in spite of the Financial Advisers attached to the Ministries, only an approximate or broad provision can be made in the Budget.

The vast increase in developmental expenditure in recent years has tended to harden this mental inertia and drift on the part of the spending Ministries. Detailed financial scrutiny proceeds apace and what really ought to have been scrutinised six months before the Budget, is actually dragged on up to six months after.

The more serious aspect of the present situation, however, is that not merely do the spending Ministries begin to ask for sanction for detailed schemes after the Budget, but they also begin to think of many schemes only in the post-Budget stage. Year by year, this evil seems to be seeping deeper and wider, and the criticism of the Estimates Committee "is that whatever has been included in the estimates is merely with a view to getting the vote of the House thereon", and when the Budget is voted and the financial year has set in, "the Ministry concerned begins to think of the proposal and to prepare detailed estimates and other justification for its execution".

Sanctioning of Expenditure

A by-product of the present system is that many departments have come to look upon the post-Budget expenditure sanction as not only unavoidable but as, in fact, advantageous to them in a way. Rather than commit themselves in advance to details of expenditure that are ordinarily unalterable when once approved by the Finance Ministry, they prefer to keep the estimates wide and somewhat vague, and trust to their "pull" with the Finance Ministry to get the expenditure sanctioned after the Budget. This gives them greater manœuvrability in the spending of the amounts voted under various heads, which may not be there—or not to the same extent—if they exposed all their schemes to financial examination in advance and under pressure of a deadline for the finalisation of estimates.

The frustrating of expenditure control by personal appeals to higher levels, when sanction has been refused at the relatively lower ones, is extensive and deep-rooted in the administrative Ministries. And this is more speciously practised after the Budget than before. But given the willingness of these Ministries to draw upon their expenditure proposals in all the latter's ramifications, the posting of an attached financial adviser to each Ministry to assist the latter from the very inception of a proposal, as envisaged in the present reorganisation, must result in a substantial increase in the volume of pre-Budget approval of proposals. There are now financial advisers to groups of Ministries.

Scrutiny of Proposals

On the other hand, it is recognised in administrative circles that under the reformed system, the pressure of work on finance officers will be more, as they would naturally be expected to complete the scrutiny of all the proposals referred to them in time for sending estimates to the Budget Division of the Finance Ministry. Either they cannot be uniformly thorough in this work, or they would want proposals to be sent up much earlier. The proposals now come to the Finance Ministry by November and it is said that under the reorganisation scheme, their arrival will have to be advanced by at least two months.

There are two ways of looking at the situation as it will be under the reorganisation. One is that, if at all, it is under planning that detailed budgeting should be possible, as not only the total expenditure magnitudes, but the fairly detailed outlays on specific or individual schemes have been laid down over a period of years. If, nevertheless, the administrative Ministries cannot produce details of expenditures for the following year by September, it is probably the fault of the plan itself; and a faulty plan has scarcely any right to expect the benefits of the tight budgeting by way of the elimination of financial delays in the implementation of schemes. As for standing charges, they are more quickly scrutinised and do not pose any serious time problem.

Looking at it another way, it is pointed out that the tidying up of expenditure control will be effective only for as long as the expenditure estimates themselves remain tidy. The real impediment to the smooth working of the re-organised system comes when expenditures have to be pruned or recast due to unforeseen causes, as for example, the present foreign exchange crisis. In such an event, what has been approved prior to the Budget would probably have to be examined again for sanction in the post-Budget period before the expenditure can be incurred. The expenditure estimates for 1959-60, for example, are now more or less finalised, but the authorities are conscious that they are very uncertain estimates. Even if they had been approved in detail, no Ministry could draw the same sum for the same schemes.

There are other complications; when capital expenditure is pruned, it may not be reasonable for a Ministry to use up the related current expenditure under such heads as "establishment" and "contingencies" on the plea that it had been budgeted with the concurrence of the finance officers and just because no cut had been imposed on it. A similar situation arises if an administrative Ministry went ahead with incurring the rupee expenditure on a project, when its foreign exchange outlay has been cut.

Complicated Task

In the circumstances, it seems apparent that the attached Financial Adviser has a complicated task to perform, between assisting the Ministry to which he is posted "in the preparation of its budget" at the one end, and "ensuring that expenditure does not outrun allotments" at the other. His real testing ground will be the intermediate ground between these two extremities of the budgeting process where he must pull his weight with the Secretary of his administrative Ministry who would be armed with "a certain amount of latitude in the matter of expenditure".

His rather thankless task would, doubtless, be lightened by the two or three senior Joint Secretaries of the Finance Ministry, who will deal with the major items of expenditure like multi-purpose projects, public enterprises, etcetera, as the majority of Ministries have some one or the other of these activities to be budgeted for. The idea of having separate officers for these schemes seems to be to build up an expert corps for such work and when they are functioning in a particular field of a Ministry, the latter's attached Financial Adviser does not function in that field. But it remains to be seen how the new arrangement will work in the matter of reappropriation or re-allocation of sanctioned funds among a Ministry's schemes. The very cumbrousness of the existing practices have served as a check to changes in approved spending, based on personal preferences or extraneous considerations of heads of departments or Ministries.

Apart from such problems that may be thrown up by the re-organisation, it seems to be generally agreed that it will promote accurate budgeting. It should help obviate over-estimating and the resulting lapse of grants on the one hand and under-budgeting and the consequent demand for supplementary grants on the other. Both are chronic in different segments of the present financial system.

The Government of India has recently implemented the aforesaid scheme of devolution of financial powers to administrative Ministries. The essence of this new reform is that sums (up to a limit of Rs. 50 lakhs in each case) may be spent out of the budgeted items without prior reference to the Finance Ministry, but after consulting the internal Financial Advisers attached to the Ministry concerned. Large schemes covering over Rs. 50 lakhs and contracts involving substantial sums or any unusual feature, will continue to be referred to the Finance Ministry. The idea seems to be that needless delays would be avoided and would help promote better relations between the Finance Ministry and other Ministries and at the same time, help effect a speedier implementation of development plans.

Guiding Principle

Hitherto, studies of public expenditures have proceeded on conventional lines, showing the several parcels of the Budget rupee allowable to particular heads of expenses and the approach has been compartmental, *i.e.*, either confined to the Central Budget or the State Budgets. But if the study should be made from an all-India angle and on a consolidated basis, it would be more meaningful. The functions of the Government are divided by the Constitution between the Centre and the States and unless, the aggregate expenses of all the spending authorities are viewed as a whole, the conclusion and inferences are likely to be distorted and unreal. We should know the sum total of the public expenditures laid out in any country and of the character of such total spending on the various spheres of activities. For such purpose, it would be necessary to combine not only the expenditure incurred by the Centre, but also the expenses incurred by the States. In making such a consolidated study, it is desirable to adopt a different methodology for the classification of expenditure from the one now adopted in the Budgets.

Socio-Economic Aspects

The present account heads in the Central and State Budgets, although convenient from the administrative point of view, have no socio-economic significance. But it is only from the socio-economic plane that the quality and character of public expenditure could be and should be assessed. One has, therefore, to contrive a matrix into which the activities of the Government could be cast on a socio-economic plane. For instance, on nation building and social welfare activities, in 1938-39 the expenditure was Rs. 1.78 *per capita*, but it is now as much as Rs. 8.50, and this reflects the application of the principles of welfare State in an economy. But welfare is not to be measured by mere spending, but by the concrete and tangible benefits to the community at large. The ultimate question, therefore, is this: what are the social and economic gains accruing to the community from the recent vastly increased expenditures as against the social and economic losses resulting from the taxation required to finance these expenditures. The greater the taxation, the greater is the drain on personal and corporate savings which go to make up capital formation. The more urgent task, therefore, for the Finance Ministers at the Centre and in the States would seem to be more in reducing the bloated expenditures and avoiding waste than in the task of seeking to balance the Budgets. Balancing can be done at any level, higher or lower. What is needed is not "balancing by itself", but balancing at lower levels by a reduction of expenditures. The Achilles's heel of Indian budgeting system is that the country is incurring modern expenditures without modern incomes. The saturation point in taxation has been reached. The effort to meet the planned expenditure by deficit financing and external aids has limits. It is, therefore, of paramount importance (1) to search for savings in public expenditures, (2) to see by careful appropriations and audit that every rupee is spent effectively so as to secure the maximum amount of goods and services with minimum outlays on the wholesome principle that it is the margin of savings of the people resulting from increased productivity that should determine the volume of public expenditure.

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The Need to Produce Atomic Energy in India

Development Potential of Conventional Fuels Limited

By

H. J. BHABHA

Chairman, Atomic Energy Commission, India,

and

M. DAYAL

Project Engineer (Atomic Power Stations), A. E. C.

IT is said sometimes that mankind is living on the threshold of a nuclear revolution, similar to the industrial and agricultural revolutions through which various countries of the world passed earlier. However, it is not always realised how important the nuclear revolution is for India. Indeed, it may be said that the large-scale industrialisation of the country and the raising of the standard of living of the people to a level comparable to that of the industrially advanced countries, is possible only if there is large-scale utilisation of nuclear energy.

An indication of the standard of living in a country is given by its *per capita* national income. This depends on the state of development of the economy and its industrial activities. Most industries require energy in the form of electricity or heat. Even the intensive development of agriculture on a modern scale requires a large use of energy in many ways, for example, in the factories which produce fertilisers, agricultural implements and machines, in pumping and distributing water and in running dairy machinery. One would expect, therefore, that there should be some correlation between the state of development of an economy, as indicated by its *per capita* income, and its *per capita* energy consumption. This is borne out by a study of these two factors for different countries. The *per capita* national income is plotted against the *per capita* energy consumption in Table I, according to statistics from the United Nations Statistical Office[1]. The table shows in a striking manner that there is a correlation between the two and that they rise together.

An indication of the order of magnitude of the energy requirements of India, when she achieves a standard of living comparable to that of the industrially advanced countries, can be had from this table which indicates the *per capita* energy consumption in India, western Europe and north America.

TABLE I

CONSUMPTION OF ENERGY PER CAPITA IN METRIC TONS COAL EQUIVALENT, 1956

Country	Consumption of* energy from commercial sources a head a year	Consumption of** energy from non-commercial sources a head a year	Total consumption of energy per capita a year
India	.12	.23	.35
Western Europe	2.69	.2	2.9
North America (Canada and the U.S.A.)	8.53	.3	8.9
			2.68

*Includes energy from coal, lignite, petroleum gas and hydro power.
Figures obtained from United Nations Statistical Year-book, 1957.
**Includes fuel wood, wood for charcoal making, lumber mill wastes.
Figures assumed to be the same as in 1952;
Ref. United Nations Department of Economic and Social Affairs. World energy requirements in 1975 and 2000. Proceedings of the first United Nations International Conference on the Peaceful Uses of Atomic Energy, Geneva. (1955) Vol. I.

It may be useful to set as a target the achieving of a standard of living roughly equal to that of western Europe today and so plan for a *per capita* energy consumption equal to three metric tons of hard coal equivalent a year. This is not very ambitious, when it is realised that by the time India achieves this figure, the west European countries will have advanced much further, to say nothing of the countries of north America.

Coal and Hydro Power

Now what are the conventional resources of energy available to meet this target and how long will it take to exploit them? The established reserves of oil in India are very small and although it seems likely that new reserves will be discovered, they are unlikely to change the overall power and energy picture very substantially. The total hydro-electric potential of the country is estimated to be between 35 million kW and 40 million kW[2]. The total hydro energy available is about 200,000 million kW hours a year. Let us assume that all of it is utilised by 1986 (end of the seventh five year plan). However, the population in 1986 is expected to be at least 500 million; this is estimated from an annual rise of 1 percent a year from 1960, while the actual rise today is about 1.3 percent a year.[3] Thus, the *per capita* energy available a year from hydro-electric sources in 1986 could be at most 400 kWh (electrical) or about 0.25 tons, coal equivalent.[4] The Commission's target is more than ten times this figure. (All tons in this article are metric tons.)

Next it may be considered by how much the production of coal may increase. The Perspective Planning Division of the Planning Commission has estimated the coal demand in 1986 at about 400 million tons.[5] To achieve this will be no easy task. Since the present production is only about 40 million tons a year, this would require the doubling of production about every eight years from now on. However, even if the target of 400 million tons of coal a year is achieved by 1986, the consumption a head a year will be only 0.8 tons at the most.

Thus, the total annual *per capita* energy consumption from coal and hydro in 1986—if all the hydro is utilised and if coal production rises to the optimistic figure of 400 million tons a year, and if the population is, again optimistically, not more than 500 million—will be only 1.05 tons. Consumption from non-commercial sources of energy would bring the figure up to about 1.28 tons, compared with the consumption in western Europe today of about 3 tons. Furthermore, when one examines the reserves of coal, one finds that it may well prove to be uneconomic to try to raise coal production even to 400 million tons a year. There appears to be some correlation between the reserves and the maximum production that can be achieved economically. A comparison of the proved reserves and annual production rates of coal for various countries is made in Table II.

TABLE II

COAL AND LIGNITE RESERVES AND ANNUAL PRODUCTION

	Coal and lignite reserves in million tons coal equivalent. (a)	Annual production in million tons (1953) (b)	Years for exhaustion	Export (E) or Import (I)
Russia	1,306,000	256	5,102	E
China	310,000*	67	4,627	
U.S.A.	1,434,000	440	3,259	E
West Germany	244,000	151	1,616	E
Poland	139,000	90	1,544	
Australia	30,000	22	1,364	E
United Kingdom	171,000	228	750	E
Japan	19,000	47	400	I
France	12,000	54	220	I
Belgium	6,000	30	200	I

(a) United Nations, Department of Economic and Social Affairs, *Contribution of Nuclear Energy to Future World Power Needs*. Proceedings of the First United Nations International Conference on peaceful uses of atomic energy, Geneva (1955) Vol. I.

(b) Statistical Office of the United Nations, *Statistical Year Book 1958*.

* Latest reports (1957), as a result of surveys during the last five years put China's coal reserves at 1,000,000 million tons, or more than three times higher than the figures given in the table.

It shows that when the ratio between the two falls to about 500, the country becomes an importer of coal. This is because at that stage, it becomes necessary to go to very deep mines or try to exploit the leaner mines and it turns out that the cost of such exploitation may be so high as to make the operation uneconomical.

According to various sources, the proved reserves of coal in the country are about 43,000 million tons (6) and (7). An annual coal production of 400 million tons a year would make the ratio of reserves to production only about 110. Even if the reserves turned out to be four times this figure, the ratio would be only 440. Thus even a production of 400 million tons a year would probably be a costly and difficult process, assuming that it is physically possible by 1986. In any case, any further increase beyond this figure will probably involve prohibitive costs on the basis of present technology.

Need for Nuclear Energy

India is thus faced with the fact that if she relies on hydro and coal reserves alone, she will find herself, some 25 years from now, even on an optimistic basis, with a *per capita* energy consumption only a little more than a third of that in western Europe today. As far as oil is concerned, even if it is to contribute 0.5 tons coal equivalent *per capita* annually, the consumption would have to be about 170 million tons a year at least. The present consumption is only about 5 million tons a year, and almost all is imported in the form of crude oil or oil products. It seems very unlikely that this country will attain the figure of 170 million tons a year by 1986. Even if the demand were there, it could not be supplied from indigenous sources, and the import of vast amounts of oil would involve prohibitive foreign exchange liabilities. Furthermore, conventional fuels will be getting scarce the world over and may be difficult to obtain. But even if, for the sake of argument, one assumes that 170 million tons of oil a year could perhaps be supplied, the *per capita* energy consumption in 1986 would be substantially less than two-thirds of the figure obtaining in western Europe today. Furthermore, this will be with all the hydro-electric potential exploited and with coal production at a rate difficult to exceed. It would seem, therefore, that by about 1986 nuclear energy will be required to provide a fair amount of the demand for energy and that, after that year, it may have to provide the bulk of the additional power and energy demands of the country.

Electric Power Requirements

Nuclear energy can be made available in the form of electric power. One may, therefore, further examine the possible requirements of nuclear energy by considering the demands for electric power. The installed electrical capacity of India expected by the end of the second five year plan (March 1961) is about 6.4 million kilowatts. The installed capacity doubled itself during the first five-year plan, and is expected approximately to double itself again in the second.

[1] E. S. Mason et al *Energy Requirements and Economic Growth*. Proceedings of first United Nations International Conference on Peaceful Uses of Atomic Energy, Geneva (1955) Vol. I.

[2] Kanwar Sain. *Master Plan for integrated water utilisation*. Journal of the Institute of Engineers, Vol. XXXVIII, No. 7 March 1958.

[3] A survey by The *Hindu* indicates that the population would be well over 500 million even in 1970-71.

[4] The following are the conversion factors as used by the United Nations Statistical Office:

1,000 kWh (electricity)	=0.6 tons hard coal equivalent
1 ton of coal	=8,000 kWh energy at full calorific value
1 ton of oil	=1.5 tons hard coal equivalent

[5] Private communication from the Planning Commission.

[6] *Report of the Expert Committee on coal consumption on the Railways*, 1958.

[7] Geological Survey of India, *India's coal resources 1957*.

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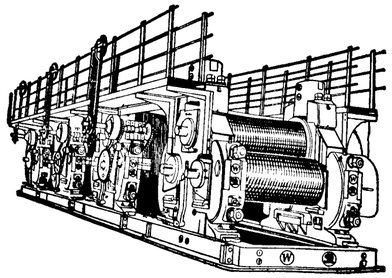

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In the highly industrialised countries, where the installed capacity is already high, the doubling period is about ten years. The growth of capacity may, therefore, be estimated on the basis that the doubling period in subsequent five-year plans will be six, eight and ten years, respectively. Table III, Estimate A, gives the projected generating capacity on this basis.

TABLE III
POWER FORECAST
Installed electrical capacity in million kilowatts

Year	(Estimate A) Doubling period—years	(Estimate A) Installed capacity (in round figures)	(Estimate B) Doubling period—years	(Estimate B) Installed capacity
1956	5	3.5	5	3.5
1961	6	7.0		7.0
1966	8	12.0	5	15.0
1971	10	18.0	6	30.0
1976	10	25.0	8	53.0
1981	10	35.0	10	81.0
1986		50.0		125.0
1991	10	70.0	10	175.0
2001	10	140.0	10	350.0

The Central Water and Power Commission has considered that from the point of view of demand, the installed capacity could continue to double itself during each of the five-year periods up to 1971. This was also felt by the committee on requirements and utilisation of coal, 1957.[a] If one extrapolates these figures on the basis that the doubling periods during five year plans after 1971 will be six, eight and ten years, respectively, one gets another estimate, given as estimate B in Table III. As a matter of general interest, both estimates have been extended up to the end of the century by assuming that the installed capacity will continue to increase at a rate corresponding to a doubling period of ten years after 1986.

Since the minimum population to be expected in India in 1986 is 500 million, the first estimate (A) of 50 million kW by 1986 will correspond to an installed capacity of only 0.1 kW a head, while even the optimistic estimate given in column 5 corresponds to an installed capacity of only 0.25 kW a head. That even these figures are extremely low may be seen by comparison with those obtaining in other countries *today*. The installed capacity *per capita* in Canada and the United States at present is almost 1 kW; even in Japan, the installed capacity *per capita* is over 0.18 kW today.[b] Therefore, the target of 0.1 to 0.25 kW a head for India by 1986 may be considered conservative; *i.e.*, the installed capacity by 1986 should be between 50 million kW and 125 million kW.

Since it is considered that hydro power on the whole provides cheap electricity and requires very few recurring charges, it can be assumed that the hydro potential will be developed as far as possible. However, of the total potential of 35 million kW to 40 million kW, there must be some which it is difficult and costly to exploit. We may thus assume that 30 million kW of installed hydro-electric capacity will be available by 1986. This would leave a minimum of 20 million kW on estimate A, and 95 million kW on estimate B, to be found from other sources.

It has been seen earlier that the maximum coal production in 1986 will at most be about 400 million tons a year. In India today, only about 10 percent of the total coal produced is used for generating electricity, (a) and (b). As industrialisation proceeds, more and more coal will be required for a variety of purposes (in the metallurgical and chemical industries, for example). Furthermore, the price will rise and it would be undesirable to carry it around the country for the purposes of generating electric power in different regions. It may, therefore, be assumed that about the same proportion of coal production then will be used for power generation as at present. This would be able to support an installed capacity of about 10 million kW.

As stated earlier, the established reserves of oil in India are small. Although we all hope that larger deposits will be discovered, it is unlikely that oil will be able to make very much difference to the overall power picture. On the contrary, it is likely that the new production will be absorbed almost entirely in other ways, such as road and air transport and lubrication. At present, the country has to import considerable quantities of oil for these purposes, and the demand is rising rapidly.

It appears, therefore, that by 1986 nuclear power will have to supply about 10 million kW of electrical capacity on estimate A and about 85 million kilowatts on estimate B. For the present, the lower estimate may be taken for planning purposes. Actually, the present planning, according to the Central Water and Power Commission, is to provide about 13 million kW by the end of the third plan. If this happens, and the doubling periods subsequent to the third plan are assumed to be six and eight years, respectively, the 50 million kW mark will be reached by 1980 instead of 1986. However, to be on the safe side, the estimate of 10 million kW of nuclear power by 1986 for planning purposes is retained for the moment. This itself is quite a large figure and it is clear that if it is to be achieved by 1986, a start will have to be made much earlier. The Atomic Energy Commission has proposed that a tenth of this, *i.e.*, 1 million kW should be available in 1966.

It is instructive to note that 10 million kilowatts of nuclear power in 1986 will add, at most, 140 kWh (electrical) *per capita* to the total energy consumption or no more than 0.085 tons *per capita* of hard coal equivalent. A reference to paragraph five will show that even with this addition, India's *per capita* energy consumption will be considerably less than two-thirds that of western Europe today. Thus, about 10 million kilowatts by 1986 is the least amount of nuclear power that one should aim at. Furthermore, by that time, the development of the conventional power resources would have reached saturation; the bulk of additional power after then would probably have to be met by nuclear power.

Nuclear Power and Fuels

In planning to meet the targets for nuclear power, one has to take into account the resources of nuclear fuels in the country. The two naturally occurring materials that can be used for this purpose are uranium and thorium. India has the largest known reserves of thorium in the world. It has been established that the total reserves of thorium are not less than about 500,000 tons in ore containing 9 percent thorium and above. Some 300,000 tons of this was discovered during the last three years by the Atomic Energy Commission in a new deposit in the State of Bihar. Since each ton of thorium or uranium, if completely fissioned, can yield as much energy as about 3 million tons of good quality coal, it is clear that the thorium reserves have potentially an immense amount of energy in them. Moreover, the thorium is found in an easily extractable form which could make the refined material available at a much lower price than uranium in the world today.

It is obvious, therefore, that India should be interested in exploiting its thorium reserves. Indeed, it will become necessary in the long run, because the established Indian reserves of uranium are not so great (only about 30,000 tons). Furthermore, most of the uranium reserves found so far occur in the same monazite sands which contain a much greater proportion of thorium. With the presently developed types of nuclear power stations working on natural uranium, the uranium in easily treated ore could only sustain an installed electrical capacity of 3 to 4 million kW. Since thorium by itself cannot be used to start a power programme, natural uranium must be so used, and one has to find ways of utilising thorium subsequently for a large and increasing nuclear power capacity. Although thorium itself cannot be used as a fuel in nuclear reactors, because it cannot itself be fissioned to give useful energy, it is converted, when placed in such reactors, into another form of uranium, uranium 233. This uranium 233 is a concentrated nuclear fuel, like plutonium or uranium 235. Uranium 235, which is contained in small amounts in natural uranium, can only be separated in isotope separation plants which are prohibitively expensive and themselves require very large amounts of electrical power to operate. Thus, in a country like India, which is short of power, it is not a practicable proposition to produce uranium 235 with the objective of utilising thorium for power production. It has already been seen that a substantial part of the electrical power production in the country by 1986 will have to be based on nuclear power and that most of the expansion in power production after this period will have to be provided by nuclear power. It would clearly not be in the interests of the country to base a substantial and growing part of its power production on imported fuels. A simple calculation shows that this can soon lead to very large sums of foreign exchange expenditure on importing the fuel, quite apart from the fact that it would make the country dependent on external sources for so fundamental a commodity as power. Fortunately, an alternative road is available, which the country can follow without great cost. Plutonium, which is a fissile material, is generated in the natural uranium which can be used for fuelling power stations of the appropriate type. Such power stations must be regarded as dual-purpose power stations, which will not only produce electricity at an economic or near economic rate, but will also produce this most valuable fuel, plutonium. The plutonium can then be used in plutonium-thorium reactors, which produce energy as well as uranium 233. Finally, the uranium 233 can be used in uranium 233-thorium reactors. One could design these reactors as "breeders", *i.e.*, they would produce more uranium 233 than they consume. They would then need a continuous feed of thorium alone, and the excess uranium 233 produced could be used to install more uranium 233-thorium power reactors. Thus, having once arrived at uranium 233-thorium breeder reactors, India has the possibility of a continuous increase in installed nuclear power capacity in a form which requires only thorium as a continuing feed. This is a very desirable objective to attain in India.

Alternative Path

It has already been indicated that there is an alternative path to the same end. Plutonium can be used as a fuel in fast breeder reactors, which, besides producing power, convert more uranium into plutonium than the plutonium which is burned. Such reactors can be used for increasing the utilisation of uranium and for multiplying the amount of plutonium available, which can then be used in plutonium-thorium reactors which may or may not breed. (Reactors working on the uranium 233-thorium cycle are still in the experimental stage.) A prototype fast breeder reactor station has just started operating in the United Kingdom. Experience on this station indicates the promise of achieving very low capital and recurring costs for commercial stations of this type. One commercial scale fast breeder station is under construction, namely, the Enrico Fermi power station near Detroit which will be operated by the Detroit Edison and other associated power utilities. There are several other possible alternate routes to the use of thorium for power generation and it would be undue pessimism to assume that they will all fail. The present indications are that eventually several alternative routes will lead to the same goal, namely, utilisation of thorium for power production.

As has been discussed above, to arrive at uranium 233-thorium reactors one needs to go through two earlier stages. In the first stage, one has in any case to install natural uranium reactors to produce plutonium; in the second stage, the plutonium is used with thorium to produce uranium 233, or the plutonium is multiplied in fast breeders. The amounts of uranium 233 available at any date will depend on the capacities installed in the first two stages, and the time for which they have been working. There is a maximum rate at which plutonium can be grown, and this must be taken into account. On this basis, one may estimate that to meet the targets in 1986, it is necessary to install a certain minimum capacity in first stage reactors within the next few years. The Atomic Energy Commission has proposed that a million kW of nuclear capacity be made available by 1966. If the rate of breeding, and the subsequent doubling time of electrical generating capacity based on breeder reactors is longer than assumed, then clearly more electrical capacity will have to be based on first stage reactors using natural uranium than proposed above.

Thus the installation of nuclear power stations now is necessary in the wider interests of the country and its future. It is not merely a question of the immediate economics of nuclear power, but the more vital one of safeguarding future power supplies. One could decide against such a proposal only if the costs of installing and running nuclear power stations were prohibitively greater than those for conventional stations. In actual fact, however, one finds that the cost of producing electric power is of the same order as that from thermal power stations burning coal in regions far from coalfields. The power cost here may even turn out to be a little lower than thermal power costs. A comparison of costs may be obtained from Table IV and V.

TABLE IV
COSTS OF POWER FROM COAL BURNING STATION

Assumption capital cost	: Rs. 800 a kW installed*	
Station consumption	: 6 percent*	
Overall efficiency	: 29.6 percent*	
Load factor	: 80 percent (i.e., installed capacity working fully for 80 percent for the time)	
Power costs a kWh sent out		
1. Interest charges at 4.5 percent	: 0.55	
2. Depreciation charges at 2.401 percent	: 0.29	
3. Operation and maintenance charges at 1.5 percent	: 0.18	
4. Fuelling charges:		
a) 10,000 B.T.U. a lb of coal at Rs. 48 a ton	: 2.47	
9,000 B.T.U. a lb of coal at Rs. 45 a ton		2.58
	3.49	3.60

*The figures and rates are as communicated by the Central Water and Power Commission.

[a] *Preliminary report of the Committee on requirements and utilisation of coal 1957.*
[b] Statistical Office of the United Nations. *Statistical Year Book, 1958.*
(a) *Report of the Expert Committee on coal consumption in the Railways, 1958.*
(b) *Preliminary report of the Committee on requirements and utilisation of coal.*

TABLE V

COSTS OF A NATURAL URANIUM NUCLEAR POWER STATION

Assumptions—capital cost	:	Rs. 1,700 a kW sent out
Overall efficiency	:	28 percent
Fuel irradiation	:	3,000 MWD/tons
Fuel inventory	:	1.14 tons/mW (E) sent out
Operating and maintenance charges	:	same as in Table IV
Load factor	:	80 percent: life of plant—20 years

Power costs a kWh sent out

1. Interest charges at 4.5 per cent	1.09	
2. Depreciation at 3.19 percent	0.78	
3. Fuel inventory charges at 4.5 percent		
Fuel at Rs. 300,000 a ton	0.22	
Fuel at Rs. 400,000 a ton		0.29
4. Operation and maintenance charges	0.18	
5. Fuelling charges, including credit for plutonium		
Fuel at Rs. 300,000 a ton	1.16	
Fuel at Rs. 400,000 a ton		1.65
Total power costs	3.43	3.99

The costs of coal used in Table IV are those actually paid by the Central Railway power station in Bombay at present, or in Madras. They would also apply to other areas remote from coalfields. The depreciation and operating and maintenance charges are those used in connection with the public utility thermal stations in India[10]. The other figures for thermal plants are those applicable to the most modern units; in fact, most thermal units presently installed work at average efficiencies of 25 percent, which is much lower than the 29.6 percent assumed in the table. It should also be pointed out that coal prices are tending to rise steadily; in the past few years, the prices have gone up on the average by about Re. 1 a year. A rise in prices by 20-25 percent would make thermal power more costly than nuclear power even with the higher cost of uranium assumed in Table V. In connection with uranium cost, it should be pointed out that the price of fabricated uranium abroad comes to less than Rs. 270,000 a ton and is falling. The much higher figures have been purposely assumed to be on the safe side. In any case, nuclear power will cost less than what electrical power is actually being sold for today in many regions of the country.

Calculations on the best data available today, therefore, indicate that the cost of electricity produced from nuclear power stations would be about the same as that from conventional thermal power stations in many industrial areas remote from the coalfields, such as Ahmedabad, Bombay, Delhi and Madras. As has been indicated above, all that is required to enable India to make the important policy decision on whether to proceed with nuclear power immediately is to establish that electricity from it will not be very much more expensive than from conventional stations, and on this point there can be no doubt. Nuclear electricity may possibly be even cheaper in the years immediately ahead, but this is not the point on which the decision is to be based. The immediate nuclear power programme is the seed from which can grow the tree of a large and increasing power programme based on a plutonium and ultimately thorium.

Capital Cost

A price must naturally be paid for any advantage, present or future, which one may wish to obtain, such as ensuring a plentiful supply of power for the country even in the remote future. The price in this case is that nuclear power, apparently, requires a greater initial investment than conventional thermal power. Here also, the difference is not as great as might appear at first sight. While a nuclear power station may cost Rs. 1,700 a kWe *sent out* (that is, allowing for the power the station may consume internally), a conventional thermal station of the same size would cost between Rs. 800 and Rs. 1,000 a kWe. (The new coal fired unit at Tata thermal power station in Trombay has cost about Rs. 1,000 a kWe[11]). However, it is not intended to consider here the putting up of nuclear power stations near the coalfields where the effect of this difference in the cost of power stations would make itself felt fully; one is thinking of nuclear power at places to which coal would have to be hauled over a minimum distance of some 600 miles even in the future and to which it is hauled over a distance of as much as 1,500 miles by rail today. Any proper accounting for the cost of thermal power at such places must take into account the additional capital investment in the railways for transporting the coal and in mines for producing the additional quantities of coal required. On this basis, it has been estimated that if a million kilowatts of coal fired stations are installed, each kilowatt of installed electrical capacity at a place some 600 miles or more from the coalfields will require about Rs. 400 as capital investment in the transport facilities, namely, wagons and locomotives devoted wholly to this coal transport, plus a proportionate share of the capital cost of the rail track used for the purpose.[12] The production of the additional coal would require a further Rs. 125 as investment in the mines. Thus, the additional cost to the economy as a whole on each additional kilowatt of conventional thermal power at a place remote from the coalfields would be not less than Rs. 800 a kilowatt in the power station plus not less than Rs. 500 a kilowatt for the additional investment in the transport system and the mines, making a total of at least Rs. 1,300 a kilowatt. For nuclear power, there is hardly any burden on the transport system as a million kilowatts would require only 400 tons of uranium a year. The investment in mining and fuel element fabrication plants is estimated to add about Rs. 70 a kW. The total investment for nuclear power would, therefore, come to less than Rs. 1,800 a kW. The investment for nuclear power is thus barely 40 percent more and the difference may, indeed, be substantially less. One clearly cannot make any final pronouncement on this matter till an actual power station has been built and worked under Indian conditions, and it would be foolish not to explore this possibility even on a small scale in the interest of the present and future development. It should be remembered that the total amount of nuclear power proposed to be installed at present will only be a small fraction of the total installed electrical capacity by the end of the third five year plan.

The cost of a nuclear power station is by no means high compared with the cost that India has been paying and proposes to pay in future for many of the purely hydro-electric projects. It is not meant to refer here to multi-purpose projects whose justification may be irrigation or flood control, besides power generation. Table VI indicates the capital costs for some recent hydro projects for power only.

TABLE VI

CAPITAL COSTS OF SOME HYDRO-ELECTRIC PROJECTS

Name of Project	Capital outlay on generation in Rs. lakhs	Installed capacity in mW	Capacity at 100 percent load factor in mW	Cost a kW in rupees of installed capacity	Cost a kW in rupees of capacity at 100 percent load factor
Koyna project	33,06	240.0	144.0	13,77	22,93
Rihand project	29,39	250.0	105.0	11,76	28,00
Sharavathi project	25,44	178.0	178.0	12,30	14,30
Kundah project stage I ...	25,00	180.0	51.4	12,70	44,74
Kundah project stage II ...	27,31	180.0	77.4	15,20	35,30
Pathri power station	2,59	20.4	13.6	12,70	19,00
Periyar project	6,27	105.0	25.0	5,97	25,08
Machkund	15,37	114.8	84.4	13,40	18,21
Sileru	6,08	120.0	41.0	5,07	14,83
Pambiar scheme	8,17	100.0	44.4	8,17	18,40
Penniar project	3,24	30.0	15.6	10,80	20,80

This table is taken from a paper by Mr. M. K. Gopaliengar, [Director, Power, Natural Resources Division of the Planning Commission] entitled *Capital Co-efficients for some Power Schemes in India.*

The fact that makes most hydro projects expensive in India is the seasonal nature of the rain fall and the need to build large storage reservoirs in order to have water available for power generation even during the months when there is no rainfall and which cover the major part of the year. Even so, more capacity is usually installed in the turbines and generators than the availability of water can operate at full capacity for a 100 percent or even 80 percent of the time. Take the new Kundah Hydro-Electric Project in south India, for example. According to a paper produced by a working group on power development appointed by the Madras Government, the installed capacity of this project is 180 mWe to be available by October 1960. But, the paper adds: "The storage in Kundah, though not meant for irrigation, may be enough only for 129,000 kW all through the year". Even this is calculated on the basis of 60 percent load factor, *i.e.*, the water available is sufficient only to deliver 129 mW of power for 60 percent of the year. In a paper by Mr. M. K. Gopaliengar, Director, Power, Natural Resources Division of the Planning Commission, the cost of the Kundah project on completion of the Stage II, is given as Rs. 27,31 lakhs, making the nominal cost a kilowatt installed Rs. 1,520. The cost of a kW of effective capacity at 60 percent load factor is, however, Rs. 2,117 a kW. The firm capacity at a 100 percent load factor is only 77.4 mWe and, therefore, the cost a kW at 100 percent load factor for this project would be Rs. 3,530 a kWe.

Perhaps, a better way of calculating capital costs would be to calculate them not on the basis of the installed capacity, but on the basis of the total power which the system is capable of delivering a year. In the case of Kundah, this power is 678 million kW hours, according to a communication from the Madras Government. Thus the capital cost of the Kundah project comes to Rs. 27,31 lakhs for a capacity of 678 mega units a year, that is, Rs. 4.03 lakhs a mega unit a year: (1 mega unit is equal to 1 million kW hours of electricity.) With the capital cost for a nuclear power station of Rs. 1,700 a kWe sent out, the capital cost a mega unit a year comes to Rs. 2.43 lakhs, assuming that the power station operates at 80 percent load factor, which is normally assumed for nuclear power stations. (In fact, they are expected to work at even better load factors). The actual cost of electricity from a hydro project in India is naturally much lower than that from either a nuclear or a conventional thermal power station, because the water is provided free by nature and the depreciation on large civil engineering works, such as dams, is relatively small. However, it is clear that in going in for nuclear power in a small way today in order to secure the future and in order to obtain first-hand experience of the economics and technology of nuclear power, the people of India are not being asked to undertake an expenditure much larger or indeed as large as the investments they have been used to making for many hydro projects in the country.

Before leaving the subject of hydro power, it is instructive to quote another passage from the same report of the working group of power development in the third five year plan of the Madras Government: "From this analysis it can be seen that though the installed capacity of the grid amounted to 256,000 kW in 1956, the effective capacity in terms of dependable firm power was much less, about 143,000 kW only. In exceptionally bad years of drought, and we had a succession of them in the recent past, or when the south-west monsoon is delayed, the storages in these reservoirs are exhausted necessitating drastic power cuts. There were power cuts in 1953, 1956, 1957 and the one in 1958 went up to 75 percent during the month of June and practically paralysed all established industries in the hydro-electric area."

Indian Atomic Energy Programme

At this point, it may be of interest to say a few words about the Indian atomic energy programme. New uranium deposits have been discovered during the last few years in various parts of India, notably, in the States of Bihar and Rajasthan. Some of these are still in the process of being assessed in detail by drilling operations, but one deposit in Bihar has already been sufficiently established so that it has been decided to open up the mine and set up a uranium mill in the vicinity. This deposit will be able to provide enough uranium for fuelling a power station of roughly 250 mW capacity.

A small uranium metal plant has been designed and built in Trombay with a capacity for producing 30 to 100 tons of uranium a year. This plant began operation in January this year, and is in successful operation since. It is considered as a pilot plant experiment for a larger uranium plant which will doubtless have to be established in due course.

A fuel element fabrication facility for producing natural uranium fuel elements of various types has already been set up in Trombay. The first trial fuel elements for the C.I.R. (Canada-India Reactor) were produced in June and two have been sent to Chalk River, Canada, for testing in the N.R.X. reactor. The C.I.R. will be fuelled with the fuel elements produced in this plant.

[10] Private communication from the Central Water and Power Commission.

[11] Private communication from the Tata Power Company.

[12] H. J. Bhabha "On the Economics of Atomic Power Development in India and the Indian Atomic Energy Programme," *The Advancement of Science*, Vol. XIV, No. 55, Dec. 1957. Based on a private communication from the Ministry of Steel, Mines and Fuel.

A plant to produce heavy water, as a by-product of fertiliser production, is under construction in Nangal in north India, where very cheap electrical power is available in quantity. Heavy water will be produced by a combination of electrolysis and hydrogen distillation and it is expected that its cost will be comparable with the present U.S. cost for heavy water. The plant is expected to go into production early in 1961 and will produce 15 tons of heavy water a year. The A.E.C. staff has studied the possibility of enriching the feed to the electrolysers by a preliminary concentration and have come to the conclusion that it would be possible to step up production to 75 tons a year without substantially increasing the unit cost.

The Government proposes to set up several large nitrogenous fertiliser plants during the period of the third five year plan, and one of these is to be located next to the Atomic Energy Establishment in Trombay. The Commission proposes to do active work on different methods of heavy water production at these plants, so that sufficient quantities of heavy water will be available should it be decided to establish a considerable power programme based on heavy water reactors. The first reactor, Apsara, of the swimming pool type, was designed and built by A.E.C. scientists and engineers within a year, and has been in operation continuously since August 1956. Only the fuel elements for this reactor, which contain enriched uranium (which the Commission has no means of providing at present), were supplied by the United Kingdom. Apsara has completed three years of heavy satisfactory operation. It has enabled the staff to gain experience in many different aspects of reactor technology and reactor physics. A number of very valuable experiments on nuclear defraction, neutron spectrometry and the slowing down of neutrons, on the one hand, and on the production of isotopes on the other, have been made. Radio-isotopes produced in Apsara have been supplied to 20 hospitals and research institutions. Apsara has also been used for irradiating seeds and other biological specimens for the Biology Division of the Atomic Energy Commission, the Agricultural Research Institute in New Delhi and other institutions. The increasing extent to which Apsara is being found useful in the experimental and development programme can be gauged from the fact that in the first year, it operated 20,000 kW hours, in the next year, 180,000 kW hours and in the third year over 760,000 kW hours.

The construction of the second reactor, Canada-India Reactor, with a heat output of 40 mW, and of the N.R.X. type, incorporating improvements derived from Canadian experience with the N.R.X., will be completed shortly. It is expected to become critical in April and to reach full power by the middle of the year. The Canada-India Reactor will be one of the most powerful isotope producers in the world capable of producing high activity isotopes in large amounts, such as cannot be produced in Apsara. It will, for example, be able to produce radio-cobalt in large quantities. It will make India entirely self-sufficient in all reactor produced isotopes. Indeed, it will enable the country to export isotopes to the rest of the world if the demand arises. Canadian experience with its precursor, the N.R.X. reactor, has been fully used in making many improvements in the design of Canada-India Reactor and in providing it with facilities for engineering experiments of a type which cannot at present be done in its precursor. It will enable the staff of the establishment to carry out experiments to study the effect of high flux and temperatures on the properties of fuel elements, moderators and materials used in the construction of power reactors. It will enable fuel elements of new design to be tested in the actual conditions of neutron flux to be found in a power reactor. Its completion and operation will put into the hands of Indian scientists and engineers a research tool in the forefront of this subject and one such as only a very few countries possess.

The design and fabrication of a zero energy reactor for physical studies in connection with a proposed power reactor has been completed and it is expected to go into operation in the first half of next year. Studies and experiments are under progress in connection with a prototype power station of 15 mW using natural uranium as fuel, heavy water as moderator and organic as coolant. Loop experiments in this connection are being built for putting into the Canada-India Reactor, when it goes into operation.

The Atomic Energy Establishment in Trombay, near Bombay, is the national centre for research and development in atomic energy. It covers an area of over 2,000 acres and has a staff, at present, of over 1,000 graduate scientists and engineers. Besides the reactors, there is under design a pilot plant for treating used fuel elements of the Canada-India Reactor and extracting plutonium from them, so as to gain first-hand experience in plutonium technology and the fabrication of plutonium fuel elements. Ground is expected to be broken within the next few months and the plant is expected to be ready in 1961. As has been explained earlier, plutonium technology is vital, since the Commission proposes to make a transition to the use of thorium for power generation with the plutonium produced in the first stage natural uranium reactors.

Recruitment and Training

Direct recruitment of scientists and engineers in the Atomic Energy Establishment is at present approximately 300 a year. In addition, over 150 scientists and engineers are being recruited each year through the Training School which has been operated for nearly three years to supplement the training provided in the universities. The trainees are graduate scientists or engineers selected from all over the country. In the first year, well over 6,000 applications were received; nearly 2,000 applicants were called for interview of whom some 250 were selected and about 170 joined this course. This is mentioned to show that with some effort at improving the level of teaching in the universities and supplementing this by special instruction at the post-graduate level, it will be possible for the Atomic Energy Establishment, Trombay, without great difficulty, to provide the scientific and technical personnel that will be required for a substantial nuclear power programme.

Power is not the only branch in which atomic energy is of importance. It has been used with great effort in many industries in order to obtain better control of technological processes, thus saving large amounts of money. Radio-isotopes are now widely used in the foundry and the machine-building industries to check the quality of castings before they are machined, thus saving the unnecessary waste of effort in machining castings which may eventually turn out to be defective. Radio-phosphorous has been used for the scientific control of the steel-making process in a Martin furnace, the control of which till recently was dependent on the instinct and judgment of the operator. Radio-isotopes have also been used as accurate thickness gauges in several industries including paper-making. They also enable quantitative data to be obtained on very delicate processes, such as the wear of a piston ring in an engine, in a few hours or days, whereas previously the measurement required a much longer period. These are but a few of the uses to which radio-isotopes can be put and the range of their use in industry is very widespread and constantly increasing.

In biology, radio-isotopes have provided a most powerful tool for an understanding of the processes of life and the pathways by which living organisms build up the extremely complicated molecules of proteins, enzymes, vitamins and other cell tissue, on which the processes of life depend. The advent of radio-isotopes has advanced the knowledge of fundamental biology, bio-physics and bio-chemistry in a few years to an extent which otherwise would have taken many decades. Some radio-isotopes have also found important uses in the diagnosis of diseases, such as radio-iodine in hyper-thyroidism, radio-phosphorous in certain blood diseases and so on. They have also enlarged the sources of radiation which were at the disposal of the medical profession for therapeutical purposes. Hitherto, only radium and some of its products were used; now it is possible to use radio-iodine for the cure of hyper-thyroidism, which hitherto could only be cured by surgery, to use radio-phosphorous to cure polycythaemiavera, for which there was no cure hitherto; or colloidal gold to cure certain malignant conditions where earlier methods were less effective, and so on. Steps have already been initiated by the Atomic Energy Commission to make radio-isotopes available to industry, to research workers in the universities and to the medical profession, so that this latest and most important tool of nuclear science may be used in India also for improving the efficiency of the industries for pushing forward the boundaries of knowledge, and for alleviating human suffering.

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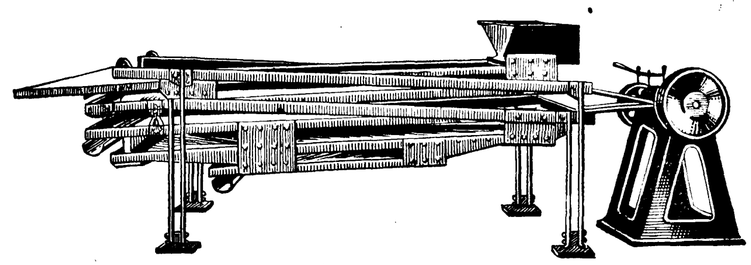

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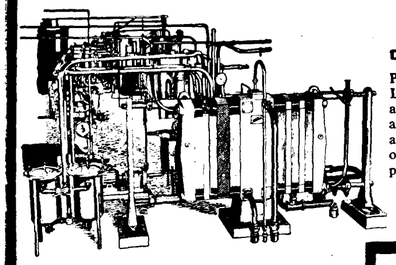

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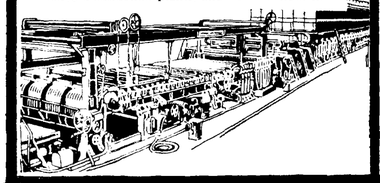

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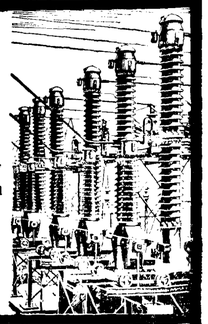
L & T supply for hydro-electric and thermal power stations, substations and distribution installations, high quality electrical equipment manufactured by ESCHER WYSS, OERLIKON, HAEFELY and NORDEN; and LK Switchgear now manufactured by L & T at Powai



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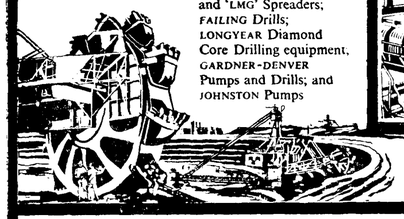
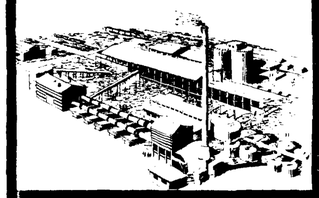
To the Neyveli Lignite Project, and other mining schemes, L & T have supplied 'LMG' Bucket Wheel Excavators and 'LMG' Spreaders; FAILING Drills; LONGYEAR Diamond Core Drilling equipment, GARDNER-DENVER Pumps and Drills; and JOHNSTON Pumps



CIVIL ENGINEERING

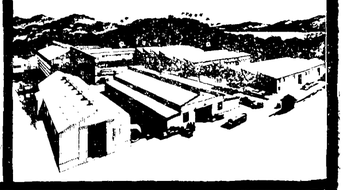
Engineering Construction Corporation Private Limited a fully owned subsidiary of L & T, has constructed a number of cement factories, notably the U.P. Government's Cement Factory at Mirzapur. L & T, together with ECC, undertakes to do "turn-key" jobs, including all design work, civil engineering and the supply and erection of equipment

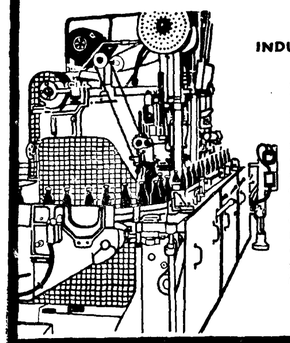


MANUFACTURE

Products manufactured at L & T Powai Works

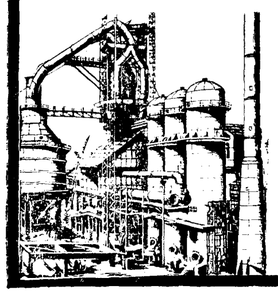
Dairy machinery and refrigeration equipment; solvent extraction plant; switchgear and motor starters; induced draught cooling towers, petrol dispensing and metering pumps; sheepfoot rollers and belt conveyors; stainless steel, copper and aluminium equipment for the chemical and dyestuff, drug, pharmaceutical and food-processing industries; and distilleries and breweries





INDUSTRIAL APPLIANCES

Numerous industrial appliances are supplied by L & T. These include DIAF pharmaceutical machinery; MORGAN FAIREST labelling and tablet strip-packing machinery; DANFOSS automatic refrigeration controls; ELLIOTT, BRISTOL and GORDON process control instruments; DE WALT power saws; EUTECTIC welding alloys; and up-to-date bottling installations



ERECTION

At the Rourkela steel works, L & T have erected 3 Blast Furnaces, a 'Pig' Casting machine, and the Rolling Mill Buildings, involving a total of 63,000 tons of steel work. These are only the more recent of the erection contracts executed by L & T

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When we coined this slogan, we intended to sum up in a few words our outlook upon the function we perform. We believe that in the world of commerce lasting success comes only to those who are willing and competent to give service, as well as goods, to their customers. By service we mean advice and assistance, without fee or obligation, to those who have engineering problems. We maintain a staff of experts in all our Divisions. Every installation, every piece of equipment we supply is backed by a service organisation designed to keep it working at highest efficiency. Only thus have we a right to hold the position we have always striven to occupy.

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FACTORS RETARDING THE GROWTH OF CO-OPERATIVES

MORE RESOURCES NEEDED FOR EXPANSION

By

G. M. LAUD

CO-OPERATION has of late received so much attention in the Press and in the programmes of political parties that many are led to think that it is a certain cure for economic ills. The Congress Party has accepted co-operative commonwealth as the goal of its political philosophy after choosing "a socialist pattern of society" in Avadi and "a socialist society" a year after and moving forward thereafter towards "a socialist co-operative commonwealth". This dynamic conception has been created by the fact that co-operation stands for freedom, equality and opportunity for all, which are also the basic principles of the Indian Constitution. It operates through democratic management, eliminates scope for individual profit and distributes the surplus in proportion to the patronage, and not capital. This instrument created by the people is, therefore, regarded as the most powerful weapon to advance the cause of social justice by peaceful democratic means, strengthen the welfare State on the basis of economic democracy and ultimately build up a co-operative commonwealth in which all essential means of economic activity will be commonly owned by the people.

There can hardly be any dispute over the goal. Indeed, all the political parties are agreed over it. This measure of agreement is born out of the fear about which Aldous Huxley wrote: "Capitalism tends to produce a multiplicity of petty dictators each in command of his own little business kingdom. State socialism tends to produce a single, centralised totalitarian dictatorship wielding absolute authority over all its subjects through a hierarchy of bureaucratic agents". No political party, therefore, objected to the Planning Commission's dictum that "economic development along democratic lines offers vast field for the application of co-operation in its infinitely varying forms." But when at the Nagpur conference, the Indian National Congress resolved in January last that the future agrarian pattern should be that of co-operative joint farming, a heated controversy took place over the time factor and means for leading the people towards the goal.

Three Groups

The opposition falls into three distinct groups. One group thinks that although, in theory, co-operation is capable of bringing about a social transformation culminating in the creation of a co-operative commonwealth, in actual practice, it has developed, and that too in a haphazard fashion, almost exclusively on the resource side during the past 55 years, and the common ownership of means of production, either for groups of consumers or producers of manufactured and semi-manufactured goods, has hardly made a beginning. It, therefore, argues that the co-operative commonwealth must remain a distant goal. The second group points out that even though a community predominantly rural has the social basis for making democracy secure, it is not yet ready for undertaking collective effort, and the individual cannot be expected to surrender his freedom and leave his means and methods of production to the judgment of others, especially when the ancestral land is to him something more precious than his other possessions and his future well-being. The third group has gone to the extreme in arguing that when co-operation has not been able to organise the resource side fully, it is futile to talk of joint effort in other fields. To these opponents, the State replies that once the potentialities of co-operation are recognised, it should be made structurally capable of doing what it is intended and called upon to do as allies of the Government by providing assistance to meet the deficiency in its strength. Is this possible?

Significant Background

The history of the co-operative movement in India provides a significant background. It was imported in 1904 as a measure of relief to the indebted peasantry and the co-operative department was concerned with statutory functions, administration of co-operative law and interest in the organisation of rural co-operatives with limited financial assistance from the State. By 1912, the Government decided that it should do nothing that could be effectively done by farmers, individually or collectively, through voluntary effort. It also extended co-operation to the non-credit sector. The Macglagan Committee conferred on the Registrar the rôle of being a guide, friend and philosopher of the movement and laid down his qualifications. Following the introduction of Montford Reforms, co-operation became a provincial subject in the charge of an elected minister, the State assumed indirect responsibility for the development of co-operatives and gave limited help, and a lop-sided expansion was noted.

Shift in Emphasis

The Bombay Co-operative Societies Act shifted the emphasis of co-operation from persons of limited means to the promotion of economic interests of members of a society in accordance with co-operative principles. The measure of success that was achieved prompted the Royal Commission on Agriculture to recommend it as an instrument of rural reconstruction, but the movement was overtaken by the worldwide depression. The warning of the Agricultural Commission that if co-operation failed, the best hope of rural India would fail, could not move the State into action, and the movement received a setback on the eve of its silver jubilee celebrations. The problem of linking co-operative credit with the central banking authority assumed importance following the establishment of the Reserve Bank of India. Its statutory reports on the organisation of the agricultural co-operative credit system stimulated the programmes for rehabilitating the movement in different States. The recovery in agricultural prices during the war hastened the execution of the programmes, while ancillary measures, such as debt adjustment, control of money-lenders and the regulation of agricultural markets created a favourable atmosphere. It was at this juncture that the Government recognised co-operation as an agency to promote the welfare of the people in a war-torn, controlled economy, and extended its patronage.

The post-independence period witnessed the re-organisation of the agricultural co-operative credit system and the amendment of co-operative laws. In Bombay State, an integrated system was initiated and the co-operative financing agencies assumed the responsibility, in collaboration with the State Government, of providing credit to every creditworthy agriculturist. Attempts to link credit with marketing were reinforced by the entry of co-operatives in the field of processing. The achievement of the movement—based on voluntary and selective membership, self-help and thrift—was acknowledged to be of high order, although loans advanced by primary societies in 1950-51 amounted to only Rs. 87 crores, according to the estimate of the Planning Commission, which acknowledged co-operation as an instrument of State policy and an exclusive agency for executing a planned programme (for 1951-56) of development in certain sectors. Against this background, the Rural Credit Survey Committee submitted a series of recommendations designed to strengthen the rural co-operative credit societies with a view to promoting the welfare of the weaker classes, that is, the medium and small cultivator, the agricultural labourer and the village handicraftsman, and build up co-operation "which joins together in a common purpose the united strength of the Indian village with the united strength of the Indian State."

Satisfactory Results

The recommendations of the Rural Credit Survey Committee were accepted *in toto* by the Government of India and the State Ministers' conference, but only a few were implemented after tearing them out of the context. Even so, the results produced during a brief period of four years, including the preparatory period, are heartening. The working capital of the co-operative institutions was increased during the period from Rs. 352 crores to Rs. 696 crores, the membership of primary societies rose by over a third to 21.5 million and loans advanced by agricultural primary societies rose from Rs. 29.65 crores to Rs. 96.08 crores. Curiously enough, instead of giving a fair trial to the committee's proposals as a whole, the Government was scared by the manner in which the officialdom acted and publicly condemned itself for hurriedly accepting some of the recommendations. And not remaining content with it, the country is being told that service co-operatives operating as small units for the next two years will serve as an effective springboard for promoting joint-farming; and this, with the aid of village *panchayats* which, according to the Rural Credit Survey Committee, "are likely to represent precisely those elements in the village which, by and large, operate against the interests of the middle and small cultivator," is expected to lead us to a co-operative commonwealth.

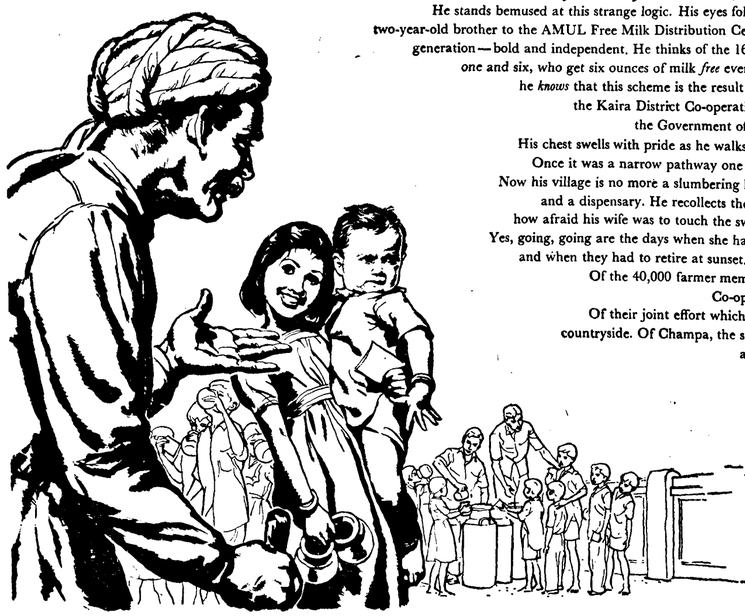
The pressing problem is not whether the country can have a co-operative commonwealth tomorrow but strengthening the rural economy so that it can maximise agricultural production needed by an overpopulated country. As for food alone, India has to raise the output immediately by 30 percent. Can co-operation be responsive to this demand? It certainly can, provided it is built as a business and not on a sentimental basis. True, co-operation being a method of doing business on the basis of satisfying a common need by joint action has higher values, and the sentiment can no doubt help the members to maintain the co-operative scheme. But if the sentiment were to relegate the business aspect to the background, it will ruin co-operation and all that it stands for. Indeed, democracy is on trial in the field of the co-operative movement, since it is being pushed ahead according to the targets fixed by the State without knowing what those engaged in achieving them are capable of doing and that, too, without giving them the tools of the type they want. The controversies over various aspects of co-operation have stemmed mainly from the apprehension that in resorting to wrong methods in the name of expansion, the country is likely to run away from co-operation. It is to be hoped that this danger will be avoided.

Average Membership

The statistics show that half the villages have a population of less than 1,000, and roughly a little over a fourth of the population and half the villages are served by co-operation. The average membership of a rural credit society in 1957-58 was 60 and the working capital Rs. 8,032, while the management expenses averaged Rs. 126. One might ask whether a society, which is in a position to spend less than Rs. 11 a month on management, can be capable of rendering efficient service as a business organisation. True, the honorary worker can do wonders, but the experience of 55 years shows that, by and large, he is not in a position to devote his time and energy to the cause of the society by neglecting his own welfare; the honorarium he gets is not commensurate with his work and the members cannot insist on efficiency from one among them who holds the office to oblige them. It follows from this that the unit must be sufficiently strong to render various services needed by its members. Because of the failure of two virtues of the old pattern, namely, local knowledge and honorary management, to bring about the desired expansion in the business of a village society, the Rural Credit Survey Committee thought that a major re-organisation commensurate with the extent and quality of service, without giving a jolt or using official coercion, was necessary. The officials, however, embarked on a programme of merging societies into big units irrespective of other considerations, and the unwieldy large-sized societies, unable to ensure local control, scared the planners and drove them into condemning the committee's recommendation itself.

Is it seriously expected that societies operating in a village or villages of 1,000 people can command resources in men and money to render a variety of services merely by changing their nomenclature from "multi-purpose" to "service"

"ā bhāre nathi—ā māro bhāi chhe!"



"He's not heavy, he is my brother!" says the five-year-old Champa to the farmer. He stands bemused at this strange logic. His eyes follow this little girl carrying her impatient two-year-old brother to the AMUL Free Milk Distribution Centre of the village. He thinks of this new generation—bold and independent. He thinks of the 16,000 other children, between the ages of one and six, who get six ounces of milk *free* every day. These children do not know, but he *knows* that this scheme is the result of an agreement between the UNICEF, the Kaira District Co-operative Milk Producers' Union Ltd., Anand, the Government of Bombay and the Government of India.

His chest swells with pride as he walks on the pucca road he has helped build. Once it was a narrow pathway one stumbled along even in broad daylight! Now his village is no more a slumbering hamlet. Today, it has a school, a library and a dispensary. He recollects the day when electricity came to his hut... how afraid his wife was to touch the switch! And that water-tap in their hut... Yes, going, going are the days when she had to walk miles to fetch a pail of water, and when they had to retire at sunset. And he thinks of his own contribution. Of the 40,000 farmer members of the 138 Village Milk Producers' Co-operative Societies affiliated to the Union. Of their joint effort which is fostering a spirit of resurgence in the countryside. Of Champa, the symbol of the rising generation of Kaira, and of the day when she will lightly bear the responsibility of her community—the brotherhood of Kaira.

Amul

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co-operatives? Will it not be better to have an economic unit with a fairly wide electorate with mutual knowledge, local control and adequate capacity to build up business and to split it after it is overgrown? The planners think otherwise, and although they have consented to compromise by agreeing that the existing large-sized societies should not be disturbed, the officials have been dismantling them under threats that State aid will be denied for failure to do so.

State Partnership

The second recommendation of the Rural Survey Committee under fire is State partnership. The committee had felt, and very rightly, that State aid was necessary to create favourable conditions for self-help and that State control was required to ensure that a co-operative does not become a closed shop in the name of voluntary and selective membership and has at its disposal knowledge and experience needed for making it more useful to its members. In fact, it had warned that "the State's way of help hitherto has been to over-administer and under-finance". The warning was ignored and State partnership was conceived in restrictive terms of contributing to the share capital, giving subsidies and appointing nominees on the managing committees. Even the qualifications laid down for a person competent to be appointed as the Registrar were ignored. No wonder that this worthy became a dictator in certain States and his interference caused irritation and resentment. Even in a State where State partnership had operated long before 1954 as a wing of the integrated system, the Registrar gave directions on matters like lending rates without prior consultations. The outbursts at the All India Co-operative Congress last year forced the State to declare that it would not dominate over the co-operative sector but in doing so, it also unwittingly condemned State partnership conceived in 1954.

In the co-operative structure, the Registrar has two functions, namely, the administration of the co-operative law and co-ordination of activities of the various units in the movement and the integration of the policy of co-operatives with that of the State in the economic sphere. The pattern of co-operative legislation will depend, from time to time, on the stage and structure of co-operative development. It will, therefore, be wrong to suggest that the co-operative law should be a simple one. This view, considered sound 50 years ago when the movement was initiated for simple folk with simple means and poverty, was the only spurt for successfully applying co-operative principles to the promotion of common economic interests, but in the present situation with complex banking operations and large scale processing industries covered by co-operation, a simple law will ill-serve the purpose. This aspect, together with the reforms needed, has been examined by the All India Law Committee as well as the Bombay committee, over which I had the privilege to preside. A significant feature of their recommendations is that they seek to make the law comprehensive and widen the powers of the Registrar in order to ensure that co-operatives function in accordance with the provision in the Act, the rules and the bye-laws. Co-operatives can hardly complain as long as there are opportunities for redressing any grievance about the arbitrary decisions of the Registrar. The safeguards are two-fold. First, his actions are watched by the Minister, who can be expected to make dispassionate decisions unless he is blinded by his political affiliations. Secondly, certain decisions are subject to the review of the co-operative tribunal. To the extent the Registrar exercises authority under the law, it would, therefore, be difficult to think in terms of official interference. The other field is, however, an eyesore.

Role of Registrars

Although the Registrar's rôle in the field of co-ordination, etcetera, has been accepted as crucial, it cannot be denied that for creating a sense of responsibility among those who run the institutions, the dominating position of the official has to be ended. This is possible only when the non-statutory functions of the Registrar are assigned to federal institutions and the Registrar and his officials render assistance to these societies instead of attempting to do what others can do themselves. How soon and how far this should be achieved will no doubt depend on the quality and strength of the appropriate federal societies. Nevertheless, the need for a wider understanding on the broad issues of transferring the responsibility of the Registrar in his capacity as a guide, friend and philosopher to the leaders of the co-operative movement has to be recognised. In this context, it may be noted that the Bombay Act provides for such an understanding but the process of transfer has been rather slow.

During the past decade, the emphasis was placed on toning the administration of co-operatives by entrusting the evolution of policy and direction to persons of integrity, who were able to devote their time and energy and the execution of policies to trained, qualified and experienced whole-time personnel and by ensuring effective supervision over their work. The democratic method of securing the right type of leadership is election to the managing committees. Theoretically, the election is free, being based on the sound principle of one member, one vote. In actual practice, extraneous considerations play their part. For curbing them, the training of members might perhaps be useful. But when elections are fought on party lines, political affiliations command a premium over co-operative democracy and kill the co-operative spirit.

In Kerala, the country was told that only the communist-sponsored co-operatives were registered and Government officials fully exploited them to serve the political aims of the communists. What was noted about Kerala during the communist régime can be seen in other States, although the difference may be one of degree. Co-operation being an instrument for economic development is a major attraction for the masses; and politicians are tempted to gain control over co-operatives in the hope that they can thereby gain control over the people themselves. The trend is not only unfavourable for the growth of democracy but threatens to cut at the very root of co-operation.

Staff Problems

For tackling the staff problems of the movement, a series of measures had been recommended by the Rural Credit Survey Committee; but the more important ones are yet to be implemented. True, the training programme has been accelerated, and an effort is being made to improve the quality of training, but co-operation has failed to attract capable and reliable persons by offering reasonable remuneration and service conditions. The inability to offer fair terms is both the cause and the effect of small business and the inadequate profit margin determined on the basis of reducing the cost to the members of primary societies. This anxiety to save about half a percent has primarily affected the efficiency of the co-operative sector. The committee did not touch this aspect but pleaded for the creation of a pool of officers at the apex level with the assistance of the State. The recommendation was blessed by the State Ministers' conference; but nowhere has it been implemented, nor has an attempt been made to study the psychological and economic factors obstructing its implementation. If the National Warehousing Board had given its assistance for strengthening the personnel dependent on the creation of the pool, a favourable climate might perhaps have been created.

The rôle of co-operation in the field of agricultural production and the development of small industries is crucial. The potential for expansion, too, is large. An effort is being made to build up co-operative credit on the basis of personal security, away from mortgage on land. This is as it should be, but agricultural credit, on this basis, can operate successfully when the charge on crop is continuous and effective and the marketing and processing of crops through co-operatives are promoted. Since 1953-54, the volume of agricultural credit has risen three times; but the marketing and distribution activity has not reported a gain of even 25 percent. Why? The answer is that the crop loan system cannot be developed unless it is linked with co-operative marketing, and the small farmer has little attraction for organised marketing unless all his legitimate needs are met by his co-operative. In the vicious circle thus created, it is realised that loyalty cannot be imposed by law and penalties and the breach of the basic condition of co-operative sale against the assurance of co-operative credit is conveniently connived at. Even where marketing co-operatives have flourished, it would be worth while to ascertain the degree of association in management of merchant-*cum*-traders and their ramifications, apart from their dependence on merchants as buyers' agents.

Expansion of Agricultural Credit

A good deal of re-thinking about the means of strengthening agriculture and stepping up its production has been in evidence in the recent past. The provision of extension services, the assurance of timely supply of the means of production, including money, seed and manure and the introduction of a mechanism for maintaining price stability at a level which will leave some margin between the net return and the maintenance cost, are some of the aspects of the problem which are being studied. Their solution can alone contribute to the expansion of agricultural credit on sound lines, especially if the use of credit is supervised. But even then co-operative credit cannot extend its benefits to the large section of farmers having uneconomic holdings and earning no surplus in excess of the basic means to live. This section has to be assisted by the welfare State until its production standards are raised and it is made creditworthy. But the State seems to think that co-operation can take over this business if the losses are nominally guaranteed. Not to displease the officials, the institutions say yes, which they never mean and, in the process, this class remains neglected.

Monetary Resources

Finally, there remains the problem of monetary resources at the disposal of the co-operatives. There is a limitation on the ability of co-operative financing agencies to mobilise local deposits, firstly, because in a weak rural economy, the savings of the small man are bound to be meagre and these are attracted by the national savings campaign and commercial banks by offering higher interests. But co-operative banks cannot, because their lending rates are pegged. This would mean that the adequacy of co-operative credit depends on sufficient refinancing facilities from the Reserve Bank of India. Obviously, the Reserve Bank of India will have to be called upon to liberalise its lending standards. But as a central banking authority, it has also to maintain the monetary equilibrium. Therefore, if it were to be persuaded to increase the flow of credit, it must be given the assurance that the credit mechanism in the co-operative sector will function smoothly.

This problem is being examined at the instance of the Government of India by a committee presided over by Mr. V. L. Mehta. Without pre-judging its recommendations, one might venture to observe that the guarantees from the State cannot be a substitute for sound banking; the subsidies to individual co-operative institutions have their own limitation and can only help in reducing the losses but not in eliminating them, and although the welfare approach should be an important element in the operation of co-operative institutions, they must be essentially conducted as a business. It follows from this that adequacy of resources in men and money and an improvement in administrative efficiency must continue to be the sheet anchor of co-operation, if it has to play the rôle assigned to it in the field of economic reconstruction.

Village Panchayats

The gap between what is necessary and what is available is wide. The Congress hopes to bridge it by making village *panchayats* and co-operatives jointly responsible for the economic regeneration of villages, by basing the future pattern of agrarian reforms on joint-farming, under which the produce will be shared partly in proportion to labour rendered and partly in proportion to land pooled. It also aims to build up a network of service co-operatives to serve as a spring board for jumping over to joint-farming and then to the co-operative commonwealth. This approach is apparently based on the notion that what co-operation failed to do in 55 years, can be done in three years. At any rate, this cannot be had from a structure based on one village, one society, which is married to a village *panchayat* suffering from party factions and influenced by political loyalties. If, therefore, the co-operative commonwealth were to be India's national goal—and there is no escape from it for a country with 90 percent have-nots—co-operation must be built as a strong ally of the democratic Government ever responsive to the national effort for economic development and capable of handling its business successfully. It is only thereafter that it can strive for attaining higher values, i.e., common ownership of the means of production as a policy. Meanwhile, it may carry experiments in the latter field and gain valuable experience.

But to try to do too much too soon without having the requisite strength might weaken the structure itself. In that case, co-operatives will become puppets in the hands of officials, fed by the State, and used as a political shuttlecock. Democracy, if it is to build up, nay survive, has to avoid this danger, rely on the findings of the Rural Credit Suvey Committee and implement all its recommendations in the spirit in which they were made without being torn off from the context. Already a year has been wasted in staging a retreat from the stand taken by the committee, not because there was anything wrong with its recommendations but because the manner in which some of them were implemented was faulty. The decisions reached at the conference of the State Ministers for Co-operation in Mysore suggest a welcome change in the Government's attitude towards the problem. Will it go back to Mussoorie?

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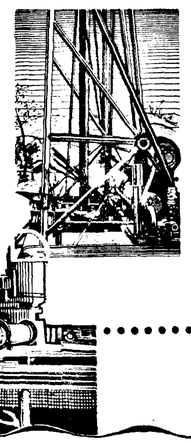

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MANAGEMENT OF STATE ENTERPRISES IN INDIA

A FLEXIBLE AND PRAGMATIC APPROACH

THE U. N. seminar on the management of public industrial enterprises held in New Delhi in December 1959, served to focus attention on a matter of increasing public interest. The Government of practically every country today is directly in business in some way or other—industrial, commercial, banking, insurance and other ways, so the need for efficient and good management of State enterprises is obvious. But due to the peculiar circumstances and problems which the developing economies have to face, it is not easily found. Their resources are limited, and they lack in managerial experience. Yet they have to achieve a relatively quick rate of economic progress, which it will be impossible to attain without the aid of good and scientific management.

This article is intended to review in rather a broad way the progress in the management of public undertakings in India over the last five years or so, in the light of experience and in the context of the circumstances. What has been the flow of events, the flow of experience and the phases through which management has passed in the last five years? These years have seen the completion of India's first five year plan with its emphasis on agricultural production; the formulation and the execution of her second one covering the five years ending March 1961, with a shift of emphasis towards industrial development; and today the country stands on the threshold of the third plan which should, if it is fulfilled, take it over the point of entry into a self-sustaining economy. One lesson of management experience over these plans has been the need above all for timely planning as an essential part of good management. As the third plan approaches, an essential part of the preparations for the tasks to be taken on during the next five years includes tackling of the problems of management, of organisation and method; and the problems which will inevitably arise during the third plan relating to the management of existing public enterprises as well as the new ones to be set up—the objectives and targets for the respective managements, the methods and the measurement of management in using to the best purpose the resources placed at their disposal, and the many particular problems that will confront managements both within the respective enterprises as well as in their dealings external to the enterprise—can now be foreseen.

Industrial Policy

These five years have also seen the evolution, and a reasonably precise definition and statement of industrial policy. Industrial policy in India has tended to evolve, rather than to appear suddenly as a comprehensive and rigid code; at the same time, it has tended to attain greater definition with the passage of time and the gaining of experience. It has found its most recent formal statement (apart from the fairly frequent clarifications and annotations both in Parliament as well as outside) in the Industrial Policy Resolution of 1956. This document sets out the basis on which it rests, namely, the Constitution of India, particularly the Directive Principles of State Policy contained in it, together with the objective, prescribed by Parliament, of the socialist pattern of society as the goal of social and economic policy. Within this basic concept and principles, the Industrial Policy Resolution provides for, and indeed prescribes, a considerable measure of flexibility, enabling a fair field for trial and experiment.

These five years also, and within the general framework of the above policy, have seen the setting up of quite a large number of public enterprises in this country. Some of them are large enterprises, some medium and some quite small. Taking 37 public undertakings in the order of time in which they were set up, they vary from enterprises like Hindustan Steel with an authorised capital of Rs. 300 crores, down to quite small ones like a number of small industrial corporations each with a capital of Rs. 10 lakhs. In between, there are Government undertakings with capital ranging from Rs. 10 crores to Rs. 30 crores, such as Hindustan Aircraft, Hindustan Machine Tools, Heavy Electricals, Bharat Electronics and others. This illustrates the large spread in the size of public undertakings set up over a comparatively short period of time. Combined with this is the considerable variety in the kinds of undertakings. They range from establishments making aircraft, steel, electronics, fertilisers, machine tools, mining, shipbuilding, shipping, electrical equipment, air transport, both internal and international, even running a hotel.

The number of new enterprises and the range of their size and of variety and complexity give some idea of the management problems involved. There has been over these years a fairly clear trend towards one particular form of top management. This is the company form. The Company Law was codified afresh in 1956, when the new Companies Act was passed. For the first time there is a reference to Government companies; by and large, a Government company is governed entirely by the Companies Act, besides there are additionally several Sections in the Act which apply specifically to Government companies. There is thus specific legal recognition of and provision for this particular mode of management for public enterprises.

Statutory Corporations

While the company form under the Act is the normal form of management, instances are not wanting of top management being constituted under a special Act of Parliament, in the form of a statutory corporation or commission. The most recent example of this is the setting up of the Oil and Natural Gas Commission in October 1959. There has been a good deal of trial and experiment

By

S. S. KHERA

Secretary, Ministry of Steel, Mines and Fuel, Government of India

with bodies of management, particularly boards of management of Government companies. There has also been a good deal of discussion and debate. Should the board be manned only by Government officials who are under the discipline and control of the Government representing the superior proprietor? Should the management be made over entirely or largely to non-official members, on the ground that Government officials are too much bound by administrative practices and procedures to be able to cope with the situations which an industrial or commercial enterprise has to cope with? The trend has been towards a somewhat mixed pattern. There are boards of which the chairman is an official; there are others where the chairman is a non-official, either whole-time or part-time; again there are boards on which there are a number of directors who are officials and others who are non-officials. By and large, the average board of management has on it a number of officials as well as non-officials. There has been a clear tendency and feeling on the part of the Government against having as chairman on a board of directors the same official who at the Governmental level would have to deal with problems coming up from or arising in relation to the respective enterprise. Again there are boards of which the chairman is also the chief executive; while in other cases, the chief executive or managing director is not the chairman, and may himself be a director on the board or not.

Decentralised Autonomy

A trend which merits mention is that of decentralisation and autonomy in the management of State enterprises. At the same time, the decentralised autonomy is practised in terms of delegated authority; so there is the inherent corollary of accountability to and through the line of delegation. Indeed, it may well be stated as a theorem in management science that the greater the delegation the greater the responsibility to account. Centralised action appears to have been tending during these years to concentration on planning, commercial direction and Budget control and performance control. Problems of large-scale staffing of the new enterprises have had to be dealt with and resolved. It has been well said that whereas one can buy a plant and have it set up within a year or two, it takes very many more years to train and equip the personnel to run and maintain the plant.

In the case of the new steel enterprises, which consist of the simultaneous setting up of three major steel plants each with a capacity of one million tons and at the same time major expansions to the existing steel works, the country has been somewhat fortunate in being able to draw heavily on the experience and the personnel built up by the iron and steel industry over the last 30 years. This industry as well as quite a number of others already established in the country, have proved one of the most fruitful resources for the essential training and man-power for the new enterprises. The latter have also drawn upon the railways, defence establishments and other Government undertakings which have been operating as State enterprises for quite a long time. But the problem of staffing, recruitment and training continues to be one of the most serious as the country moves forward towards the third plan. A large number of scientific, technical and engineering skills are required, and many of these entirely new to the experience of the country; but besides these, and at least as important, is the need for managerial skills of several different kinds.

Scientific Studies

These five years have seen a conscious effort, a reaching out towards the study of management as a science. Firstly, there have been set up during this period what might be called institutional clearing houses for administrative and management experience and for the building up of theory. The Indian Institute of Public Administration is one such. The Administrative Staff College in Hyderabad is another. Here personnel drawn from the second and third lines of top management both from private industry as well as from public enterprises and also from public administration spend several months discussing together the problems of management. At the staff colleges set up by the Government for its own officers, increasing attention is being given to training in different aspectes of management. Besides this kind of institutional activity, there have also been a large number of management and administrative seminars and conferences; there has also been a good deal of activity by management associations.

In the case of the management association and conferences, the private sector of industry has shown considerable initiative; and there has been an increasingly close association between the activities of the management associations and those responsible for State enterprises. The Fifth Management Conference in Ahmedabad early in 1959, which was inaugurated by the Duke of Edinburgh, continued in some ways the previous conference held in the U.K. and popularly known as the Edinburgh Conference, with special emphasis on human problems and human relationships in industrial management. The Indian Institute of Public Administration held a seminar in December 1958, which dealt with specific problems of top management, problems which were, and in some ways still continue to be of special concern at present. These include Parliamentary control, the form,

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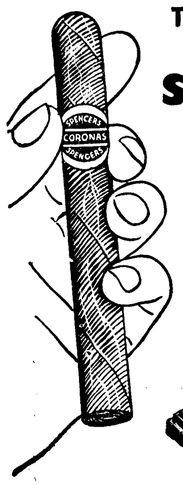

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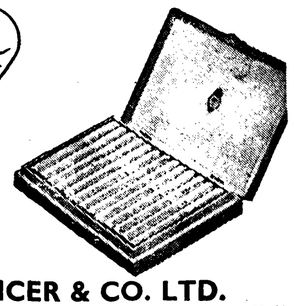

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content and functioning of boards of directors, the place of the managing director, workers' participation in management, and other problems. These are only two examples of quite a large number of such seminars and conferences, the participants at which were drawn mainly from among those who have to deal with particular problems.

Interest by Parliament

Parliament also has given a good deal of active attention to the management of public enterprises. One of its modes has been the Estimates Committee of Parliament; another is the Public Accounts Committee of Parliament. This close attention is all to the good. It has the great advantage, apart from anything else, of detecting error in good time for action to be taken to avoid its continuance or repetition. The reports of these two committees are published from time to time. Furthermore, a random selection of samples of questions asked in Parliament demonstrates the very lively interest which exists in matters of management of public enterprises. More recently, there has been published the report of a sub-committee of the Congress Parliamentary Party. This committee, which was set up to consider the problems relating to State-owned corporations and companies and to suggest how a broad supervision may be maintained by Parliament without interference in the day-to-day activities of the concerns, has made a number of recommendations covering the management of State enterprises, the chairmanship and directorships on boards of management, recruitment, appointments, promotions, incentives, training and research, relationships between the Minister, the Ministry and the management of an undertaking, industrial relations, workers' participation and welfare, financial methods and controls, taxation, pricing policies, and accountability including accountability finally to Parliament.

These events demonstrate the very active interest which is bring shown in different ways in the experience, methods and principles of good management. It is a good thing also that it is being increasingly realised that in the management of public industrial enterprises, there is a meeting point where public administration and commercial management come together and operate together. The sound principles of public administration, for all that may be argued to the contrary, apply to the good management of public enterprises. These include the canons of accounting for public resources and for the attainment of objectives and targets, and also the sound principles of honest dealing, efficient working and productivity. It would be true to say that in the running of public industrial enterprises it is being increasingly found that it is right and proper to apply the principles of good administration; and conversely, particularly the principles of maximum delegation, of encouragement of the play of initiative, speed and flexibility in operation are equally applicable to public administration itself. The Indian Institute of Public Administration is a mark of the correctness of this approach. Sound public administration and sound commercial management especially where public industrial enterprises are concerned are surely found again and again to yield, and to abide by, the same basic principles.

Labour Participation in Management

It is the policy of the Government of India that the principle of workers' participation in management should be put into practice as fully as possible; that ways and means must be found, of so associating the workers in the management of an enterprise as to make the workers and the management a common entity. Early in 1958, a seminar was held in Delhi on labour-management co-operation which recommended the formation of joint workers-management councils. Several such councils have been set up since then. For instance, one was established in September 1958 at Hindusthan Machine Tools, Bangalore; and a recent example is the one set up in September 1959 for the D.D.T. projects of Hindusthan Insecticides in Alwaye and Delhi. These are first attempts, but much will depend on their success.

Productivity, which may be loosely described as making the full and best use of investments made, whether in plant and equipment, or in personnel, is a comparatively new value within the active consciousness of higher managements. There is, of course, nothing new about the concept or principles of productivity. What is new is the emphasis, the special effort, as committed investments have increased, concomitantly with severely limited resources and with the need for a rapid increase in the national product, to obtain the fullest return from the capacities installed. A National Council for Productivity was set up a couple of years ago. Its chief business is to spread the principles of productivity, to make managements conscious of the fact that they are responsible for seeing to it that the investments and resources placed at their disposal are fully productive; and to help managements with the techniques for measuring productivity.

Flexible and Pragmatic

To summarise, the chain and pattern of events in the setting up and management of public enterprises in India show itself somewhat as follows: the country has been following a flexible and somewhat pragmatic policy in planning, organising and furthering its industrial development in terms of the directive principles of State policy set out in the Constitution, and of the major objectives of rapid economic advance, social security and justice through a planned economy. This approach, combined with the need to take into account the contemporary circumstances which prevail, appears to have conditioned the Government's thinking and decisions on specific problems as they arise, such as promotion of new industries, investment of foreign capital, nationalisation of particular enterprises, conservation of foreign exchange and, in general, in fostering a climate of co-operation among all sectors of the economy. As for the patterns of organisation and management of public enterprises, the Government has apparently deliberately kept its policy flexible and in quite large areas of activity, has proceeded by trial and experiment, always in keeping with the basic canons of good management, so as to ensure the greatest degree of productivity, especially in terms of social and human values.

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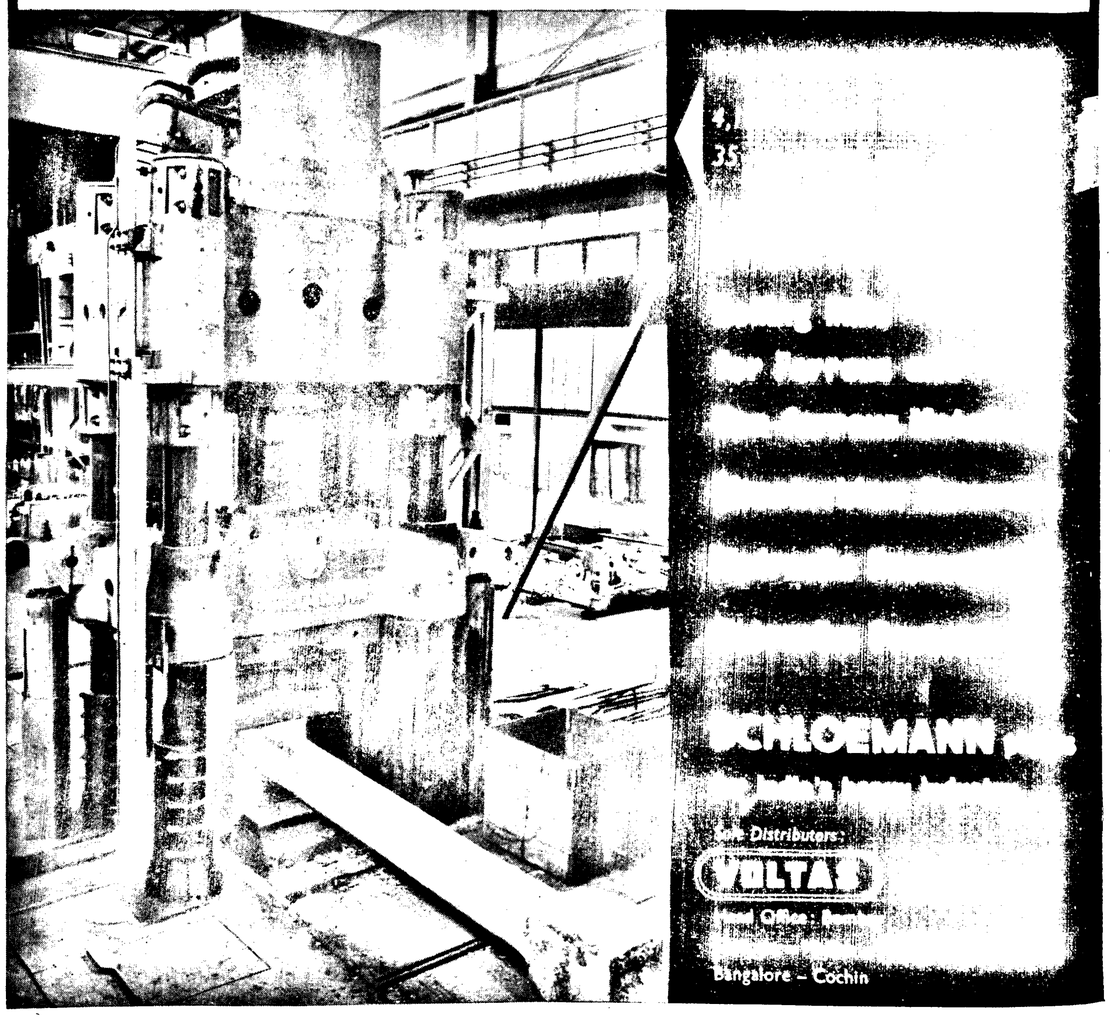
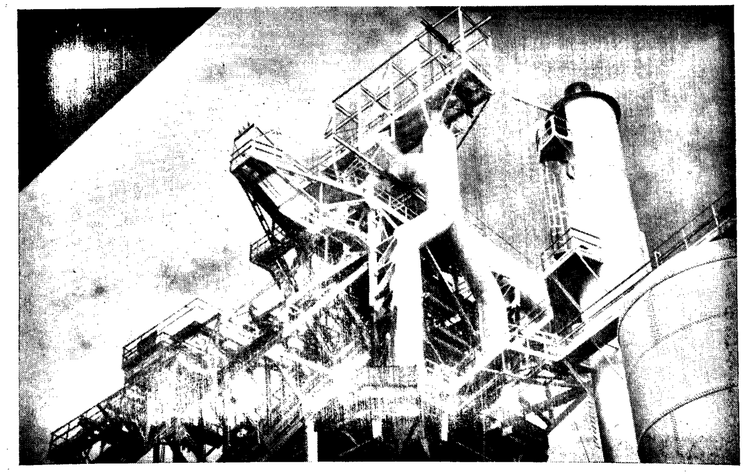


CONSTRUCTION OF DURGAPUR STEEL PLANT PROGRESSING

FIRST BLAST FURNACE TO BE COMMISSIONED SOON

THE first blast furnace at Durgapur is scheduled to come into operation before the end of December 1959. The output of pig iron from the furnace will become available for sale or for internal consumption. At the normal rate of blowing, the capacity will be of the order of 1,250 tons a day. To service this furnace, there will also come into operation a number of items of ancillary plant, including part of the raw materials handling system, the first two turbo-blower units in the power-house and units in the gas cleaning system. Other units at the power-house, including two boilers and two turbo-alternators, will have been brought into service, coinciding with coke oven development. At this stage of progress at the Durgapur steel project, the output of iron will be cast into pig iron on the first of two pig-casting machines. The first battery of coke ovens was lighted up on 24th August, 1959. These ovens will provide metallurgical coke for the smelting of the iron ore charged to the furnace. The daily requirements of this coke fuel will be of the order of 1,200 tons. This battery of coke ovens will have associated with it a section of plant for the extraction of by-products from the crude coke oven gas. Other major units in the first phase of the Durgapur steel plant project are progressing concurrently with the above production units so that all essential plant services will be available.

Although recent emphasis has been particularly applied to the completion of units for the first phase, construction work has been progressing on the second stage of the programme: this has been planned for completion by the end of April 1960.



A blast furnace at the Durgapur steel plant

By

D. J. BELL

Resident Director, Indian Steelworks Construction Co. Limited

This further part in the development is intended to bring into operation the initial section of the steel-making plant together with units of the rolling mill plant, in order that semi-finished rolled steel products, in the form of blooms and billets, can be made available during next year. Progressively, the remainder of the plant will follow into production.

Design Capacity

Durgapur is one of the three new integrated iron and steel works being built as part of the second five year plan to enable iron and steel output in India to be more than doubled by the end of 1961. The nominal design capacity of the works is 1 million ingot tons a year. Based on this figure, the estimated quantity of finished and semi-finished products for sale will be approximately 800,000 tons a year. It will include blooms, billets, merchant bars, light and medium sections and also railway wheel sets. The works has been laid out to enable the various departments to be further expanded at a later date to achieve an ultimate output of 2.5 million ingot tons a year. In the early stages, the work carried out was largely civil engineering, that is, earth moving, excavation, piling, foundation, laying of temporary roads and rail tracks, to be followed by erection of buildings. At present, the accent is on the installation of plant and equipment as the project advances.

By the time the works have been completed, it is estimated that some 3½ million cubic yards of earth will have been moved, approximately 600,000 cubic yards of concrete poured, and the total weight of plant, equipment and steelwork erected will have been of the order of 450,000 tons, of which some 250,000 tons will be plant and equipment supplied from the United Kingdom. Of this, 250,000 tons of plant, over 200,000 tons have already been shipped out to the site. Much of it consists of large heavy loads which require special transport arrangements from Calcutta to the site.

Training of Personnel

A steel works of this size requires, of course, a large number of skilled and semi-skilled personnel to operate it, and when it is in full production, the estimated total number of supervisory staff and workers employed is expected to be of the order of 650 and 10,000, respectively. Under the Technical Co-operation scheme of the Colombo Plan, the United Kingdom is financing the training in that country of a considerable number of Indian engineers for supervisory posts in the works. Under the terms of the plan, it was originally agreed in 1956 to accept 300 trainees in groups of 25 at the rate of three groups a year, each group spending about 12 months in the U.K., but at the request of the Government of India it has since been agreed to accept a total of 350.

Between November 1957 and August 1958, six groups arrived in the U.K. (with a total of 147 trainees) and the remaining six groups are planned to arrive at regular intervals before the end of 1960. The programme arranged for each trainee includes several months with the I.S.C.O.N. member company responsible for the section of the works in which he will be later employed. Practical operating or maintenance experience for several months is also arranged through the generous co-operation of the British Iron and Steel Federation at one of the steel works in the United Kingdom. For many of the trainees in the coke oven and by-product section of the works, the British National Coal Board has also co-operated by arranging training at its plants throughout the United Kingdom.

Major Advantages

In many ways, Durgapur enjoys major advantages as a steel manufacturing centre. There is a developing network of rail, road and canal communications connecting it to its main raw material sources as well as to major potential markets. The Damodar river *via* the D.V.C. canal provides the large quantities of water required for cooling and other purposes, while part of the power supplies will be forthcoming from the D.V.C. hydro-electric system. The importance of these facilities being easily available can be appreciated when the huge requirements of a steel plant the size of Durgapur are considered. In order to produce 1 million tons of steel ingots a year, the works will have to be provided *each day* with approximately 6,500 tons of iron ore, 6,000 tons of coal, 1,350 tons of limestone and 70 tons of dolomite—to mention only some of the essential raw materials. It is expected that the iron ore will come from within a radius of 200 miles.

The economic importance of the Durgapur steel plant does not lie solely in the fact that it will be producing so many tons of steel and so many tons of pig iron each year; the secondary and tertiary impact of its working will be no less significant. Apart from the burst of economic activity represented by the requirements of raw materials, transport, maintenance and ancillary services, an additional impetus to industrialisation will be given by the wide variety of by-products emerging from the steel works. These by-products, many of which enjoy a rising demand and have had to be imported on a substantial scale in recent years, include crude tar, ammonium sulphate, crude benzol, benzene, toluene, pitch creosote, road tar and anthracene oil. The eddies of industrialisation going out from Durgapur will thus spread far and wide, and will not be confined to the steel-using enterprises alone.

The Consortium

The organisation which is responsible for the construction of the steel works is a consortium of the best known manufacturing and electrical firms in Britain, operating under the title of "Indian Steelworks Construction Co. Ltd" (I.S.C.O.N.). It was formed in 1956 to construct the Durgapur plant for the Government of India and undertook the work as a package deal—in other words, it became responsible for installing the completely integrated works to the stage where it is ready for operation. The 13 member companies of the I.S.C.O.N. consortium are: Davy and United Engineering Co. Ltd, Head Wrightson and Co. Ltd, Simon-Carves Ltd, The Wellman Smith Owen Engineering Corporation Ltd, The Cementation Co. Ltd, British Thomson-Houston Ltd, The English Electric Co. Ltd, General Electric Co. Ltd, Metropolitan-Vickers Elect. Export Co. Ltd, Sir William Arrol and Co. Ltd, Cleveland Bridge and Engineering Co. Ltd, Dorman Long (Bridge and Engineering) Co. Ltd, and Joseph Parks and Son Ltd.

By all standards, the Durgapur steel project ranks as one of the finest examples of Indo-British economic collaboration in this century. Not only has the financial and technical assistance required for the actual construction of the plant been readily forthcoming from the United Kingdom; extensive facilities have also been provided for training India's own engineers and technicians who will ultimately run the Durgapur works.

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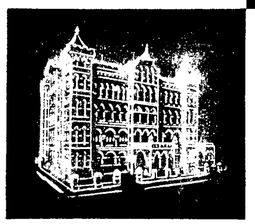

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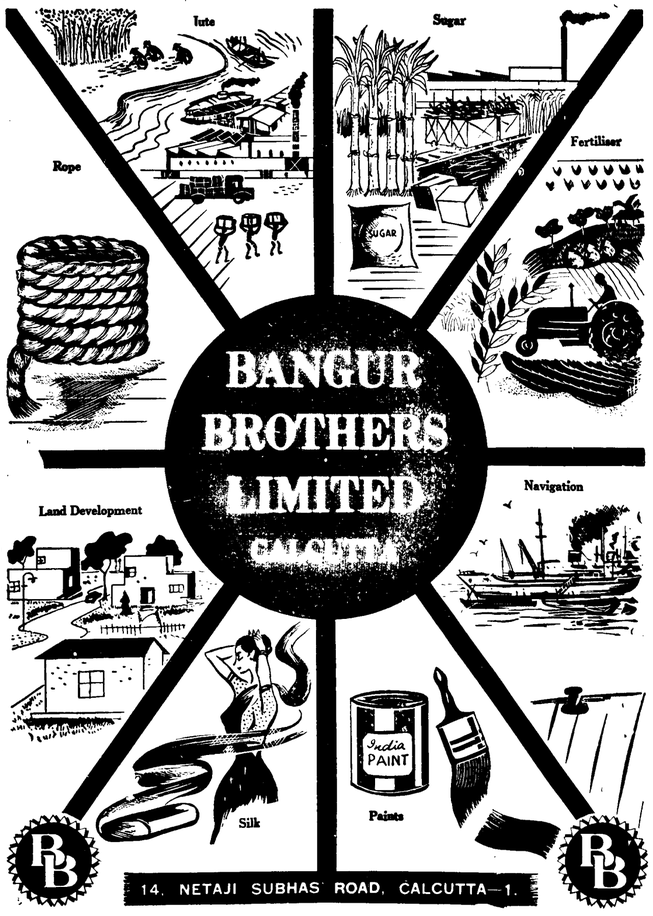

RECOVERY OF THE PAKISTANI ECONOMY

EFFICIENCY OF THE NEW REGIME

By
A SPECIAL CORRESPONDENT

THE real test of the new regime's success in Pakistan should be its ability to handle the economic situation, for it is in this field that the failures of the previous regimes were most glaring. The formulation of an adequate policy and its faithful implementation was, therefore, the country's prime and pressing need. The revenue position had to be improved without imposing additional tax burden on the heavily taxed population and expenditure had to be curtailed without limiting the responsibilities of the State in the matter of economic development and social progress. The foreign exchange earnings and reserves had to be increased by a judicious employment of the available resources and through a vigorous export drive. Fiscal and monetary measures as well as administrative reorganisation were required to arrest the downhill course of the economy.

Runway inflation was the main threat to economic stability. Successive governments in the past had promised to bring it under control, yet each year the money supply was enormously increased while production remained more or less static. Not only had the excessive purchasing power to be withdrawn, but all future expansion had to be strictly controlled. The Government attempted to do the former by imposing a general levy on all incomes which had escaped untaxed, especially incomes from the black market. How great was the extent of tax evasion was soon revealed after the declaration of hidden incomes to the tune of Rs. 140 crores, out of which Rs. 34 crores were claimed as the Government's share. The recovery of this amount partly served to reduce the inflationary pressure and partly replenished the State Treasury. The increase in the Bank Rate from 3 to 4 percent was intended to check speculative activity as well as to provide an incentive to saving and investment. The Government, on its own part, curtailed deficit financing to which previous governments had freely resorted for financing the development programmes. Money supply increased by Rs. 19.79 crores as against Rs. 35.14 crores in the previous year. The new policy was to finance the projects out of real resources rather than through unorthodox devices which had been systematically practised.

Increasing Production

The main battle against inflation had, however, to be fought on the production front. Particularly urgent was the need for increasing the output of foodgrains by putting into the service of agriculture the newly reclaimed lands and the old lands that had been lying idle for want of attention from their owners. A plan for the distribution of vast tracts commanded by the Ghulam Mohammad Barrage was swiftly prepared and put into execution, and an order was promulgated to bring all unused resources under cultivation. Chemical fertilisers of which growing quantities are being produced in the country were subsidised to the tune of 40 percent. The fertiliser factory which went into operation in January now produces 3,500 tons of ammonium sulphate a month, i.e., nearly 40,000 tons a year. The introduction of land reforms has given the cultivators an incentive to increase the yield. The full impact of the measures will be felt only over a long period of time. There was, in fact, a shortfall in food production during the year. Both the wheat crop harvested in West Pakistan and rice in East Pakistan were lower by 1.7 percent and 6.7 percent, respectively. But the gap between availabilities and consumption has been appreciably narrowed due largely to the success of the anti-smuggling operations and the procurement policy, the total quantity procured being nearly 400,000 tons. Deficiency was felt not only in the old and basic sector of the economy, namely, agriculture, but also in the new and important segment of industry. The industrial capacity of the country was not being fully used because of the non-availability of spares and accessories. Allocation of foreign exchange to import them from abroad has helped step up the production of textiles. The announcement of a labour policy designed to protect the interests of the workers has helped restore industrial peace which was frequently disturbed by strikes and lock-outs seriously hampering the production of manufactured goods which were in short supply.

Revival of Export Drive

Without a revival of the export trade, no genuine economic recovery was possible as by increasing the export earnings alone could the country import many of the vital requirements of the economy for which it was dependent on the outside world. The terms of trade being unfavourable, a vigorous drive was called for to increase the volume and variety of exports. The problem with jute is not one of higher production, but of marketing the entire exportable surplus. Out of 6.5 million bales produced during the year, 1.4 million bales were consumed by the local mills and after exporting 4.75 million bales there was a carry-over of 400,000 bales. With cotton, however, the problem was to increase the exportable surplus because of the increasing demands of the textile industry which consumes 1.1 million bales out of a total of 1.5 million bales of annual production.

The traditional market for the raw material having shown no visible signs of expansion, new markets are being tapped in communist and non-communist countries through barter agreements concluded with Poland and Turkey and a few others. An agreement with India may also be concluded to regularise the trade between the two countries, which has suffered many setbacks in the past.

More emphasis is being placed on the export of manufactured goods. The external market for textiles was not adequately explored because of the insatiable internal demand and left out of the purview of the export promotion schemes. The export bonus scheme devised by the new regime under which up to 20 percent of the exchange earnings could be used for procuring machinery and consumer goods, gave a powerful fillip to exports resulting in increased earnings of foreign exchange. As other imports were still kept at a low level and the food imports reduced to a minimum, the foreign exchange position was appreciably improved. The balance of payments which had registered a deficit of Rs. 33.60 crores in 1957-59, consequently, showed a surplus of Rs. 3.40 crores.

Overall Improvement

There was thus an overall improvement in the economic situation, but the country had still a long way to go before achieving a self-sustaining and self-reliant economy. Planned development was the key to the solution, and development in the past had been haphazard and ill-planned. Planning had suffered from a gross over-estimation of internal and external resources with the result that the targets were not attained in spite of the fulfilment of financial commitments involved. A thorough enquiry into the causes of the failure of the first five year plan was carried out before making a more realistic reappraisal of the economic conditions. The second five year plan, to be launched in July next year, will, therefore, have a happier start and more favourable climate for its implementation. While the details of the plan are still to be worked out, its outlines show that the approach now is more practical. The accent has naturally shifted to agriculture in view of the food crises that had plagued the economy in preceding years. Self-sufficiency in food and a 50 percent increase in the volume of consumer goods will considerably mitigate the conditions of scarcity. This will be done by the full utilisation of idle capacity and addition of new capacity when found necessary. Fresh employment opportunities to be created during the plan period, will still be restricted to 3 million. Small and cottage industries may provide an answer to the problem of unemployment depending on the resources and machinery available to establish them on a sound and scientific basis.

Obviously, the plan which envisages an expenditure of Rs. 1,800 crores and a component of Rs. 750 crores in foreign exchange will demand radical readjustment of the financial system and an assurance of continuing and growing assistance from the United States. The crucial importance of the reform of the tax structure was underlined by the Taxation Enquiry Committee which has thus observed in its interim report: "Left to itself, the economic system of an under-developed country cannot attain the required rate of capital formation due mainly to the high average propensity to consume, the under-developed saving habit and insufficient inducement to private productive investment. For accelerating the pace of development, therefore, it is necessary to divert resources from current consumption to capital formation. Taxation is one of the most important means of effecting such a diversion and should be used as such. The rate of economic development in Pakistan, as in most other under-developed countries, is conditioned by the availability of internal finance and foreign exchange."

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NEW TRENDS IN INTERNATIONAL TRADE

PROBLEMS OF LESS DEVELOPED COUNTRIES

By

L. K. JHA

Secretary, Ministry of Commerce and Industry, Government of India

MANY developments affecting the pattern of international trade have taken place in the recent past. New policies, new trends and new problems have emerged, while some of the older problems have disappeared. A few of these changes have had a great deal of publicity, but many of them, although no less significant, have not been particularly noticed. The most important of the new trends and developments are the following :

(a) The coming into being of the European Economic Community, followed by schemes for the formation of a European Free Trade Association and plans for economic integration in Latin America.

(b) The U.S. dollar being no longer a hard currency.

(c) The growing opportunities for trade with Russia and some other countries on the basis of bilateral balancing.

(d) The special features of international trade in agricultural products.

(e) The efforts to avoid instability in the international price of primary commodities.

(f) The special problems of the less developed countries in balancing their external trade and payments and the lines on which solutions are being sought.

Opportunities and Obstacles

To us in India, no doubt the last of the items mentioned above is of the greatest interest and significance. At the same time, it is only when we have taken due note of the other trends and developments that we can realistically assess the opportunities and the obstacles. To get a proper perspective on these new trends, it would be worth while going back a little and taking as the starting point of the study the early postwar years. The thinking then was strongly in favour of evolving a multilateral, non-discriminatory and liberal system of trade between nations in order to avoid the kind of chaotic conditions which followed the first World War, leading to the Great Depression and later to the second World War. The first step taken in this direction was the formation of the International Monetary Fund which was intended, firstly, to sustain stability in exchange rates by providing assistance to countries in temporary difficulties; secondly, to ensure multilateralism in international payments; and, thirdly, to eliminate the possibility of competitive depreciation of currencies as a weapon in the fight for export markets.

The second major step was the signing in Geneva in 1947 of the General Agreement on Tariffs and Trade, known popularly as G.A.T.T. G.A.T.T. was originally meant to be a make-shift device. It was intended to safeguard the effectiveness of tariff concessions which had been negotiated by Governments in a Tariff Conference in Geneva, until the International Trade Organisation was set up with the coming into force of the Havana Charter. Unfortunately, the Havana Charter remained a dead letter. G.A.T.T. has, therefore, continued as the main forum for discussing problems of international trade. Like the I.M.F., it laid emphasis on non-discrimination between its signatories. The new thing about the Tariff Conference which preceded the signing of G.A.T.T. was that, while in the past such negotiations had led to the creation of preferential systems, under G.A.T.T. the benefits of the tariff reduction were extended to all G.A.T.T. countries. G.A.T.T. also enjoined that quantitative restrictions should not be applied to trade, except when a country is in balance of payments difficulties. On balance of payments considerations, both the I.M.F. and G.A.T.T. permitted discrimination against imports from countries whose currencies were scarce or hard.

One of the main reasons why the Havana Charter never came into force was that, when it was being framed, there appeared a genuine conflict in the thinking of nations on some fundamental points. While the policy of promoting freer trade on a non-discriminatory basis offered clear advantages, there was also on the other side the consideration that domestic policies might necessitate the imposition of restrictions on trade. Thus the policy of full employment or of economic development, to which most nations were committed, might not always fit in with the kind of policy in international trading which was being evolved at Havana. Although a compromise between different points of view was attempted in the Havana Charter, the Charter in its final shape did not command the kind of widespread support necessary for its coming into force. G.A.T.T. was more readily acceptable, as it was conceived as a temporary measure and the fundamental long-term issues remained in the background.

When it became clear that G.A.T.T. was there to stay and would not be replaced by the International Trade Organisation, a review session was held in the winter of 1954-55 to adapt it to its new rôle. The problems of economic development, the policies affecting trade in agricultural products, the instability of commodity prices, and the use of subsidies as an instrument of protection were among the issues hotly debated. On points on which agreement was reached, changes in the provisions were made. On points on which no agreement could be reached, the *status quo* had to continue. It is against this background of a delicate and somewhat uneasy compromise between conflicting interests and ideas embodied in G.A.T.T. that one has to view the new trends in international trade.

Trend towards Regionalism

How is it that the strong impulse towards multilateralism, with which trade and payments problems began to be discussed in the early postwar years, seems to have weakened and given way to regionalism. G.A.T.T. did provide for the formation of Customs unions and free trade areas. When this provision was made no one had the faintest idea that six west European countries would join together to form an Economic Community and seven others would form a Free Trade Association. In part, this new trend in Europe emerged from the arrangements which were made, when western Europe was still in serious balance of payments difficulties, particuarly in its trade with the United States, in order that restrictions on dollar expenditure did not damage intra-European trade too much. The European Payments Union was formed to enable European countries to settle balances without making payments in dollar or gold, while under the Organisation for European Economic Co-operation, negotiations were held to liberalise trade between European countries. Consistently with G.A.T.T. and I.M.F., the intra-European liberalisation of trade should have been extended to all countries which conducted their trade through the currencies of the E.P.U., which included sterling. Many European nations did in fact recognise this and extended the benefits of the liberalisation to countries like India which belonged to the sterling area. Some European countries, however, did not, and an element of discrimination in favour of O.E.E.C. countries appeared in their trading.

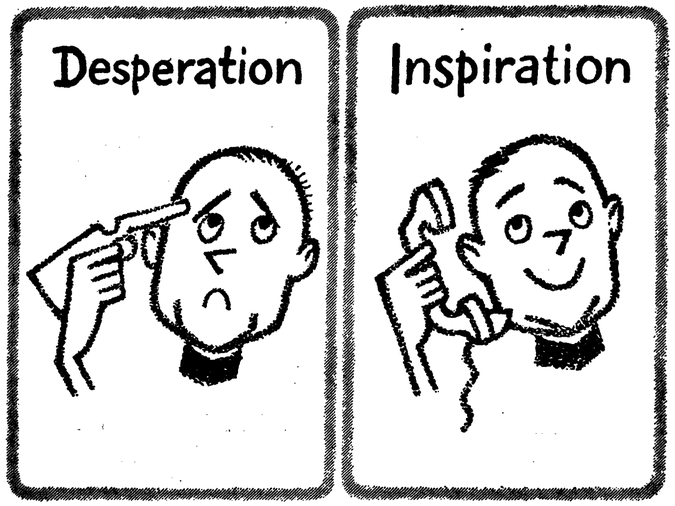
Quite apart from these arrangements, deeper forces were at work. In western Europe, the feeling grew that industries would be much stronger if they did not have a relatively small—when compared with countries like the U.S.A. and Russia —domestic market. There was also a desire for economic integration in western Europe to make political conflict impossible. A tentative start was made by forming a common market for coal and steel, which was made possible by the grant of a waiver under G.A.T.T. Later came the Rome Treaty for establishing the European Economic Community.

When the Community was being formed, the question arose whether the arrangements contemplated, particularly the association of the African overseas territories of the European powers with the Customs union, were compatible with the provisions of G.A.T.T. relating to Customs unions and free trade areas. After a great deal of sterile discussion over legal points, the view which commended itself was that legal issues should, for the time being, be laid aside; what should be considered is whether the formation of the Community would damage the trade of countries outside, and, if so, what steps should be taken to eliminate such damage. Consultations are in progress between the Community and other countries, particularly those exporting tropical products, to see how the export interests of the latter should be reasonably safeguarded. There is some satisfaction to be derived from the fact that, perhaps as a result of these discussions, in the first round of tariff reductions between the member-States of the European Economic Community, a great deal of attention has been paid to the interests of third countries and tariffs on their goods have also been lowered. How the future will develop, it is too early to say. Spokesmen of the Community have argued, not without force, that the prosperity which will flow from the formation of the Community will increase consumption levels and, therefore, raise rather than lower imports from third countries. The fear, on the other hand, is expressed that the arrangement might well operate as a big preferential system into which products of third countries are admitted only marginally. The basic question is whether the Community will be outward-looking or inward-looking.

The European Free Trade Association is just coming into being. It will consist of seven countries including Britain, the Scandinavian countries and Switzerland. A free trade area differs essentially from a Customs union in that the former does not have common tariffs against the rest of the world, while permitting duty-free imports within the area. The countries joining together in the E.F.T.A. were not trying for complete economic integration as in the European Economic Community. They were instead seeking the advantages of free trade which, in the conditions of full employment already attained by them, seemed the logical thing to do. In other words, the economies of these countries have attained the stage to which Adam Smith's logic is particularly applicable. Free trade will help their consumers and permit a more economic utilisation of resources. Although some industries may suffer for some time when exposed to competition, in the long run the industries would be the stronger. It is too early to say how this new development will affect third countries. As the countries forming the European Free Trade Association have been among those urging outward-looking policies upon the European Economic Community, one would expect that they would pursue such policies in their own Association. A further comment which could be made is that the advantages of allowing free trade are not lost by enlarging the area from which goods are allowed to be imported without restrictions.

Latin America

Whether these developments mean that there will in general be a regional approach in the matter of trade remains to be seen. Certainly, in Latin America there is now a proposal for economic integration. In other parts of the world, too, the idea has been discussed. Will regionalism gather momentum and, what is more important, will it lead to the formation of groups somewhat hostile to each other, are questions the answers to which must at this stage be purely speculative. It is heartening that there has been one major and significant change in the opposite direction. The I.M.F. has recently decided that the dollar need no longer be treated as a hard currency. Thus one of the major obstacles to non-discriminatory multilateralism has disappeared. The U.S.A. had shown great economic statesmanship in joining and supporting the I.M.F. and G.A.T.T., with the full knowledge that, under their provisions, for years there would be discrimination against U.S. goods. It is natural, therefore, for the United States now to press all countries to withdraw restrictions on dollar goods—particularly since, with heavy expenditure abroad on aid programmes and other things, the U.S.A. has a negative balance in its overall payments. Indeed, this development is said to be responsible for the



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recent change in U.S. policy which stipulates that assistance provided through its Development Loan Fund would be tied to purchases in the U.S.A. alone.

There has in recent years been a considerable increase in trade between Russia, Czechoslovakia, East Germany and other countries whose foreign trade is conducted by the State with the rest of the world. This development has gained strength from the fact that not only are these countries offering goods at competitive prices, but they are also willing to increase their own purchases so that the buying countries' payment problems are eased.

State Trading

Among the signatories of G.A.T.T., Czechoslovakia is the only one whose foreign trade is conducted entirely by the State. When Czechoslovakia joined the Agreement, her trading arrangements were different. The question of associating State trading countries in the work of G.A.T.T. has been attracting a good deal of thought. One difficulty in the way is that G.A.T.T. started with tariff concessions and reduction of tariffs through negotiations has been one of its main functions. When the trade of a country is conducted by the State, tariffs do not play a really significant part in regulating the volume of trade. In the recent past, a basis of association with Yugoslavia and Poland has been found in G.A.T.T. It is to be hoped that this association will be fruitful and pave the way for a further expansion of world trade.

Having discussed the broad framework of institutional arrangements, we might turn to certain special problems. These relate to the trade in agricultural products, and the trade of the less developed countries. Since on all these questions there had been a great deal of controversy in G.A.T.T., it was felt that it would be useful if the problems were analysed by a panel of experts who would look at them as economists and not as spokesmen of their respective Governments. The Panel, under the chairmanship of Professor Haberler, submitted its report on *Trends in International Trade* about a year ago.

Countries dependent upon the export of agricultural products have been pointing out that, through various measures, industrialised countries were denying to them the opportunity to compete on equitable terms in their domestic markets. The restrictions imposed, they argue, are not consistent with G.A.T.T. rules. The industrialised countries argued that agriculture is not merely an economic activity but a mode of life, and for social and strategic, no less than economic, reasons the farmer must be protected. At present, under G.A.T.T., each country is having consultations about its policy governing the import of agricultural products. It is only when these consultations have been completed that further international action will be possible.

In the meantime, one controversial issue has been more or less satisfactorily resolved. The United States has been supplying commodities like wheat and cotton under its P.L. 480 programme. Other countries which were exporters of these products felt that their markets were thereby threatened. After discussion in G.A.T.T.—as well as in the U.N. Food and Agriculture Organisation —a broad understanding has been reached. The point that the surplus disposal programme could serve a useful purpose by increasing consumption and enabling countries to import more than they otherwise could has been recognised. It has also been urged that this form of aid from the United States enables the recipients to import larger quantities of other products from third countries than they otherwise could. At the same time, it has been accepted that exporting countries should not lose their opportunities for normal marketing because of such aid. To achieve this, consultations take place before the P.L. 480 programme is finalised from time to time.

To producers of primary commodities, the matter of greatest concern is the violent fluctuations in their prices. A small drop can create serious difficulties for countries dependent on their exports. The matter has, therefore, been one of concern not only to G.A.T.T. but also to the U.N. Economic and Social Council. Although no common approach to the commodity problem has yet emerged, there is now a willingness on the part of both producing countries and consuming countries to discuss such problems in relation to specific products, as and when they arise, to seek solutions by common consent and action.

As for the trade of the less developed countries, it was conceded at the review session of G.A.T.T. that their balance of payments problems were of a chronic nature and they would, therefore, need to maintain quantitative restrictions on imports for a much longer period. They were also given greater freedom to make adjustments in bound tariffs as and when they developed new industries. What the Haberler report emphasises is that the trade of the less developed countries is expanding at a slower pace than the trade of the industrialised countries. In other words, the gap, instead of narrowing, is widening. The only way in which a balance can be restored is by a greater absorption of manufactured goods produced in less developed countries by industrialised countries.

How is this to be facilitated? Here again a divergence of opinion and thinking persists. In principle, there is general agreement about the desirability of increasing the export earnings of the less developed countries. But some of the industrialised countries are expressing the fear that the import of goods produced in the less developed countries where wages are low will create a serious problem for their industries. Indeed, some west European nations are today maintaining discriminatory restrictions against goods produced in certain countries on this ground.

As against this, the less developed countries point out that wages are only one of the factors determining the cost of production; that industrialised countries have other advantages, with the result that not many new industries in less developed countries can survive without protection (leave alone the possibility of their being able to compete in domestic markets of industrialised countries); and that it is only when a less developed country has some special economic advantage in any line of production that its products are really cheap. It is the whole purpose of international trade to enable countries to concentrate on those lines of production in which they can be most economical. If less developed countries cannot find opportunities to increase their exports, they must in their industrial policy concentrate on import-saving industries regardless of costs and in their commercial policy rely increasingly on bilateral arrangements.

The case for facilitating the expansion of the export earnings of less developed countries has been accepted not only in G.A.T.T., but also by the meeting of the Commonwealth Finance Ministers in Montreal and by the European Economic Community. What has tended to cloud the issues is that, in some markets, there has been a sudden and sharp increase in the imports of a narrow range of products from certain sources. In other instances, there is an apprehension that the domestic market will be disrupted if restrictions on imports are removed. The question, according to some thinkers, is of finding ways and means of avoiding a market disruption while enabling less developed countries to expand their exports of manufactured products. This will be one of the important questions to be discussed at the next session of G.A.T.T.

The developments discussed here are clearly of great significance to the shaping of Indian policies. I have, however, attempted to discuss these issues, not from the Indian point of view, but rather to present an objective analysis of the new trends in international trade. It was my privilege to be chairman of G.A.T.T. at two sessions, when many of the things to which I have referred came up for discussion. It is my belief that, by looking at these new trends, not only from our own point of view as we must inevitably do, but also from the point of view of other countries, we shall better appreciate their true significance and be better equipped to shape our own policies.

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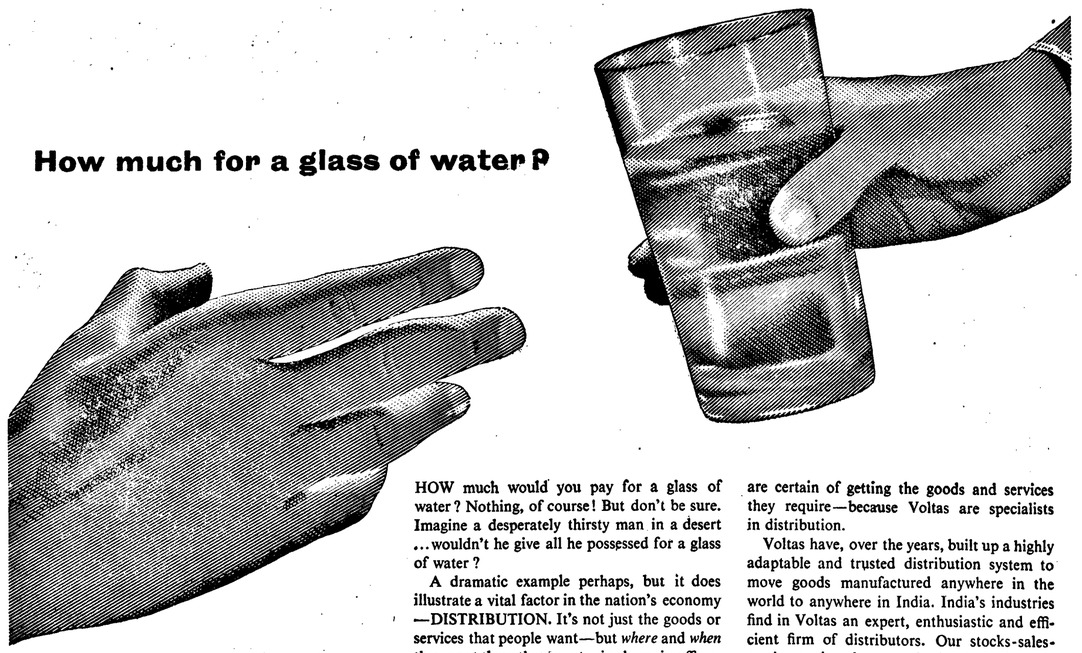

HOW much would you pay for a glass of water? Nothing, of course! But don't be sure. Imagine a desperately thirsty man in a desert ...wouldn't he give all he possessed for a glass of water?

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The Growth of Civil Air Transport

Big Increase in Passenger and Freight Traffic

By
M. M. PHILIP
Secretary, Ministry of Communications, Government of India

AIR transport is the youngest of all forms of transport. Nevertheless, it is already an essential part of the Indian economy. Apart from its importance as a commercial carrier of men and materials in normal times, a well-organised civil air service can provide a useful reserve of equipment and trained personnel in times of emergency. Although perhaps still not as economical as the older means of transport, air transport has certain inherent advantages. An obvious one is speed. Equally unique is its high degree of flexibility. Requiring neither roads nor rail tracks, it can penetrate into regions inaccessible to other types of transport. No doubt, a vast organisation devoted to the maintenance of aerodromes, of meteorological information services and of an aeronautical communications network is essential for a well-organised air transport service. But that does not take away its flexibility, and, at least for operation with small aircraft, the capital investment need not be very large.

Until the beginning of the second World War, the development of civil aviation in India was limited by the fact that its chief driving force, in so far as the authorities were concerned, was to provide connecting links with international services, so as to make possible "closer and more constant the unity of Imperial thought, Imperial intercourse and Imperial ideas". (Sir Samuel Hoare, Secretary of State for Air, Britain, 1927.)

Postwar Policy

In May 1945, the Government of India announced its postwar policy for the development and operation of air transport services. It said: "The policy of the Government of India is to permit the development and operation of air transport services, internal and external, by a limited number of sound and reliable private commercial organisations, with their own capital and operated under normal commercial principles of risk of losses and prospects of gain. The operation of air transport services would be subject to licences granted by the Government. Without such a licence, no air transport service can operate. The grant of State assistance in specific cases will be entirely at the discretion of the Government and on conditions to be laid down in each case. In specific cases, the Government should take a financial interest in the companies operating air services and appoint a director on the board. The Government should not, however, take a controlling share in such cases."

It is now necessary to review the situation as it prevailed around the time of independence. After the war, a large number of twin-engined *Dakota* aircraft were available as surplus war material at astonishingly low prices. The basis for a manufacturing industry for aircraft had been laid by the establishment of Hindusthan Aircraft Limited in December 1940. The factory was able to produce a number of serviceable aircraft out of the many aircraft which had been left in an unserviceable and damaged condition after the war. There was a general atmosphere of optimism in air transport circles, and in these conditions a number of new companies were formed for the operation of domestic air services. All was, however, not well from the financial point of view, and some of the companies went into liquidation.

Immediately after independence, the air companies were temporarily able to tide over their difficulty as a result of the utilisation of their surplus capacity for the evacuation of displaced persons and in the Kashmir operations. Incidentally, this also emphasised once again the importance of having an aviation service which would be capable of meeting the needs not only of normal times but also of emergencies.

External Operations

A beginning was also made in the field of external air operations. Air-India International Ltd inaugurated a weekly service to London. The Government of India took up 49 percent of the shares in the company, which had a capital of Rs. 2 crores. The Government also agreed to reimburse for five years all losses after making provision for depreciation. By 1950, the frequency had been increased to three services a week. The company also started operating a service to Nairobi *via* Aden in the beginning of 1950. Bharat Airways, with a subsidy from the Government, started operating flights to Hongkong in May 1949, but later restricted its operations up to Bangkok.

In spite of all-round development, the operating costs of the companies were rising due to the increase in the price of aviation fuel and increased expenditure on salaries. The Government recognised that some action was needed to give relief to the companies and adopted two measures for this purpose. The "all-up" mail scheme was introduced on 1st April, 1949, under which all first-class mail which could be conveyed more expeditiously by air was airlifted. The surcharge on first-class mail for air conveyance was abolished. The second measure was the grant of a rebate of the import duty on petrol consumed in civil aviation to the extent of 6 annas a gallon with effect from March 1949. The amount of this rebate was later increased to 9 annas a gallon.

At about this time, an emergency arose in East and West Bengal as a result of exodus of refugees and there was also an increase in traffic between West Bengal, on the one side, and Assam and Tripura, on the other. A large number of scheduled and non-scheduled operators came rushing into the field and there ensued a period of intense competition. There were cases of undesirable practices, drift of operational and other technical personnel from company to company, excessive hours of work for crews, and even some cases of overloading of aircraft. Scores of middlemen came into the field as touts for canvassing traffic.

Financial Difficulties

While there was all-round development of air transport services, the financial affairs of the air companies and the haphazard nature of their growth continued to cause anxiety in the public mind. On the one side, costs were increasing, and, on the other, acute competition was forcing fares to uneconomic levels. Concerned over this haphazard growth, the Government of India appointed an Air Transport Enquiry Committee. The official resolution appointing the Committee said that the Government felt it was necessary to take immediate measures to ensure that the operation of air services was placed on a firm economic footing, so that future development could proceed on sound and healthy lines. The Committee, which was to make its recommendations towards this end, came to the conclusion that for the traffic available, the number of air companies was too many. The overhead costs of the companies were found to be high. Subject to a reduction in costs and reorganisation, the Committee recommended the continuance of the airlines and suggested that financial assistance from the State may be discontinued after 1952.

The financial position of the air companies, however, continued to deteriorate. In fact, it was obvious that if the air companies were to be kept going, financial assistance from the Government would have to be increased. The problem of modernisation of equipment, which was beyond the means of private operators, brought the issue of nationalisation to the fore. The Gorvenment of India, after considering the whole question, came to the conclusion that the existence of a large number of air companies was no longer in the interests of the country. Accordingly, it recommended their merger into State-owned enterprises. The Government was already giving the airlines an indirect subsidy to the extent of Rs. 30 lakhs or Rs. 40 lakhs every year. The available resources in equipment, workshop capacity and technical personnel, it was felt, could be used to the maximum advantage if they were pooled. From the point of view of defence, the operation of all air services by a State-owned organisation was considered the most desirable arrangement. Rapid developments were taking place in the technique of civil aviation, and it was felt that in Indian conditions only a State-owned organisation could command the resources to take the fullest advantage of these developments. Accordingly, in 1953, two Corporations were set up —the Indian Airlines Corporation for domestic services and Air-India International for overseas services. A total compensation of over Rs. 6 crores was paid to the air companies.

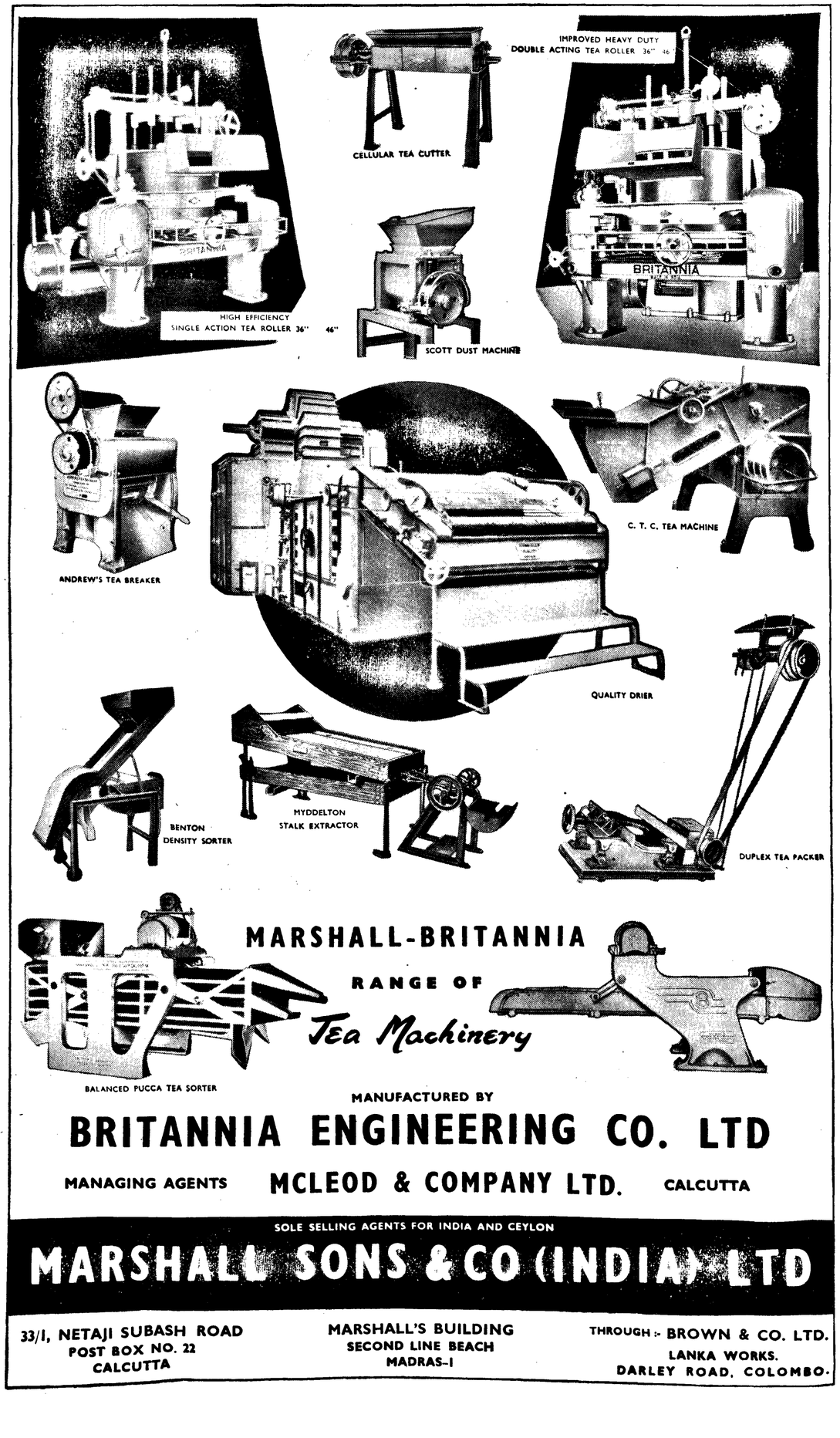
Integration of Companies

The first task of the I.A.C. was the integration of the eight air companies which it had inherited. It got a fleet of 99 aircraft, consisting of 74 *Dakotas*, 12 *Vikings* and three *Skymasters*, besides a number of small aircraft. All employees of the companies, with the exception of certain business executives, continued to be in the employ of the Corporation. The I.A.C.'s principal achievements since nationalisation are the integration of eight airlines into a single organisation, rationalisation of the route pattern, acquisition of modern aircraft like *Viscounts* and generally the establishment of a high operational standard. Recently, the Government appointed a Committee under the chairmanship of Mr. Stephen Wheatcroft, an aviation economist from the U.K. to go into the I.A.C.'s cost structure and related matters. The Committee stated: "It is our view that the general standards of I.A.C. operations are very good. The services are efficiently operated, and the 'quality' of the transport offered to the public is very good, particularly when the average low level of fares is borne in mind". Before referring critically to certain aspects of the finances of the I.A.C., the report says: "This report must ..... be read in the context that we believe that the I.A.C. provides a very satisfactory system of domestic air services in India."

The Corporation has taken a number of steps to improve the training of its pilots. A central training establishment has been set up in Hyderabad and greater attention is now paid to the training of personnel, both in India and abroad. Working conditions have been improved, especially for employees in the lower income groups. Many of the steps taken by the Corporation, such as modernisation of fleet and workshop equipment and renovation of booking offices, have involved expenditure on a scale which would have been far beyond the resources of the private air companies. While great strides have been made on the operational side, the I.A.C. continues to operate at a loss. To an extent, these were inevitable in the initial stages as a result of the abolition of the rebate of petrol duty and the steep rise in the wage bill following the introduction of revised service conditions. The Wheatcroft Committee recommended a number of measures, which, in its view, would help close the 10-percent gap between revenue and expenditure in a few years.

On the overseas services, developments have been spectacular. The Air-India International fleet at present consists of nine *Super-Constellations*. The Corporation runs services to the U.K., the European Continent, east and north Africa, the Far East, Australia and Russia. In fact, A.-I.I. has a high place among the airlines of the world. It stands on the threshold of the jet age in aviation, and has ordered three *Boeing 707* jet aircraft. It hopes that it will be flying to the U.S.A. in the near future.

The domestic services are entering a new phase. To borrow a phrase from the world of art, air transport in India has "arrived". Its future course is now assured. The hope is justified by past progress. Today, the scheduled services of the I.A.C. carry over 650,000 passengers annually, against about 100,000 passengers carried by air services in 1946. The miles flown have increased from about 4.5 million to nearly 20 million, the freight carried from less than 2 million lbs to over 98 million lbs, and mails carried from about 1 million lbs to about 13 million lbs. On the international services, the only links at the time of independence were with the neighbouring countries. Today Indian air services also operate to Cairo, Beirut, Rome, Geneva, Zürich, Prague, Paris, Düsseldorf, London, Aden, Nairobi, Bangkok, Singapore, Hongkong, Tokyo, Djakarta, Darwin, Sydney and Moscow.



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ROLE OF ADVERTISING IN A PLANNED ECONOMY

ORGANISED PUBLICITY REQUIRED FOR DEVELOPING A MASS MARKET

THIS article has been specially written for those industries and organisations which have no sales problem at the moment—they are sold out most of the time and will continue to be in this position for several years to come. It also attempts to reach executives and others who are not unduly concerned with the shape of things to come and who tend to liken advertising to a trades man's entrance in a house which respectable people are not supposed to enter by. Naturally, I do not hold this view, and I think the annual number of *Capital* is as good an occasion as any in which the problems of publicity in India today can be discussed.

The word publicity, I think, is the most convenient; being a little more generic, it covers both advertising and public relations. It is derived from the Latin *populus*, meaning people and from ancient times it has connoted the art of communicating with a body of people. The subject may vary and the purpose may be different but it will still be publicity—the act of conveying a certain message to a body of people. Advertising conveys a message which has, as its primary aim, the sale of a commodity or service, whereas public relations deal with those activities which aim at creating better relations between an institution and the public with which it is concerned.

Socialistic Pattern

Although the declared policy of the Government is to evolve a socialistic pattern of society, it must be accepted that advertising cannot be eliminated from a socialist economy. It must exist, perhaps, on a re-organised scale, but it still has a very valuable function in maintaining a progressive economy. There are many both in and outside the Government, who believe that advertising has little or no place in the new set-up. But the contradiction in this attitude is patent and the idea somewhat outmoded in a modern society, for it attempts to impose a totalitarian curb on the freedom of choice in the belief, like that of Oliver Cromwell, that the public should have "not what they want but what is good for them".

The commercial public, for instance, was left to make do with whatver the railways had to offer. A few years ago, however, advertisements began to tell the commercial public that long-distance road transport organisations were prepared to carry their goods from the ports to the principal centres of industry along trunk roads. These advertisements, informing the public of an alternative service and its advantages, have evidently had results. The railways, concerned at the divergence of traffic, have recently advertised various improved services of their own, such as express transit services and street delivery,

By

R. K. SIRKAR

in a bid to regain the lost favours of freight users—an interesting example of how competition between the public and private sectors can bring nothing but benefit to the public and how advertising plays an useful and necessary rôle in this desirable result.

Economy Considerations

A 36-page Ford advertisement, which appeared in the American *Reader's Digest* earlier this year, has caused a mild sensation in advertising circles. It is said to be the largest single insertion in advertising history. In the present conditions of India, advertising is not and cannot be on such a fabulous scale. It will rightly be regarded as wasteful in the Indian context where capital resources are short in relation to the need for investment and where the need for economy in operation is great. Considerations of economy, however, can sometimes be taken to undesirable lengths. Publicity budgets in India have, in many instances, undergone severe curtailment because of the need for economy, particularly on account of rising costs. It is unfortunate that publicity is invariably the first casualty in such circumstances.

There are some who believe that reducing advertising costs will make the product cheaper to the consumer. This may sound like a good argument but the following extract from a recent speech to shareholders by Lord Heyworth, chairman of Unilever Ltd, will show that this theory is not entirely true: "A permanent price reduction is not the alternative to promotions. We have tried it, and it did not work. The amount of money which is saved by dropping the promotion is too small to make any significant impact if it is applied to reducing the price, and the fact is that if we drop promotions, we have to find other ways of achieving the same object, not necessarily so efficient and not necessarily less expensive."

Nearer home, let us take a specific example, bicycles, for instance. If a bicycle is priced at Rs. 150, a reduction in advertising expenditure from, say, 1 percent of sales to .5 percent will enable a mass reduction of 75nP in the retail price. It will be seen at once that a reduction of such a small order, effected by slashing the advertising budget by 50 percent, brings about no proportionate benefit to the consumer. On the other hand, the Tariff Commission, in its report on the bicycle industry, has pointed out that "advertising on a more intensive scale is necessary to popularise this handy and cheap means of transport, especially in rural areas".

The Multi-million Market

In India, the manufacturer has an initial advantage—he has a potential market of about 400 million. The five year plans are trying to overcome the handicaps of distance and ignorance. This mass market is gradually becoming accessible, and the manufacturer has to establish a line of communication with his far-flung and complex public. It is only by developing a mass market that prices of commodities can be reduced, and no such market can be developed without a planned and organised publicity programme.

When one talks of economy in advertising costs in relation to the Indian market, there seems to be an inherent paradox in the statement. Perhaps I can best express this paradox by quoting the case of the *biri* manufacturer in south India, whose market comprises the districts of Madura, Tinnevelly and Ramnad only. He is reported to be

Intended to promote internal tourism, Dunlop started the "Pleasures of Motoring" series in 1951, which set the pattern for many subsequent campaigns by other advertisers

"Kodak" films and slides show exactly how a jet engine works

Soon, India's wide blue skies will be filled with a new sound — the muffled scream of jets as giant airliners carry passengers and freight across vast distances of space, more swiftly than ever before.

Preceding delivery of these airliners to India, Kodak films and slides will have helped to train engineers and mechanics in jet operation and maintenance . . . will have shown in graphic detail how each and every system works. Without going abroad, and without expensive transfer costs, hundreds of men will have learned the techniques of jet engineering.

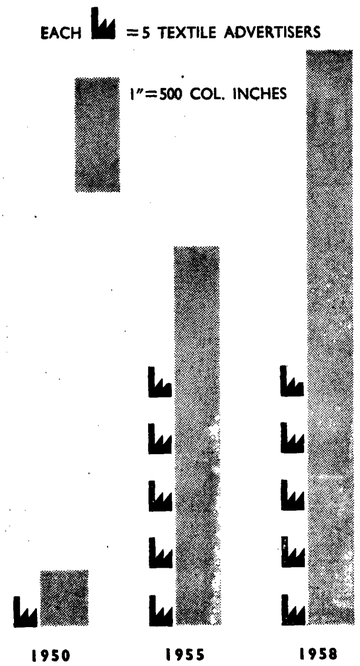
Kodak visual aids are also used extensively by the defence academies, in technical and engineering schools, and in medical colleges. This is just one of the ways in which Kodak, with nearly 50 years of experience in India, is helping to build the India of tomorrow . . . helping to benefit you and the nation.

Training our men for the Jet Age...

Kodak Limited
(Incorporated in England with Limited Liability)
Bombay · Calcutta · Delhi · Madras

A recent advertisement of Kodak Ltd, which aims at keeping the brand name before the public when the products are in short supply

This Burmah-Shell advertisement is an example of how some advertisers are identifying themselves with national aspirations



The volume of textile display advertisements (taking the Statesman as an example) has risen nearly tenfold between 1950 and 1958. Between 1955 and 1958, although the number of textile advertisers remained the same, the space consumed by them rose considerably. The space used by textile manufacturers in another newspaper, the *Hindu*, has risen from 2,114 column inches in 1950 to 5,281 column inches in 1958

spending well over Rs. 7 lakhs a year on advertising and promotion in that limited market. (Many so-called national advertisers have a budget of this order to advertise their considerable range of products in the whole country.) The *biri* is the classic example of the multi-million market commodity; its consumers literally run into tens of millions. Any one who has observed the promotional campaigns of the more progressive *biri* manufacturers cannot but be struck by the thought that the multi-million market in India needs, not lengthy discourses on economy in advertising, but plans, experiments and pioneering work in exploring new media and new techniques in order to take one's advertising message to the millions of new consumers.

Established Fact

It is an established fact that organised publicity leads to higher standards of living. It reflects the quickening tempo of the present age; it encourages production, bringing continuity of employment; it creates new desires which raise the level of living by converting purchasing power into actual purchases. New products and product improvements follow fast upon each other. The manufacturer spends more money, more quickly, to bring home to the consumer the advantages of his product and all this gives concrete shapes and desirable forms to what the growing expendable income represents. The trend is already discernible. The rapid development of various consumer and light engineering industries in India in recent years testify to the growth of the mass market. Radio sets, lamps, electrical appliances, sewing machines, bicycles, furniture, textiles, soap and detergents, tea, etcetera, are only a few instances. Gradually, manufacturers are realising the value of organised publicity in building up goodwill and new markets for their products, and it is interesting to quote here an observation made in the *1951 Census Report*: "Many products of industry, formerly unknown in the villages, have become articles of household use for increasingly large numbers of villagers". Considerable progress in this direction has since been made.

I should like to refer to the example of textile advertising. The advertising of Indian textiles, both branded and handloom, is a comparatively new feature. When the Press Commission reported in 1954, it found that advertising of textile, clothing and footwear accounted for 3 percent of the total advertising in the Press. No comparable study has been made in the meantime, but the diagram on the left, prepared from figures obtained through the courtesy of the *Statesman*, will be of interest.

I have chosen the example of textiles because this is an industry which has often complained of overproduction and unused production capacity. As far as the internal market for textiles is concerned, the industry is in a better position than it was a few years ago. The increase in the volume of textile advertising is an indication that the manufacturers have successfully used this tool in order to create among consumers the desire for better clothing and more attractive fabrics, thus simultaneously assisting to raise the standard of living and bring increased orders for textile mills.

Predictable Basis

Publicity is not only the technique of promoting products or services, but it also helps establish them on a predictable basis. The contribution it makes towards economic stability is generally overlooked in a competitive market, but it is in this aspect that it can play a vital rôle in the developing economy of the country by moulding consumer habits and establishing consumption patterns.

The foregoing, although perfectly reasonable under normal conditions, is vitiated by the present shortage of numerous products intended for mass consumption. It is true that under such circumstances, unplanned publicity may cause harm rather than good and it is only right that advertising for such products should be on a restricted scale. In spite of restricted supplies, it must be realised that for the great majority of goods and services offered to the Indian consumer, there is no absolute monopoly. If there are half a dozen sources of supply, the consumer has as many alternatives to choose from. Today the choice may be limited by the stringent supply position, but it is more than likely that the equilibrium between supply and demand will be restored in the course of the third five year plan in relation to a large number of consumer and industrial products. Who can vouch that the consumer will not develop, over the years, a marked preference for one of the competitive brands?

Conditions of Shortage

I should like to say that even in conditions of shortage advertising is necessary. In many cases, it will suffice to keep the brand name alive by explaining shortages to dealers and customers and by keeping them informed of product development and improvements, and similar matters relating to the product and the market in general. It is also a good policy to take advantage of the situation by concentrating at such times on institutional or public relations advertising to create acceptance of the company as public-spirited, friendly and sound.

Many companies in India and outside continued to advertise on a fairly extensive scale during the war years, although they had nothing to sell to

This young apprentice at the site of the Durgapur steelworks is typical of thousands of new buyers who are being created by development projects. The dynamism of the life around them makes them more susceptible to new ideas and new concepts of living

the public. In the U.S.A., for example, American business spent more than $2 billion in conjunction with 27 Government departments and agencies to carry out more than 100 home-front campaigns. The whole idea was to keep alive their firm and brand names so that the vast amount of brand consciousness and goodwill they had built up over the years, would not be entirely lost. It will be appreciated that having established a brand in the market over a period of time, it becomes a complete waste of that effort if, when supplies are short, advertising is withdrawn. It is important to protect the financial value of goodwill purchased by substantial investments in publicity in the past.

When "Horlicks" was in short supply, their advertisements advised the public not to ask for it but to leave the limited quantities available for the old and the ailing. This, to my mind, was a judicious approach which not only created prestige, but also left consumers with a feeling of "pent-up demand" which they would be eager to satisfy when supplies became available. Kodak advertising provides another answer to this problem. It is obviously pointless for Kodak to attempt any selling publicity when stocks are limited. Kodak has, therefore, given a different character to its advertisements, informing the public of the many functions that Kodak films perform in modern life, thereby keeping the brand name before the public in an interesting and effective manner.

Reminder advertising of an educative nature is also a very useful method of keeping the consumer

A good institutional advertisement by Hindustan Lever Ltd.

brand-conscious. In the case of industrial products, for instance, the publicity should be designed to educate the consumer in the proper use and maintenance of the product. The manufacturer who does this will be a step ahead of the competitor who merely repeats claims for his products in the Press.

Problems of Small Manufacturers

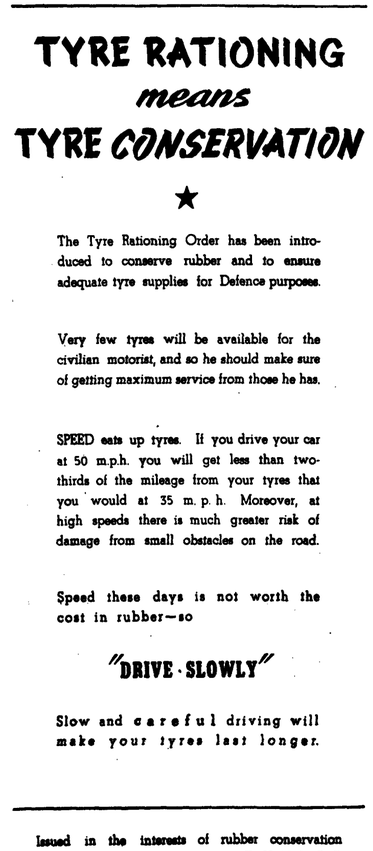
Needless to say, such limiting factors on publicity do not operate on products which are being newly introduced to the market or which are already available in sufficient quantity to give the buyer a choice. The purpose here, however, is to discuss the function of publicity in situations when its need is not obvious. One may consider, for instance, the situation created by import restrictions which in turn has encouraged indigenous manufacture. In this context, I have in mind the remarks of a purchasing officer of a large engineering concern who said that every day he scanned the advertisements in the papers to locate new sources of supply. Thus, in fact, a situation has been created where the buyer is seeking the seller. These small manufacturers are not established advertisers. They are content with classified or small display advertisements in local papers, and, perhaps, some casually designed printed publicity. Assuming that they have the resources to expand production, here is the opportunity for hundreds of little-known manufacturers to make their brands known to a wider market. Here is the occasion that calls for thought on improved packaging, more attractive printed material, and Press advertising on a larger scale.

This raises the question of resources and organisation. The Central Minister for Industry, Mr. Manubhai Shah, recently pointed out that in the enlightened communities of the West, relations within the industry and between industries were more satisfactory than those existing in India because a great many of these industries advertise and promote their products co-operatively. The solution to small advertisers' difficulties appears to lie in co-operative or group advertising through associations, which will also protect them from high-pressure competitive advertising by established and financially powerful manufacturers. It is, perhaps, wrong to think that co-operative publicity is beneficial to small manufacturers alone. Mr. Shah cited the case of the publicity campaign launched by the watchmakers of Switzerland and suggested that the Indian cement industry could take to co-operative advertising with advantage. In this connection, the efforts of recognised *vanaspati* manufacturers, both large and small, to combat public prejudice against their product, created by unscrupulous manufacturers, will be remembered.

Distressing Repercussions

Reducing the advertising budget today to the minimum required for reminder advertising alone, may have distressing repercussions at a later date, if the savings, at least in part, are not employed in building the brand image in the minds of future users. The output of industrial products

An excellent advertisement from the recent Tata-Fison series introducing a new range of pesticides to the Indian market



An example of war-time advertising by Dunlop, India, educating consumers in the proper use of tyres

today is, perhaps, far behind demand and the position is not likely to improve in the near future. But conditions are bound to change, maybe four years or five years hence, and the value of building up a brand image in the minds of the vast body of technical and engineering students, for example, who will be in a position to influence purchasing decisions within a few years, cannot be overlooked. Similarly, it will pay off at a later date if manufacturers of household and consumer goods, which are now in short supply, invest wisely by impressing the brand image on the minds of teenage home-makers of tomorrow.

The reluctance to explore new markets is perhaps natural for a manufacturer who can barely supply the needs of the existing market, but it will be profitable in the long run to obtain a toe-hold right now in a developing market. For example, the numerous growing industrial townships and project areas are virgin markets for electrical tools and appliances and a host of other accessories, but where everything is in short supply. It may be worth while to divert a token supply to the most promising of these areas and allocate a small sum for promotional activities, such as demonstrations and hoardings. Useful, informative type of advertising will create brand consciousness which will be of great use when the potential buyer is in a position to make his choice.

Consumer Survey

The results of a consumer survey in one such project area, for instance, were quoted some time ago by Mr. D. A. Orr, vice-chairman of Hindustan Lever. It studied expenditure by the residents of Nangal and expenditure by people of a similar income level in another Punjab village which had not been affected by any new scheme. It was found that whereas 20 percent of the people used toothpaste in other parts of Punjab, nearly 50 percent of the people use toothpaste in Nangal. "That is the sort of thing one might expect," he said, "but there are also changes in attitude and outlook which the association with a dynamic project has engendered in the workers' minds. One small thing that we noticed was that the standard of living even among families of similar income-groups was much higher in Nangal. Their diet is more carefully regulated, their houses are better furnished. Naturally we noticed that they were able to save more, but whereas the savings in the rural areas were normally confined to the traditional Indian method of saving, that is, the purchase of jewellery, in Nangal there was much more organised saving in National Savings Certificates and particularly high subscriptions to life insurance".

If manufacturers intend to plan even five years ahead, they should use this period of comparative lull in competitive advertising and set aside a reasonable sum for making a thorough study of market trends and promotion techniques. They will be ready with the right advertising approach when competition returns. Organised publicity is an integral part of modern business methods and when business conditions are undergoing complex changes, there is no reason why publicity should be dissociated from the rest of the constituent parts and be denied its main characteristic—its dynamism. The face of the consumer is changing; it changes constantly; but just at the moment, its change is basic and quick under the impact of India's developing economy, demanding corresponding changes in publicity practice. The lorry-owner of today is not what he was yesterday, and the lorry-owner of tomorrow will be a fundamentally different person from what he is today. If this is true, the manufacturer of road transport equipment and allied products will do well to appreciate these changes and adjust his publicity approach and techniques accordingly.

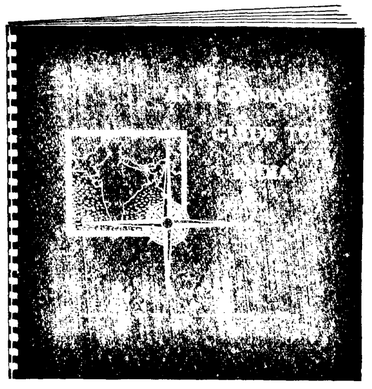
Public Opinion

An individual's opinion matters only when he is in a position to make his opinion effective, singly or in a body, and public opinion has never been so powerful in India as it is today. Some people believe that one of the principal factors in the recent Conservative victory in the U.K. general election was the consistent and effective publicity campaign carried out by individual firms and industrial associations against the policy of nationalisation. If that is so, one will be inclined to think that intelligent publicity can and does influence public opinion and is ultimately reflected in State policy. The function of public relations in the present context, when industry is expected to realise its social responsibilities and fit in with the conception of the welfare State, is to create a climate in which it is easier for management to do its job.

It is surprising that in the context of present-day currents of thought, few large manufacturers in the private sector have undertaken any regular public relations campaign. There are, however, a few honourable exceptions, where commercial advertisers are identifying themselves with national aspirations and official projects. One may quote the recent Burmah-Shell advertisements on bitumen and chemicals. I may also refer to Dunlop's "pleasures of motoring" advertisements which have set the pattern for many subsequent campaigns by other advertisers. The comparatively less competitive advertising necessary in a seller's market is an ideal opportunity for doing this neglected work and it is good to see that faith in this form of publicity is growing among Indian advertisers.

Social Profile

The importance of building up a "social profile" in the mass mind has been brought home to Indian business management most emphatically by the



The cover of an economic atlas produced by the Tata Iron and Steel Company—a very good example of public relations through printed material

present position of the managing agents who have so far been satisfied with only the efficient management of the units under them. In spite of their substantial contribution to the country's industrialisation and their usefulness in the economy, no organised attempt has so far been made to influence public opinion by interpreting their rôle in this context. Their failure to create a company personality, as distinct from product personality, has led to increasingly severe criticism and restrictions on their activities. It is, therefore, desirable that the report of the National Council of Applied Economic Research, which undertook a detailed study of the working of the managing agency system at the request of the Federation of Indian Chambers of Commerce and Industry, is given the widest publicity with the help of specialised agencies.

In this connection, one cannot but deplore the indifference to advertising and public relations, on the part of chambers of commerce and similar institutions in India. As far as I know, none of them have even a public relations officer or consultant. And yet they can make valuable contributions to Indian business by way of organising and executing product promotion and public relations, perhaps, on a co-operative basis for their members and affiliates. In the present circumstances, it is highly desirable that this important aspect of modern business methods be given serious consideration.

Disturbing Factor

The Government has emerged as one of the largest national advertisers. This is, of course, inherent in the very idea of a welfare State and a planned economy, but recent trends in the Government's advertising policy are a little disturbing. It is understood that a policy decision has been taken according to which all Government advertising, including those for autonomous corporations, will now be placed through the Directorate of Advertising and Visual Publicity. In other words, it appears that this directorate will now operate, to all intents and purposes, as a full-fledged advertising agency. It seems to me that while there is no objection to such an arrangement, it does appear to be rather anomalous that a Government department receiving a substantial grant from the Exchequer, is also allowed to earn "concessions" from newspapers.

A development of this kind will naturally place private advertisers in a disadvantageous position because their advertising cost a unit of space will be higher than for autonomous corporations with whom they will be competing in the not-too-distant future. It will also be agreed that if the practice of rebating agency commission should gain ground, this will inevitably cause a deplorable drop in the professional competence of advertising agencies. Rate cutting by advertising agencies, which will inevitably result if rebates are allowed, will put the clock back in the country by several years and is bound to affect not only advertisers but ultimately also the newspapers. While there is no objection to a concession being granted to advertisements of a truly national character, any deviation from the normal terms of accreditation in the nature of agency commission will, in my opinion, eventually harm private advertisers and bring about a general deterioration in the standard of advertising in India.

Professional Status

The publicity industry in the country is fairly well developed, and it is learning to control itself. It is unfortunate that there is at the moment a deplorable lack of basic data and it is imperative now for the sake of good and successful publicity to concentrate on research work. It is encouraging to note that the professional bodies in the country have made a beginning in this direction. The Audit Bureau of Circulations Ltd, the Indian Society of Advertisers Ltd, the Indian and Eastern Newspapers Society, the Advertising Agencies Association of India and the Indian Language Newspapers Association are doing good work and the recently formed Advertising Council with members from these organisations will no doubt have a very definite contribution to make towards the healthy growth of the industry in India. In fact, the Advertising Council can help a great deal in the healthy and scientific development of advertising provided it receives adequate official encouragement and support to enforce a code of ethics.

In spite of all this, one must admit that much of the misconception about publicity that exists in the country today is perhaps attributable to those in the profession, for they have failed to educate the public on the basic rudiments of publicity and its vital rôle in the expanding economy. They have overlooked to put across that in the tremendous development of mankind's productive powers, and the rise in the standard of living in the last 100 years or so, the technique of publicity, whether it is advertising or public relations, as a means of mass communication, has been a handmaid of industrial and social progress. In its most basic character, publicity is the art of mass communication and its form and technique are changing with developments in the present-day society. It is only natural that those who have a message to convey should take advantage of these developments, whether the message is on behalf of a Government asking people to save for national development, or an individual manufacturer selling soap.

Social Significance

To those in the profession—I use the word "profesion" deliberately—I should like to say, let us organise ourselves a little more, and tell the world, not necessarily from house tops, but simply and honestly, what these techniques are; the skills and services it offers and what planned publicity can do for them. Let us, on the strength of performance alone, squash statements such as "advertising is culturally repulsive to a sensitive person"; however stupid such a statement may be, let it not be said again. On the contrary, let us prove that good publicity is the custodian of popular art taste and for this reason, presentation and quality in present-day publicity have a definite social significance. It is a pity that the Indian Institute of Art-in-Industry, which could have done a great deal in this field, has had to curtail its activities due to the lack of financial support from the Central Government. It may be mentioned here that its counterpart in the U.K., the British Council of Industrial Design which is supported entirely by the Government, has made a substantial contribution to the improvement of industrial design standards generally, in that country, as a visit to their design centre in Haymarket, London, will demonstrate.

Although publicity in India has made tremendous progress in recent years, it has still a long way to go. There is no dearth of talented people in the country but proper training facilities do not exist, although a small beginning has been made in this direction by such bodies as the Indian Institute of Social Welfare and Business Management, the Bombay University, and the newly formed advertising clubs in various parts of the country where advertising is practised. It must be recognised that modern publicity calls for specialised knowledge and apart from the important aspect of planned training for new entrants, the agency system which is a specialised institution must be allowed to develop and grow under healthy conditions.

Professional Corps

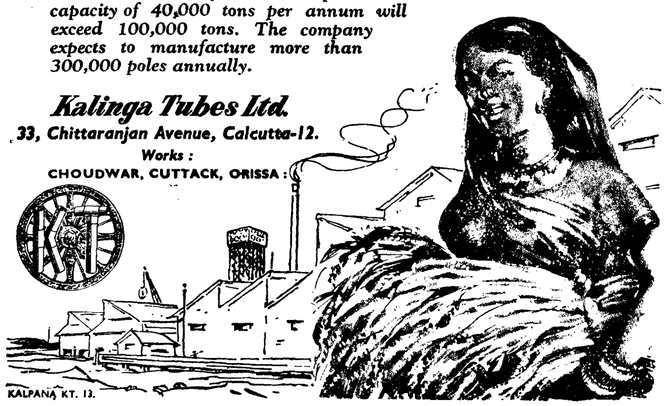
Let us conduct ourselves as a responsible group of people belonging to a dependable professional corps and, with this thought in mind, I should like to conclude this article by quoting from an article entitled "The Rôle of the Advertising Practitioner Today" by Mr. Sinclair Wood, President of the Institute of Practitioners in Advertising, which appeared in the *Financial Times* "Survey of Advertising" of 1st June, 1959. "It is no coincidence that the countries with the most highly developed system of advertising are those with the highest standards of living. This great national responsibility is serious enough to warrant the existence of a professional corps. Amateur advertising could be as serious a barrier to national development as amateur science or amateur engineering".

LAND OF SORROW

For centuries the people of this ancient land were groping in unfathomable darkness. Only a few years before the achievement of independence, millions of our countrymen died for a morsel of rice. The rapid industrialisation after independence is slowly building a new India. To raise this submerged humanity to a level of higher standard of living we must address ourselves to the task of industrialising our country as quickly as possible.

Will Smile Again

Kalinga Tubes is first to manufacture steel tubes and pipes in India—also first to export earning valuable foreign exchange. The company's expansion scheme is well in hand. By 1960 the present rated capacity of 40,000 tons per annum will exceed 100,000 tons. The company expects to manufacture more than 300,000 poles annually.



Kalinga Tubes Ltd.

33, Chittaranjan Avenue, Calcutta-12.

Works :

CHOUDWAR, CUTTACK, ORISSA :

KALPANA KT. 13.

STARTING from small beginnings 25 years ago National Carbon Company (India) Ltd. has today come to occupy an important place in the nation's economy. The famous "Eveready" flashlight products and radio batteries made by National Carbon Company (India) Ltd. serve millions of people in every town and remote village of the country.

Throughout the past quarter-century National Carbon's progress in India has been characterised by continuous expansion of manufacturing facilities and bold ventures into new fields. Today the Company stands on the threshold of another major expansion programme. A new Rs. 4.5 crore plant, scheduled to go "on-stream" in Bombay next year, will produce Rs. 2.5 crore worth of plastics and chemicals and will save the country Rs. 2 crores of foreign exchange annually.

By continually striving to make more extensive use of indigenous materials... by ceaselessly seeking to create new products and processes... by making, and helping others to make, new and better products National Carbon Company (India) Ltd. will continue to contribute materially towards India's economic advancement.

25½ years

SERVING INDIA'S PEOPLE AND INDUSTRIES

NATIONAL CARBON COMPANY (INDIA) LTD.

THE ENTERPRISE OF

DURGAPUR

DURGAPUR

Those friends thou hast, and their adoption tried,
Grapple them to thy soul with hoops of steel

—*SHAKESPEARE*

Steel, for more than a generation, has grappled Simon-Carves to Indian industry in ever closer friendship. In many contracts for coke ovens and other steelworks construction at Jamshedpur and Burnpur—and now at Durgapur—Simon-Carves have contributed to India's industrial growth and have been rewarded with many friends and much experience.

The vast enterprise of Durgapur is an outstanding example of Indo-British friendship and co-operation—an enterprise which British engineers, British banks and the British Government have united to help India to bring to reality.

Simon-Carves, as a member of the British consortium ISCON, are proud to be responsible for the coal preparation plant, coke ovens, by-products plant and power station, and for the training of many Indian engineers to build and to operate this great steelworks.

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Incorporated in England. The liability of the members is limited.

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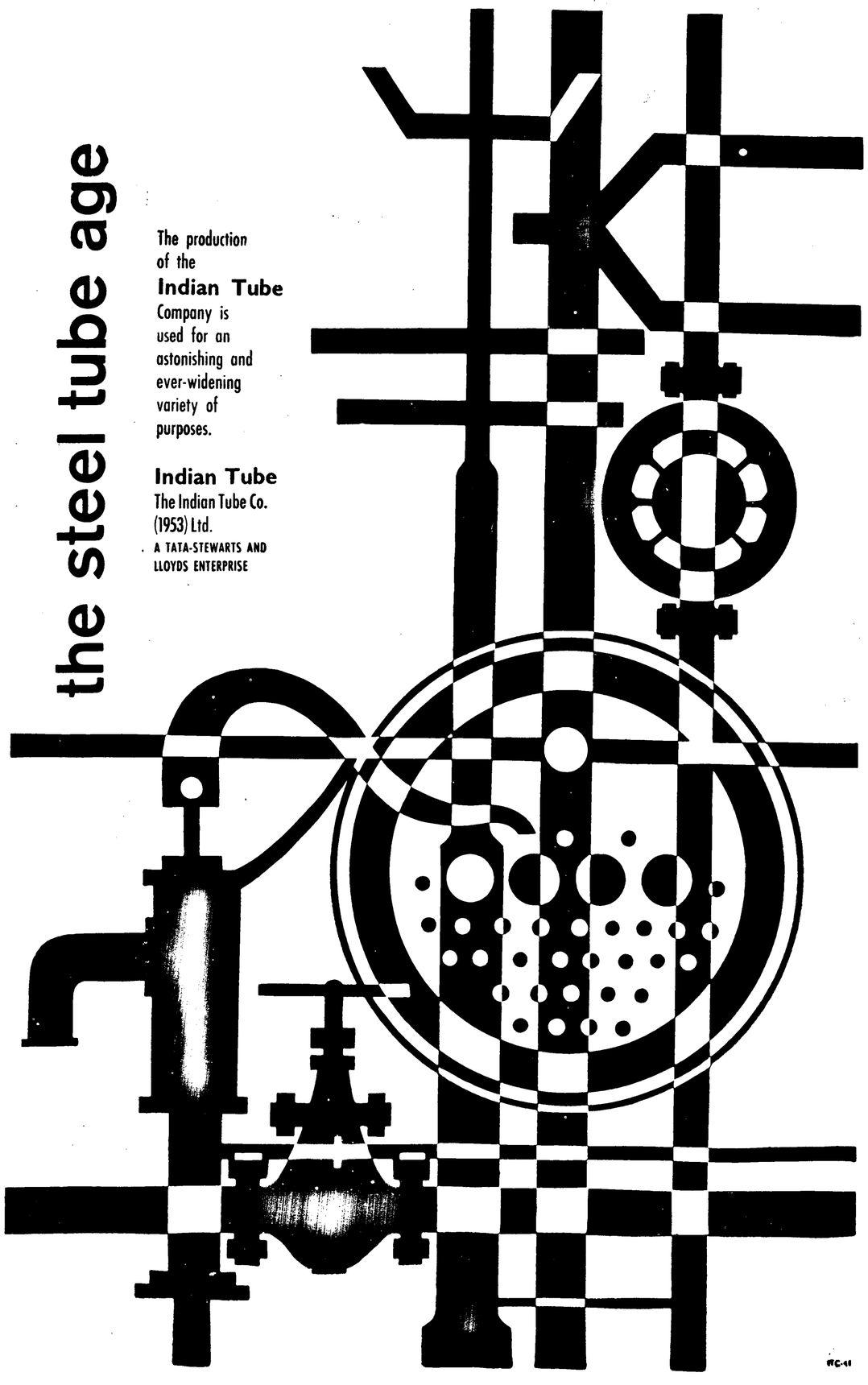

MECHANISATION AIDS BUSINESS EFFICIENCY

NEW TECHNICAL DEVICES EVOLVED

By

HUBERT E. WOUTERS

NOT so long ago the applicant for a clerical vacancy in an office was asked to provide proof of handwriting, which was legible and neat, and a willingness to labour long and diligently at tasks that were likely in the long run to break both heart and spirit. Not so today. Instead, the efficient office is much more likely to enquire as to the technical ability of an applicant, his or her experience in handling a machine with the assurance that the work to be done will occupy the minimum time in pleasant surroundings and leave the individual, with sufficient energy, to enjoy the leisure time to follow. At long last, the industrial revolution which followed the introduction of steam to replace the labour of men's hands has found its counterpart in the office with the introduction of mechanisation. The office revolution is not yet fully understood, and profound changes in ways of going about things will be needed if management and clerical staffs are to make the best use of the new techniques available to them. I have recently had the privilege of attending a succession of Business Efficiency Exhibitions. The variety of equipment now available must be seen to be believed. Indeed, it is impossible in the compass of a single article to deal adequately with the many aspects of office work which can be improved, either by re-organisation of methods or the introduction of some new scientific aid. That, indeed, is the outstanding lesson which these exhibitions teach—that science has come to the aid of the office worker to make his task easier, more efficient and infinitely more rewarding.

Technical Development

Generally speaking, the office is something like a quarter of a century behind the factory in technical development. Every effort is now being made not only to catch up but even to overtake the workshop in the effort to minimise costs. If this is to succeed, however, the first requirement must be to raise the quality of office management. New machines and techniques will help restore the prestige of office work, but new equipment by itself will not eliminate bad methods. Poor planning of work, ineffective organisation, and out-of-date staff policies will not easily be eradicated without the help of determined, well-trained management. The need for training in this sector of business is immediate and vital, and the initiative must come from industry itself. The most valuable form of training is where a period of practical experience immediately follows a course of lectures. To be effective, the lectures on theory and principles ought to last about three weeks, followed by practical training of at least two months, and preferably longer. The large industrial organisations, by reason of their size, are able to provide internal training of this kind by giving their management trainees a wide variety of work and experience after theoretical instruction. For others, the larger firms of industrial consultants are often able to arrange periods of practical training in their clients' offices and factories for people who have completed a course of lectures. The advantage of these types of training is that the practical work is supervised by experienced men. Colleges need to be encouraged to introduce courses of study in appropriate subjects.

Having secured the trained staff, it would be a sheer waste of money not to use their experience to the full. Initially, however, it is essential that the office in which they work measures up to the present-day standards of efficiency. Unfortunately, too few do so. The flowline production of paperwork in the office has become as desirable as the streamlining of assembly operation in the factory. In organising the operation, however, the possibilities of future expansion must be viewed differently. Whereas the work points on an assembly line will often remain virtually the same, the augmentation of the office staff will invariably mean the interpolation of additional "desks" into the existing plan. Faced with this problem time and again, efficiency experts have sought to evolve a system whereby each worker can be allotted the same operative working surface while allowing for re-arrangement which does not cut down the minimum desirable area of each clerk. One solution they have devised is unit furniture, which can be assembled in a variety of ways and made up into different combinations of desks, with the object in mind that work will start at one end of a department and come out finished at the other, and that the maximum opportunity for liaison with the minimum of effort between all parties concerned with the work is necessary.

These Aga dictating machines are part of a centralised Teledictation installation at the London headquarters of Bakelite Ltd. The Agavox can be remotely controlled from any extension of the internal telephone system

Generally speaking, a working area of less than 40 square feet a clerk is not desirable, and for a large office an American expert recently expressed the opinion that 100 square feet, inclusive of a normal complement of private offices, open spaces, etcetera, should be the aim of planning. Nevertheless, in many cases such conditions are just unobtainable. As an example, a company recently approached one office equipment firm and asked it to lay out an accounting office in a room 42 feet by 20 feet to accommodate one accountant, one cashier, two accounting machine operators, two sales ledger clerks, two bought ledger clerks, one wages clerk, two calculating machine operators, one statistics clerk, two filing and sorting clerks, four typists and three invoice clerks! On a basis that all must have at least a working surface of 4 feet 8 inches by 2 feet 3 inches, the firm organised it satisfactorily by the above methods, the space available being 38 square feet a person, including gangways.

Avoidance of Factory Atmosphere

In re-organisation of large areas, one factor which should receive the closest attention is avoidance of a factory atmosphere. Of the various methods of doing this, the introduction of colour is one of the prinicpal ones. Combinations can be arranged to lower the eye level, while among the latest equipment some have been designed with suitable introductions of varying shades of pedestal. A second factor is noise, and considerable headway has been made in overcoming this with the introduction of acoustic tiled ceilings and sound-absorbing screens and "boxes" for equipment with exceptional decibel output.

Under normal circumstances, it has been estimated that one can tolerate 45 to 50 decibels of sound without undue disturbance, but noises above that level tend to reduce efficiency and cause mental and physical strain. Much has been done to reduce the echo output of office machines, but in spite of this, the staccato rattle of a battery of typewriters can still add up to as much as 70

In order that the reservation clerks have perfect "telephone manners", Air France has installed a new electronic supervisory system at its Bond Street office in London. It enables the departmental manager to listen to or to record telephone calls received by any of the 35 reservation clerks

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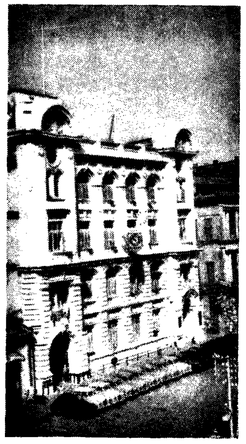

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ELECTRICAL MECHANICAL STRUCTURAL ENGINEERS

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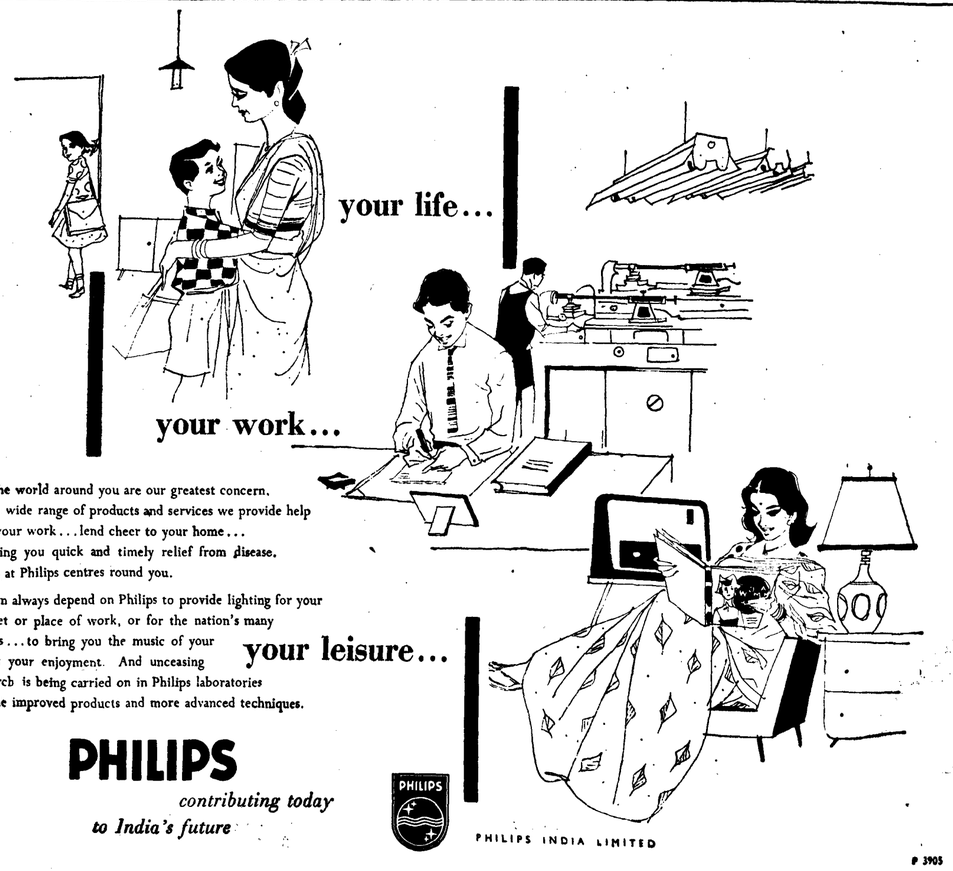

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or 80 decibels. A third factor—and this is also very much wrapped up with the saving of space, time and labour—is the making of every work station as nearly self-contained as possible, each clerk or executive having his or her relevant equipment housed in drawers or cupboards fitted as part of the work station and easily accessible without movement from the central chair. Finally, and it is now becoming fortunately more widely acknowledged, correct seating plays a major part in the maintenance of health and in ensuring maximum output with efficiency. Posture seating is by no means new, but its acceptance today is growing and chairs adjustable for height and backrest will usually be found a sound investment, often cutting down overall absence due to illness. Opinions vary as to the best height for desks and tables although 26 inches to 28 inches is usually considered the height for a typing platform, the machine keys being at least two inches above, slightly variable according to the machine.

Departmental Filing

Having arranged the staff, the question arises next as to the location of the departmental filing. With the most up-to-date equipment, each work point is equipped to carry the occupant's own personal files. But this still leaves those sections which must be readily accessible to all. In too many organisations, files consulted only infrequently are allowed to occupy equally important space with those in constant use. Division needs to be carried out with the "time and motion" plan readily available, those in regular use being situated accordingly, with those in only occasional activity relegated to otherwise unusable corners or places where they cause the least obstruction. To meet such problems, two recently introduced systems can help in saving space. The first is lateral filing, which enables greater use to be made of height than is possible with the normal four-drawer cabinet, accommodating as much as two-and-a-quarter times the filing in a third less floor space. The second is the introduction of mobile filing units, which can be similarly fitted at the end of a room, running on rails set into the floor. The advantage of this system is that only one gangway is required to obtain access to the units, since those not required can be pushed together, while one bay may provide as much as 95 percent more capacity in less floor space than a single standard cabinet.

So far, economy has been directed at the general office or groups of departments. The office of the executive, demanding privacy, is more difficult since generalisation of his needs is impossible, but here at least, in drawing up the general plan, the practicability of remote control dictation methods needs to be considered. All firms manufacturing these systems are ready to explain their suitability to a particular organisation. Many concerns have saved not only staff but the erection of special offices by its adoption. Whether the centralised system, if adopted, should be one based on its own independent wiring or one using the internal telephone network is beyond the scope of this article, but with either many work points might be cut out. As an example, the Carborundum Company, at its Manchester office, now has nine staff performing the work of 18 previously dealing with dictation from 40 points and the output a typist has risen 250 percent. Another large organisation claims for its remote-control dictation recording system that there is a saving of one girl for every machine installed.

Electrically-operated Machines

The electronic office may be a thing of the future for most companies, but the use of electrically-operated machines is a normal part of office life today. The list of these machines—for duplicating, franking, recording, amplifying, even erasing, and other purposes—is already enormous, and it will obviously be impossible to deal with them all within the scope of a brief article. Much of the drudgery which office work represented in the past has been eliminated by the machine; indeed, today's office worker insists on having these mechanical aids: such as, for instance, machines that address, stamp and open envelopes, duplicators which copy without the brute strength that the old copy-presses called for, electrically-powered filing systems, and paper shredders that reduce the unwanted confidential documents to useful packing material. The executive, in his turn, can choose from a wide variety of dictating machines, using tape, wire, belt or disc, or can dictate for long spells into recording machines. Another invaluable office aid is the inter-cummunication system, which has been so developed as an adjunct to the telephone system that a couple of girls seated at desk-type consoles replace the old switchboard apparatus manned by many more. What is more, inter-office communication is possible while holding an incoming outside call on a separate line, and the latter can be switched through automatically to someone else, or any of several other combinations—all by just pressing the appropriate buttons, or dialling appropriate numbers.

Tracing the development of the electric bookkeeper, one can start from the adding machine or the electric typewriter. The basic adding machine with motorised keys is used mainly for checking. After the clerk has added a column of figures in his ledger, the total can be checked quickly with the adding machine, which shows its arithmetic in much the same way as a shop's cash register. Then comes the adding-listing machine, which prints its sums on a roll of paper, followed by the calculating machine, which takes the range of mathematics into instant multiplication and division. (Countries with a decimal system of coinage can largely dispense with the calculator). There are two types of electrically operated calculator—the flexible keyboard calculator, which is a type of rotary calculator requiring no great experience to be manipulated, and the key-drive calculator, which is usually worked by a person who has been to a training school for several months. The printing calculator does its sums on a roll of paper, but has the disadvantage of being slower and less versatile than the other ones.

Electric Typewriter

The next step should be to the accounting machine, but this instrument may incorporate an electric typewriter, which needs an explanation of its own. The electric typewriter is not very much faster than the manual. Its chief merits are lightness of touch, which allows the typist to keep up her top speed for hours rather than minutes, and the evenness of its print. The accounting machine may, or may not, incorporate a typewriter. One well-known example of its work is the bank balance-sheet. It is also widely used for preparing the payroll, costing, stores records, and the control of hire-purchase records. The mathematics of a bank balance-sheet can be done largely automatically. There is no need for the typist to think of printing the debit figures in red. The machine looks after such details, just as it can be set to print the date and changing code and reference figures or numbers with hardly a thought from the typist.

It is from this point, by way of punched card machines and paper tape perforators, that the electronic computer enters the office. Common applications have been payroll, invoicing and stock control, but with the display of a little ingenuity, its uses are almost unlimited. The early enthusiasts for the electronic office not only claimed for the early machines far too much, but they under-estimated the immense amount of rethinking of old methods that had to be done, and they left uneasy feelings about the cost of high speed automation. It seemed to call for expenditure of millions of pounds, or, at the very least, a couple of hundred thousand. But ideas are now much more modest; for an annual rent of £3,000, the cost of five typists, a public utility in Lancashire deals with the bills for its million or more consumers; it keeps track of its consumption and replacement of stores; and it finds plenty of spare time on its computer to solve operational problems, such as how best to locate its maintenance engineers, and what spares to let them carry. Perhaps, the biggest task ahead of the electronics engineers is to convince the smaller firms that cost in the automatic office is very much less than was once imagined.

Closed-circuit Television

The more spectacular uses of closed-circuit television are to be found in industrial plants, ranging from steel furnaces to nuclear power-stations. But the television screen is becoming steadily more familiar in the office, promising one day to be as much a part of office equipment as the telephone or the typewriter. A firm of brokers near the London Stock Exchange saves endless telephone calls with the aid of a permanent television link. A television camera in their cubicle at the Exchange scans a board containing 200 stock and share prices every 75 seconds. Price changes are filled in continuously as they occur. Relayed over a private G.P.O. line, the pictures are seen on eight 17-inch screens in the firm's main offices. With eight executives briefed simultaneously, clients get a quicker service, and much rushing about is saved.

Inter-office communication by closed-circuit television suggests a thousand applications, and it has been put to use in the City branch of Barclays Bank to solve the problem of the book-keeping department being on the third floor and the accommodation for customers on the ground floor. Upstairs, three television document viewing consoles have been installed. Each contains a television camera together with its control unit. On the ground floor, eight viewing units have been installed in key positions, such as in the manager's office. When details of a customer's account are required, the person concerned on the groundfloor telephones to the console operator who places the appropriate ledger page into one of the three consoles. After adjustment by the operator, an image of half the ledger page can then be thrown on to the screen downstairs where the viewer is able to operate a control enabling him subsequently to see the other half-page. Complete security has been ensured by so designing the viewing units that the details can be seen only by the viewer; if the customer himself is to see the image, he must be invited to move into the viewing position. When the viewer has finished, he presses a button which removes the image and also indicates to the operator upstairs that it is no longer required. Any of the three document viewing consoles can serve any of the eight ground floor viewing units and, should business make it desirable, it is possible to expand this service.

That by no means exhausts the scope for mechanisation in the efficient office of today, but it is possible only to make a passing reference to one other aspect of this fascinating subject. It is an important one, for it provides for the creature comfort of the staff employed. Increasing numbers of larger firms install canteens for the benefit of their workpeople—an expensive and often space-wasting facility that nevertheless pays good dividends. The modern approach to drinks and meals for employees, however, is provided by automatic vending machines of the penny-in-the-slot type. These are now produced in great variety to dispense soft drinks, milk, iced-water, tea, coffee, and even hot meals of a more substantial nature. There appears to be no limit to what automation can do in the drive to raise living standards for all—and not least for the office worker.

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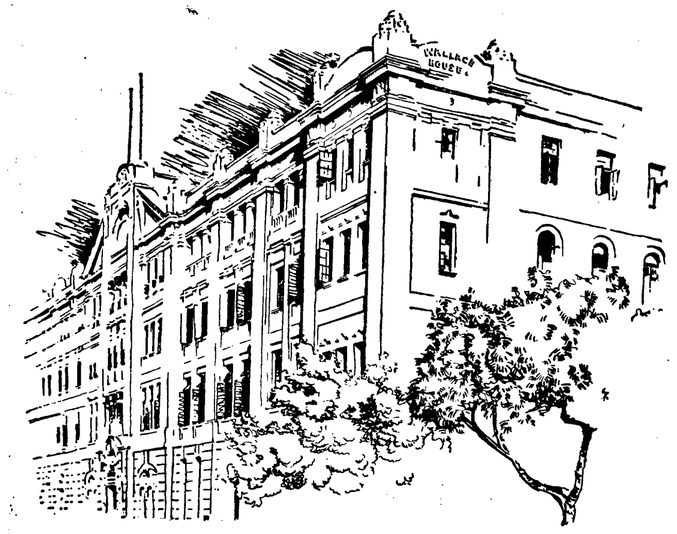

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GROWING INTEREST IN TOURISM IN BRITAIN

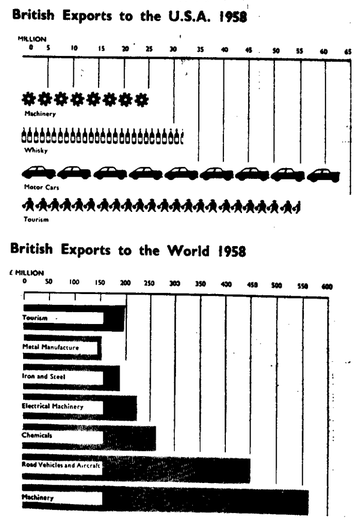
Removal of Official Formalities Urged

By
OUR LONDON CORRESPONDENT

TO some small countries, tourism is the most important contributor to their economy. Larger countries with a diversity of agricultural or industrial pursuits, on which they have to depend for the maintenance of a balance of payments equilibrium, may find it less important. Even to these, however, it is capable of making a far from negligible contribution and, therefore, merits both careful study and the maximum support. Just how useful tourism can be is illustrated by a consideration of the industry's position in Britain over little more than a decade. In 1947, Britain attracted a then record number of 396,000 tourists from overseas, earning from them approximately £33 million in foreign currency. It was regarded as a distinct achievement, and no doubt it was under the circumstances then prevailing. At the same time, it was also appreciated in certain quarters that it was an achievement which represented no more than the starting point of what could be done with more active development of the industry's obvious potentialities. Across the Channel, France, Germany, Holland, Belgium, Switzerland and Austria showed what could be done, and Britain went out to emulate their example. The result was that by 1958, overseas visitors to Britain totalled 1,258,560 and earnings from them amounted to £198 million. A 10-percent increase on these figures is expected for 1959, and the target looks like being achieved quite comfortably.

In assessing the value of the tourist industry to a country's economy, it is usual to include in its earnings payments for passenger transport in all its forms as well as for the provision of accommodation and food in hotels and catering establishments. No allowance is made for the benefits derived by the economy indirectly. For instance, the provision of tourist transport benefits the manufacturers of equipment for these services, such as aeroplanes, locomotives, rolling stock and buses, and their ancillary suppliers. In Britain, again, over 20,000 motor-cars are sold each year to overseas visitors, in addition to an unknown but large number hired. These, however, merely represent the primary group of tourist trades. Its influence also extends to numerous secondary trades, including travel agents, retail stores, entertainment in its various forms, night clubs, festivals, organised sport, banks, hair-dressers, laundries, photographic goods shops, and the suppliers of goods and services to hoteliers, caterers and transport enterprises, gas, water, electricity, and other public utilities, and builders and contractors in the tourist holiday areas. Insurance companies not only insure the tourist's life and luggage, but the risks of many trades that work for him, while the printing and kindred trades serve the tourist with tickets, stationery, cigarette cartons, guide books, magazines and newspapers. In Britain alone, it is estimated that the trades catering to tourism employ as many as 1.15 million men and women—about 5 percent of the total working population—and that they constitute one of the largest economic groups in the country. The tourist industry pays dividends in other ways. Tourists represent the leaders of fashion and opinion in their own lands. When they return home, they proudly display their purchases to friends who, in turn, admire these articles and translate their admiration into action by buying similar goods. Britain's chief exports are, for example, the very things tourists buy when they are visiting the country: motor-cars, cameras, textiles, pottery, silverware, sports goods, whisky, etcetera. The value of these sales is not included in Britain's tourist earnings, but can be directly attributed to tourism all the same.

Colourful posters such as this one (here shown in half-tone) form the basis of much of the British Travel and Holidays Association's promotion campaign. They receive a world-wide distribution through overseas offices of the B.T.H.A., cause much favourable comment abroad, and have won awards in the United States for being the best display posters



Mr. John Bridges, Director-General of the British Travel and Holidays Association, poses in the Tourist Information Centre with "Miss Blackpool". Between them they hold a poster, typical of the many attractive pieces of promotion material published by B.T.H.A., and in this case depicting "Miss Blackpool" herself

Interest in tourism has increased enormously in recent years. Since the war, the sudden spate of prosperity, the rising standards of living, the spreading of the holidays with pay idea, and the increasing means of rapid and inexpensive transport have all combined to expand international travel. In 1955, 28 million tourist arrivals were registered in the 17 O.E.E.C. countries. Most of these were Europeans visiting neighbouring countries, but 1 million came from other continents, of whom half were Americans. Impressive though these figures are as an indication of how tourism has developed, even more surprising is the fact that they continue to rise at the rate of 15 percent a year. Since 1945, the whole world has become increasingly tourist conscious. Australia, Asia, Africa, Central and South America are all now spending money in an effort to attract tourists, and more especially Americans: not surprisingly, when one considers that American expenditure on foreign travel in 1955 was approximately £600 million, and this is expected to rise quite rapidly. Both the airlines and the shipping companies are anticipating substantial increases in the demand

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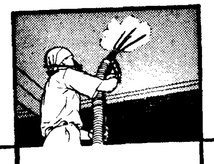

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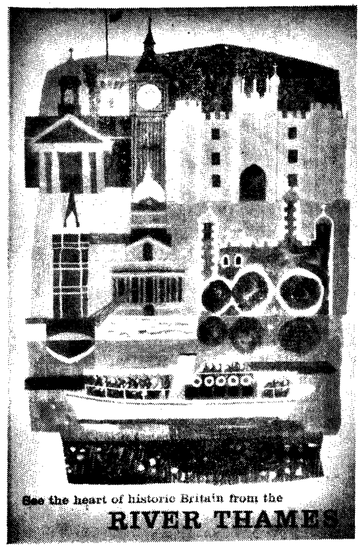

While many of the Association's posters are gloriously-produced coloured photographs of Britain's countryside, every now and then there comes forth something in a contemporary style, such as this attractive design extolling the virtues of the River Thames and London

for travel accommodation. Since 1947, the British passenger shipping lines have built some 84 ships at a cost of about £200 million so as to provide accommodation for an additional 30,000 visitors to the U.K. on each trip. In the air, too, expansion is the watchword. B.O.A.C. alone has on order £150 million worth of new equipment, including a succession of new aircraft starting with the *Britannia*, then the *Comet IV*, the *Boeing 707* turbo-jet and by 1963 the big Vickers *VC10*.

Invisible Exports

Although the tourist industry creates invisible exports, it has much in common with industries engaged in the manufacture of visible exports: it must compete with other countries in attracting tourists by offering them the inducement of tempting amenities, publicised by suitable methods and supported by effective organisations. The industry is not controlled by a few major companies, each with responsibility for the whole of a particular branch; it consists of many parts with widely varying interests. The tourist's well-being depends not only on the efficiency of the transport which carries him to a country, whether it be an airline or a shipping company, but on the services of hotels, local bus companies, tourist guides, and even on members of the general public who, by answering enquiries with willingness or impatience, can do much to create a good or bad impression. What is the best way of meeting all these requirements? A study of tourist organisations in a number of countries, which are acknowledged leaders in this sphere, show a variety of approaches. In some the Government is solely responsible; in others one finds a department of tourism controlled by the Government but acting more or less as a commercial undertaking; yet another variant is the handling of the tourist industry by a nationalised undertaking, such as the railways; or by the creation of a statutory body working on its own with some official support both in finance and personnel. At the other extreme, one finds the voluntary association of all those interested in tourism, who subscribe the funds it needs as well as the members of its various committees. Each of these methods has its own particular advantages in certain circumstances, and of course its drawbacks. By and large, the last approach will appear, judging by results, to be the most satisfactory in the long run.

Membership of B.T.H.A.

In this connection, it is instructive to examine Britain's handling of its tourist industry, which is done through an organisation called the British Travel and Holidays Association. Membership is open to all who are interested in the expansion of tourism and includes, for example, the British Transport Commission representing the railways and bus and canal services, B.O.A.C. and B.E.A., independent airlines, the shipping organisations and companies, hotel and restaurant associations as well as individual units, chambers of commerce, industrial development associations, the Lord Mayors and Mayors of all the principal cities, the chairmen of Urban District Councils, the Commonwealth High Commissioners, travel agents, motor-car hire firms, motoring and civil aviation organisations, travel, camping and sports associations, the trade unions, city corporations, and a host of others, not forgetting the owners of the Stately Homes of Britain, the brewers, theatres and cinemas. The Association endeavours, through its membership scheme, to bring home to all who benefit from and are interested in the tourist trade, the vital importance of co-operation and co-ordination. Although the Association is Britain's national tourist promotion body, it is in no sense a Government department. It receives a large yearly grant from the Government, recently raised from £800,000 to just over £1 million, but is not entirely dependent on public funds for its money. The other main source of income is from membership subscriptions, which come from bodies and individuals with a direct or fairly close interest in the tourist business. This roughly amounts to about £80,000 a year, and must be maintained at or above that figure to ensure payment of the official grant. Revenue from advertising and sales is around £150,000 a year, after having been doubled in the last five years.

As sponsors of the "Come to Britain" campaign —which has been going on for the past 12 years— the British Travel and Holidays Association conducts one of the world's biggest promotion jobs, using every kind of publicity media to "sell" Britain overseas. Tourist publications covering the entire country and dealing with every aspect of the British way of life—sport, motoring, the theatre and arts—are published by the Association in many languages and sent to all corners of the world. Press advertising campaigns are carried out in many countries in publications with an aggregate circulation of about 500 million. Displays are arranged at international and national fairs and exhibitions and special window displays are circulated among travel agencies and transport companies throughout the world. The B.T.H.A. also has its own lavishly-illustrated magazines—the monthly *Coming Events in Britain* and the twice-yearly *Business Visitor to Britain*, both of which enjoy vast circulations overseas. Films produced by the Association are in heavy demand and receive many cinema and television showings throughout the world each year. The Association maintains overseas offices in New York, Chicago, Los Angeles, Toronto, Vancouver, Paris, Frankfurt, Amsterdam, Stockholm, Sydney and Melbourne. It also has representatives in a number of other countries, including New Zealand, South Africa, Brazil, the Argentine and Uruguay and Mexico.

Annual Report

Apart from trying to get the various components of the tourist industry to help themselves by helping each other, the B.T.H.A. serves an invaluable purpose in drawing up an annual report on the industry's requirements. Intended mainly for the Government, the survey highlights the problems which must be overcome and often the way to go about it. From time to time, there have been deletions from the list, occasionally there is an addition, but in essence the problems which tourism in Britain faces today have been with her since the first list was drawn up after the war in 1945. At the head of the list is the problem affecting most tourist countries and not Britain alone, that of providing adequate accommodation of a high standard at a reasonable price. The living standards in every country now producing international tourists has been rising markedly with every decade. What people have in their own homes now is something quite different from what they had 20 years ago, or less. What they expect when they leave their homes has changed equally, if not more so. Furthermore, tourists now are drawn from all social levels, with differing needs. To cater effectively for them, it is necessary to provide accommodation ranging from caravan sites to posh hotels, not forgetting camping grounds, hostels and motels, and to see that these are adequately equipped to provide the tourists' needs on a scale allowing for varying rates of payment.

As far as hotels and catering establishments in Britain are concerned, the B.T.H.A. has urged the Government to encourage expansion and modernisation by giving effect to the following measures: (a) relief from purchase tax on hotel equipment; (b) industrial building allowance to apply to hotels and restaurants; (c) depreciation allowance on plant, equipment and furnishings to be re-assessed on a more realistic basis proportionate to the needs of the industry; (d) provision of cheap money for capital investment; (e) relief in certain directions from the incidence of income tax, particularly in the case of hotels investing money on expansion and modernisation; (f) special arrangements to lighten the burden of rates on hotels, similar to the concessions granted to agricultural land and buildings and industrial buildings, with additional relief for seasonal establishments; and (g) some alleviation of the restrictions on the import of certain skilled workers, for the hotel and catering industry.

Ease of Entry

Another essential requirement of any move to develop the tourist industry is to ensure the traveller ease of entry and as large a measure of freedom as is possible from vexatious rules and regulations and other restrictions. First impressions are important, so the effort should start at the seaport or airport with courteous and speedy passage through immigration and Customs formalities where these cannot be eliminated entirely. This applies especially to the tourist who brings his motor-car with him, for motoring holidays are increasingly favoured these days. It is not enough merely to get the tourist into the country. Measures are also necessary to ensure that his stay is a happy one, and that when he leaves he is anxious to return and will spread the good tidings among his friends. In this matter internal transport plays a rôle second in importance only to accommodation. Not only must the internal transport, by rail or road, be adequate—it must also be of high quality, clean, efficient and economic in cost, and maintain a strict schedule. This refers as much to trains as it does to buses, coaches, and hired motor-cars. Adequate transport, in turn, demands adequate roads, proper road service facilities such as garages and signposting, more particularly in the area of the principal tourist resorts.

Last, but not least, one comes to the additional items, small in themselves, which add substantially to the tourist enjoying his stay. The British Travel and Holidays Association suggests that the following, among other measures, towards achieving this end are worthy of serious consideration: (1) the extension of shopping hours and Sunday trading in tourist articles at resorts; (2) the "personal export scheme" should be extended to cover "over-the-counter" purchases; (3) every encouragement should be given to the floodlighting of tourist attractions; (4) more entertainment at night in tourist areas; and (5) more attention be paid to the development of National Parks, and the maintenance and preservation of historic buildings and monuments, which are the tourist industry's principal natural resources and a national heritage. A British peculiarity is the country's licensing laws, which often prove most vexatious and annoying to tourists—they have been made more rigorous in the case of London Airport—but these are no doubt duplicated by other anomalies in other countries; for instance, Prohibition in India.

Better Facilities

But the British Travel and Holidays Association is not only concerned with attracting visitors from abroad, although this, of course, is its main aim. In campaigning for better facilities for the overseas visitor, it also helps the home holiday-maker. More hotels and motels, the cutting down of frontier formalities, the signposting of hidden-away tourist attractions, longer shopping hours, a change in the drinking laws—these are just a few of the reforms, being pressed at every opportunity, which would benefit a wider public. As well as trying to make the country more tourist-conscious, the Association is also doing its best to encourage nearly half the British population, who do not go away for a holiday each year, to do so. It is also making progress in its widely-publicised campaign to persuade holiday-makers to go away in June and September, instead of the peak months of July and August, when the country is playing host to great numbers of overseas visitors.

The extent to which the B.T.H.A. has succeeded is obvious in the figures on overseas tourists. By the end of August, their number had reached 1,021,000, of whom 268,250 were Americans. The total is 9 percent higher than at the same time in 1958, and visitors from other European countries showed an increase of no less than 12 percent at 507,000. In view of the fact that the Association spent a little over £1 million in 1958, and in doing so was obliged to make a reduction in its activities by something like 5 percent, it would seem that a fair rate of expenditure on the organisational side of tourism would be about £1 a visitor. A Government grant on that basis will be a first step. As far as accommodation needs are concerned, the B.T.H.A. estimates that a capital investment of £20 million will cover both building and modernisation schemes for the next five years. Finance does not play an important part in the other "facilities" a tourist needs, or at least not finance from a central source since private enterprise may always be depended upon to find the means for promoting what promises to be not only big business, but good business. Tourism is certainly that, however one looks at it.

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THE ECONOMICS OF RAILWAY FREIGHTS

PRINCIPLES FOR FIXING RATES

By

K. B. MATHUR

Chairman, Railway Board

STRICTLY defined, philosophy is "the pursuit of the knowledge of things." Of what importance is the railway freight structure, and what are its special features, which justify a study of its "economic philosophy"? First, the very dimension of the yield from the railway freight structure is large and is of the order of about Rs. 250 crores a year. Second, the distribution of this enormous aggregate yield, as between different commodities and different lengths of haul, is of very considerable importance to the country, not only economically but also socially.

Such aspects as the basic well-being of our industries, their ability to compete in foreign markets, their dispersal to achieve the objective of regional development, are all influenced in no small measure by the railway freight rate structure. In the words of Commissioner Larie, a member of the Inter-State Commerce Commission of the U.S.A.: "Every rate question is a public question—that is the underlying principle of the Act to regulate commerce and of all similar legislation controlling public utilities".

The freight tariff of the railways is their price list for the service of freight transport which they sell. This tariff is a book of 376 pages. Nearly 3,000 commodities are listed individually and each of them is assigned one of the 45 classes. The rates have a range of variation, for any given mileage, of up to 1:9 and also none of them progresses uniformly with mileage. To fix the charges for over 3,000 commodities over varying distances is doubtless a matter of great complexity. And in addition to this, there are the exceptional, lower, "station to station rates", quoted for specific commodities between specific points, where for special reasons it is considered desirable to abate the normal "tariff rates". The price fixing for the products of any enterprise has got its own problems. And the more complex the enterprise, the more difficult the problem. The price fixing on the railways is particularly complicated, not only on account of the large variety of commodities and the different lengths of haul to be catered to, but also due to the fact that the railways cannot view pricing problems purely from the commercial angle.

Economic Features

In this brief article, it will be attempted to explain how the freight tariff of the railways has been constructed, on the one hand to reflect the peculiar economic features pertaining to railway capital and operational costs, and on the other, to serve certain national objectives. While concluding, I have also compared the average freight rates over the Indian railways with those in other countries, to illustrate, relatively how India is being served by her railways. The railway plant is a very specialised one, which cannot be put to alternative uses. It is also relatively an expensive one, and further, by its very nature, it cannot be designed to create small doses of transport. The result of these fundamental facts of railway economics is the position that, at any given time, a substantial portion of the expenditure towards depreciation and interest on the capital would continue to be the same, irrespective, within limits, of whether a small or a large job of transport has to be dealt with. In such circumstances, *the average cost* is higher than the *specific cost* for moving a relatively small quantity of additional traffic. In view of this and their indissoluble link with the areas they serve, the railways, in their own interests, must endeavour to develop the industry and enlarge the trade, commerce and agriculture of the area, with a view to maximising traffic and ensuring their own financial prosperity.

As for the working costs of the railways also, a large proportion comprises items which are substantially independent of the volume of traffic handled. The working expenditure on a railway can be broadly divided into: (i) that on account of general administration; (ii) that on account of maintenance of ways and works; (iii) that on account of maintenance of locomotives, carriages and wagons; and (iv) that on account of what the Americans call "conducting transportation" including the cost of fuel.

General administration includes such items as the salary and allowances of administrative officers and their staff, cost of auditing and accounting, law charges, etcetera. It will at once be apparent that the variation in expenditure under this head is insignificant compared with the variation in traffic. Repairs to buildings, maintenance of bridges, tunnels, culverts, viaducts, etcetera, all depend on wind and weather rather than on the volume of traffic. The permanent way also in part rusts and in part only wears out. On most sections, whether we run five trains each way daily or nine trains each way, there will be little or no variation in the strength of staff at the roadside stations or in the signalling equipment or in its maintenance. In such circumstances, until nearly the maximum capacity of the railway is reached, increases in traffic cause no corresponding increases in the fixed charges, and increases take place only in those parts of the railway expenditure which are more or less directly proportional to the volume of traffic, such as fuel costs, etcetera.

Capital and Working Costs

Another feature of both capital and working costs of the railways is that they are incurred largely as a whole and cannot be allocated, with any precision, to different items of traffic to permit of charging the tariff strictly according to the "cost of service". It is obviously not possible, without making many broad assumptions, to "allocate" many items of expenditure, such as the interest on capital, depreciation charges, administration charges, etcetera, even between the two major services provided by the railways, namely, the passenger service and the goods service. Much less, therefore, is it feasible to attempt any allocation of the expenditure between the numerous individual services performed under these two major groups, such as the carriage of specific commodities, etcetera.

What are the practical lessons which emerge from these peculiarities of high "joint" and "overhead" capital costs and working expenses of the railways? They are two-fold, namely, (i) that it will be futile to attempt to work out the all-in cost of conveying specific items of traffic as distinct from the "out of pocket cost" or "dependent cost" which can reasonably be estimated; and (ii) that generally any new traffic will cost less to carry a unit than the existing traffic, until the saturation point is reached on the line and no more traffic can be conveyed without the provision of additional facilities. Profitableness, in such circumstances, lies in maximising the movement of traffic, so as to keep the railway capacity fully used.

The fundamental criterion, thus, is that each variety of goods should be charged no more than it can ordinarily afford to pay for transport and, by and large, no less than it costs to move it, the cost here referred to being the roughly estimated "dependent" or "the out of pocket" cost. The determining of the rates for individual commodities in this manner is known as charging "what the traffic will bear". In this way, goods of high value are made to pay more, so that commodities and articles of low value, including foodstuffs and industrial raw materials, may be carried for less.

It is from this principle of charging "what the traffic will bear", that the railways derive sanction for the classification of commodities into different groups, within each of which a sufficient degree of affinity of transportation and economic characteristics can be found, and to each of which a different scale of basic rates is applied. There is much misunderstanding, however, about the scope and effect of the principle of charging "what the traffic will bear" or "the value of service principle" as it is called in the U.S.A.

It is thought by many, who have not given enough consideration to the subject, to be a principle of extortion. Actually it is not a principle of extortion but one of equitable concession to the weaker members of the community, in which, paradoxically, even the stronger members themselves benefit by the concession to the weaker units.

How this happens and how the principle works to all-round advantage is explained by Shrafman in his monumental work on the Inter-State Commission of the U.S.A. as follows: "In view of the differences in ability of different commodities to 'stand' the burden of transportation costs and of the differences in competitive conditions which prevail at different points of shipment, the practice of charging what the traffic will bear may provide the only means of effecting necessary or desirable expansion of rail-road service. If a carrier, at a given juncture, does not command sufficient traffic to use its plant to capacity, it might prove of advantage to all concerned to attract additional tonnage at rates below actual cost of carriage, if not below any assignable special costs, in order that the general overhead may be spread, although unevenly, over a larger volume of traffic. For the carrier, the earnings derived from the additional traffic may afford the only opportunity to realise a net return or even to cover the unavoidable aggregate of fixed costs; for the shippers accorded the depressed rates, the differential treatment may afford the only basis for reaching new markets or, because of the existence of alternative channels of transport, for using the facilities of the particular carrier; for the shippers paying the relatively higher rates and apparently discriminated against, the added traffic may result in lower absolute charges than would be possible without its contribution to general expenditures; for the community, finally, there tends to accrue the advantages of fuller use of its economic resources."

Cost and Value of Service

In what circumstances and to what extent do the twin principles of "cost" and "value of service" control the evolution of a railway freight tariff? The answer is provided by Ripley in the following words: "Both principles are of equal importance; and both must be continually invoked as a check upon each other. The tendency to the elevation of cost of service to a position of priority—rather characteristic of regulative bodies and of legislators—is no less erroneous than the marked disposition of railway managers to insist upon the universal applicability of the principle of charging what the traffic will bear. Neither will stand the test of reasonableness alone".

In matters pertaining to railway rating considerable confusion is allowed to prevail by not keeping in mind clearly, all the time, the distinction between the sum total of the railway freight revenues on the one hand, and the rates for specific commodities on the other. This is necessary, as entirely different criteria are applied to test the reasonableness of each of these factors and also substantially different methods of Governmental control are exercised.

Ignoring for the moment the debatable point, whether the nationalised railways may be used as instruments of taxation, the test of reasonableness of the total railway revenues is that with efficient management, it should yield a fair return on the capital invested. In the U.S.A., the task of ensuring the reasonableness of railway rates has been entrusted to the Inter-State Commerce Commission. This body is required, statutorily, to give due consideration, among other factors, "to the need, in public interest, of adequate and efficient transport service at the lowest cost consistent with the furnishing of such service, and to the need of revenues sufficient to enable the carriers, under honest, economical and efficient management, to provide such service". The principle of "what the traffic will bear" does not thus operate in determining the overall level of the railway freight rate structure.

If during periods of boom or of war, the railways are allowed to determine the general level of their rates according to the principle of "what the traffic will bear", they will earn many times more than what may be considered reasonable under the standard just mentioned. This, however, is not permitted. There is Parliament to exercise overall control to ensure that this does not happen, and it is by the application of this "standard" for determining general level of rates, that the increase in the freight rates on the Indian railways has been kept at only about 90 percent over the pre-war level, compared with the increase

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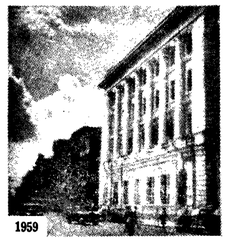
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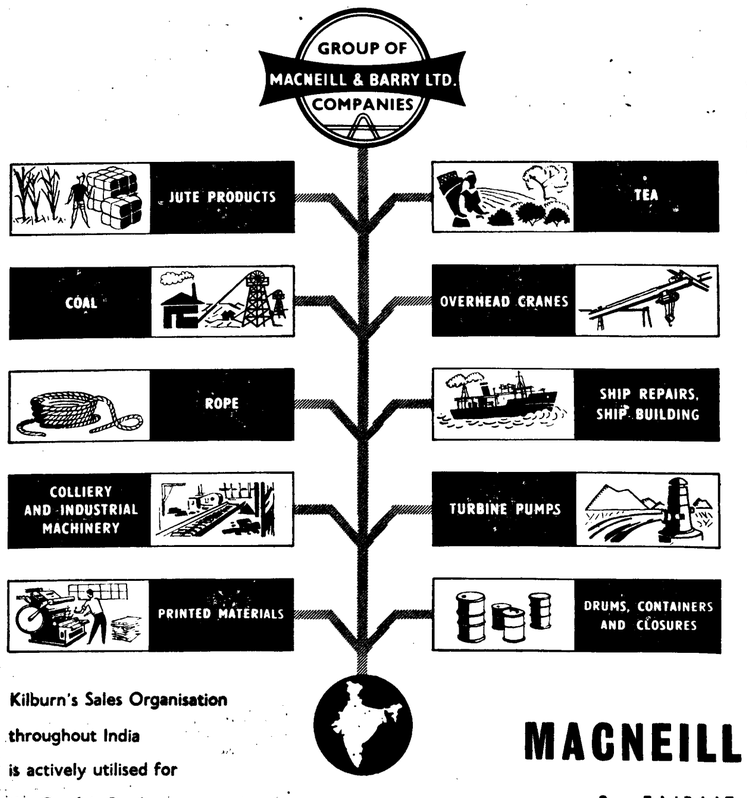

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in the price level of over 400 percent during the same period.

Revenue Target

Within the target of overall railway revenues thus determined, the classified rates for individual commodities are so fixed that the cost of their transport and their ability to bear freight are both reasonably reflected. It is here that the principle of "what the traffic will bear" is applied, to determine not the absolute level of the classified rate of any commodity, but the classified rate for it relative to the classified rates for the others. For example, it costs the railways nearly the same whether a wagon of sand or of full pressed cotton is moved from, say, Delhi to Bombay. Yet the former is charged at Rs. 1.37 a maund and the latter at Rs. 4.19 a maund.

The chief test of the suitability of a rate structure is whether it does or does not provide, as between the different commodities, such rates as facilitate, to the maximum extent possible, the movement of agricultural produce from surplus areas to deficit areas, and of raw materials and finished goods to the factories, to the consumer and to the ports for export. By and large, the structure should assist a healthy development of the economy of the country, and in particular ensure that distant centres are linked in economic and industrial ties without prejudice to the rational growth of any regional area. The importance of having the freight rates at the lowest possible level, consistent with the financial solvency of the railways, cannot be overstated.

The consumers in a modern community need many commodities that cannot be produced in their immediate vicinity, for reasons such as unsuitable climate, lack of raw materials, etcetera. Goods tend to move from points where the supply is large in relation to demand, to places where supplies are limited and active demand for them exists. The cheaper the cost of transport, the easier the shift. In the field of agriculture, where output is difficult to control, cheap transport is particularly advantageous. It minimises chances of famines and reduces the waste that follows from overproduction. It also tends to stabilise and equalise prices; for, lower the cost of carrying any commodity, the broader the market, and the broader the market, the less extreme the fluctuations in prices.

In the case of manufactured goods, cheap transport not only reduces the cost of goods to consumers by its lower direct incidence, but also by the intensification of competition which follows from the wider range of markets created thereby. Economic gains flow from the specialisation which is induced. Power, raw materials, labour, capital and business enterprise are used to the best advantage and goods are made available to society at the least cost.

Social Utility

An important factor that is always kept in mind, while prescribing the rate for any commodity, is its "social utility". Commodities such as foodgrains, fruits and vegetables, fertilisers, sugarcane moving to sugar factories, salt, etcetera, are all socially important, and in the revision of freight structure effective from 1st October, 1958, special care was taken to see that there was no overall increase in the freight rates for these commodities.

For coal, particularly, the freight scale has always been designed having due regard to the facts that there are many areas in this country far away from the collieries and that the desirable objective of dispersal of industries can only be achieved by prescribing a very low progression of the rate with distance. Some specific rates may be cited as examples.

Taking a haul of 1,200 miles, for example, the rates for coal, fertilisers and foodgrains, compare as follows with those for full pressed cotton, tea and solidified vegetable oils.

Commodity	Rate a maund
	Rs. nP
Coal	0.97
Fertilisers	1.71
Foodgrains	1.58
Full pressed cotton	5.35
Tea	5.78
Solidified vegetable oils	3.76

The wide disparity between the rates for the first group of commodities, which are socially important and enter substantially in the cost of living of the common man, and for the other commodities, which affect generally the living costs of the wealthier sections of the people only, will at once be apparent. It is such relativity of rates, deliberately created and fostered, that has enabled the fertilisers from Sindri to enrich the paddy fields of Tanjore, the foodgrains of Punjab to feed the teeming millions of Kerala and for the cotton mills of Ahmedabad and Coimbatore to draw their supplies of coal from Jharia and Raniganj. Such a relativity is, therefore, a social necessity.

Making up Losses

It is equally evident that if, for some reason, there is a dimunition in the volume of the higher-rated goods carried by the railways, its effect on the overall revenues is more pronounced and in the result the revenue thus lost has to be recovered from low-rated goods, which has widespread economic and social implications. In the case of passenger traffic also, the need to raise adequate revenue has to be considered side by side with the necessity to meet certain social needs. The heavy suburban traffic around the cities has to be carried at substantially reduced fares. Further, concessions are granted for many purposes of social importance.

It is not sufficient if a country has extensive and efficient railways. Their freight tariff must conform to the basic principles which have been explained. Writing about the railways in the U.S.A., a writer in that country observed: "To develop a continental nation such as the United States, it has been essential to overcome the obstacle of distance to the greatest extent possible. That is, of course, the very purpose for which the railway network was developed. However, merely providing transport facilities is only the beginning; a rate structure had to be developed to foster this basic purpose. Charges had to be designed to permit the nearby and the distant producer to compete in common markets in order to provide maximum areas of assembly and distribution. Only in this way could trade and commerce be spread across a continent and the nation bound together as the United States in economic interests and outlook and not remain in political confederation of under-developed Balkanised areas jealously struggling for local self-sufficiency."

An indication of how well the railways have served the nation is given by the following comparative statement of average freight rates:

Railway/Railways	Average rate a ton of goods a mile (in that country's currency)*		Average rate a ton of goods a mile (In Indian currency)**
			Naye Paise
All-India	11.4	pies	5.03
United States	1.465	cents	6.97
United Kingdom	3.37	pence	18.72
Canadian National	1.601	cents	7.62
Canadian Pacific	1.47	cents	7.00
French National	10.383	francs	10.02
Italian	14.11	lira	10.75
Japanese National	4.9966	yen	6.61
Victorian	4.028	pence	17.90
West Australian Government	4.205	pence	18.69

*The figures are for the latest year for which they are available.

**The conversion into Indian currency has been made on the basis of the official exchange rate as given in the July 1959 issue of the Monthly Bulletin issued by the United Nations.

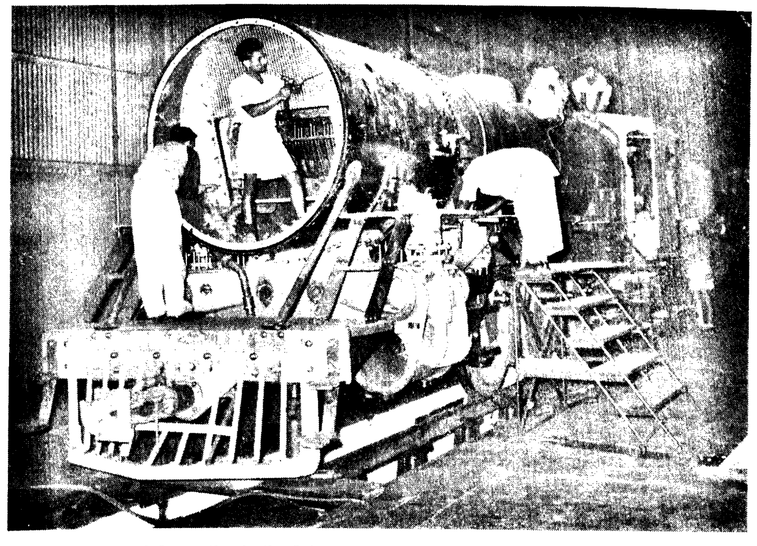
Quite apart from well thought out variations in rates as between different commodities and for different lengths of haul as has been explained, it should be the constant endeavour in India to have the lowest possible general average level of rates, which can best be achieved by putting the railway equipment to as intensive a use as possible, avoiding duplication and the resultant waste.

Recent Tendencies

In conclusion, certain recent tendencies in the western countries, in the structure of their railway freight rates, may be stated. In the U.S.A., highway competition has forced the railroads to place considerably less emphasis than formerly on value and differences in value in classification-making. It is still a factor no doubt; but at present, there is a strong trend towards bringing the rates for high-grade and low-grade traffic more nearly to a common level. In the United Kingdom, far more drastic changes have taken place. By an Act of 1953, the British Transport Commission has been relieved of the obligations to observe the requirements of the "equality clause" of the 1845 Act, *i.e.*, the requirement that between the same points for the same commodity the same rates will be charged for all parties, and also the statutory requirements of the 1854 Act concerning "undue preference and undue prejudice". A new "charges scheme" has been drawn by the Commission and approved by the Transport Tribunal. It provides only for maximum charges. The railways are given a large amount of latitude as for the charges which can be levied in particular circumstances, subject to the relevant maxima not being exceeded. Not only are they unbridled by the "equality clause" or the "undue preference legislation", but also they can preserve secrecy over the actual charges they are levying and any one trader will not have the advantage of knowing the charges which are being collected from the other traders.

These changes are the direct result of the competitive position in which the railways in these countries have found themselves. And it is significant, in this connection, that the railways in the U.S.A. are not paying a reasonable return on their capital, while those in the United Kingdom are actually working at a substantial loss. The question has to be squarely faced in India whether any departure from the traditional methods of rate making, by way of shift of emphasis to the "cost of service basis", will suit an under-developed country like India.

In a "cost standard", the rates on articles of "low value" relative to bulk and weight, such as coal, raw materials for industries and foodgrains, would have to be raised, while the rates on goods of high value would need to be lowered. Such a re-adjustment would also force the average unit cost upward, as some of the movements in substantial volumes in bulk commodities now taking place will no longer occur on account of the freight rates being higher than at present. In short, the form of rates structure which gave an impetus to the industrial revolution in the western world will be denied to India at a time when her struggle against economic forces is at its peak. Must the lessons of history be overlooked at this juncture? This question has been posed by the author in the hope that wisdom and courage will ultimately dictate the answer in the full realisation of the implications.



A locomotive in the finishing stages at a Jamshedpur factory

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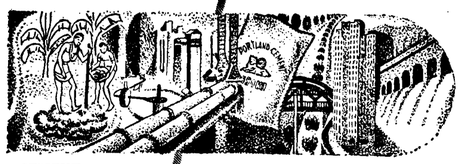

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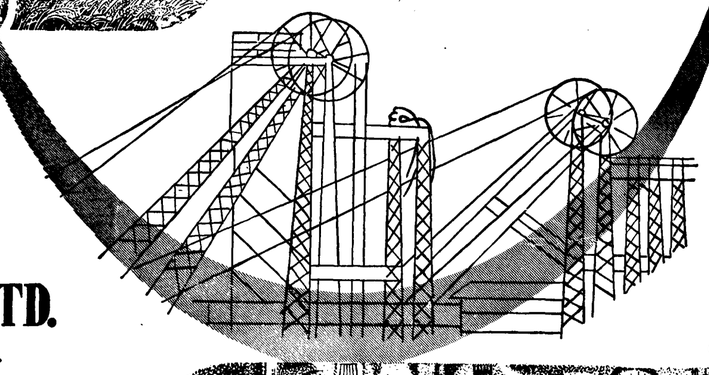

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TRENDS IN THE GROWTH OF BANKING

Greater Emphasis on Monetary Stability Necessary

THE forces of banking growth set in motion five years ago have continued to gather momentum. The 10 percent rise in deposits in 1954 marked the recovery of the scheduled banks from the postwar phase of uncertainty. The year 1955 showed a similar rise. In 1956, there was a smaller increase of 8 percent, but the rate of growth quickened to more than 23 percent in 1957. Although the pace again slowed down in 1958, the expansion of about 16 percent in deposits was almost twice as fast as in 1955. The overall increase in deposits from the last Friday of December 1953 to the last Friday of December 1958 was about 88.5 percent. Notes in circulation rose by about 44 percent from March 1954 to March 1959. In quantitative terms, there was an increase of about Rs. 788 crores in scheduled banks' liabilities (excluding borrowings from banks) and of Rs. 508 crores in issued notes (excluding notes held in the Reserve Bank's Banking Department) between 1953-54 and 1958-59. The pattern of monetary developments over the last few years indicates the need for re-examining certain economic principles and formulae hitherto considered almost sacrosanct.

Conflicting Movements

While national income rose by about 8 percent from 1st April, 1954, to 31st March, 1958, bank deposits increased by as much as 60 percent and note circulation expanded by about 34 percent. If the demand for money is measured by the volume of transactions represented by national income, and the supply of money is a correlation of bank deposits and note circulation, the price of money (known as "interest") should have fallen. The actual behaviour of money rates, however, was contrary to the well-known theories

By

R. M. MITRA

of supply and demand. Interest rates on bank deposits rose from about 1½ percent to 4½ percent, and continue to hover around 4 percent. The rising cost of bank money is not due to its more fruitful employment either. Although the ratio of loans and advances to deposits rose from 57.7 percent in December 1954 to 70.8 percent in December 1956, it fell to 63.2 percent in December 1957 and to 54.8 percent in December 1958. The decline in advances coincided with the sharper phase of the rise in deposits. A policy of selective credit control was adopted in order to prevent the use of credit for speculative and non-productive purposes and to ensure that an adequate supply of it was available for productive economic activity. But the policy does not appear to have produced the desired results.

Industrial Credit

Scheduled banks' industrial credit rose from 43.6 percent to 47.9 percent of their total advances during the period October 1957 to October 1958, while the percentage of their commercial advances fell from 42 percent to 37.6 percent. The various specialised agencies for industrial credit have been steadily expanding their activities. Loans and advances extended by the Industrial Finance Corporation and outstanding as in March 1959 were Rs. 32.10 crores, against Rs. 14.01 crores in March 1956. The aggregate of similar advances from the State Financial Corporations increased from Rs. 2.72 crores to Rs. 11.34 crores between March 1956 and March 1959. The Industrial Credit and Investment Corporation, which started functioning in 1955, increased its total loan operations from Rs. 6.01 crores in 1956 to Rs. 13.37 crores in 1958, and progressively stepped up its underwriting activities. The Refinance Corporation for Industry Private Ltd, which came into existence in June 1958, received 14 applications from five member-banks for refinance for a total sum of Rs. 315 lakhs during the first year of its operation ended June 1959. The Corporation dealt with 13 of these applications totalling Rs. 309 lakhs and sanctioned them Rs. 304 lakhs.

The integrated scheme of finance for small-scale industries, introduced under the aegies of the State Bank of India in collaboration with co-operative societies, Industries Departments of State Governments and State Financial Corporations, is reported to be making reasonable progress. The pilot scheme, which was inaugurated in 1956, has steadily extended the area of operations from an initial nine centres to 36 in 1957, 53 in 1958 and to all the branches of the State Bank as from 1st January, 1959. The scheme has also been liberalised as a result of the recommendations of the Central Co-ordination Committee, based on the evaluation report relating to the working of the original nine centres for the period up to 31st December, 1957. The maximum rate of interest on advances has been fixed at 6 percent and it has been agreed not to make additional charges to recover the cost of godown-keepers and inspection. The State Bank has also decided to grant medium-term advances extending to seven years for the modernisation, expansion and replacement of machinery and equipment.

But it is significant that in spite of the increase in industrial finance, the rate of increase in industrial production slowed down from 8.6 percent in 1956 to 3.5 percent in 1957 and 1.5 percent in 1958. Again, in spite of the curtailment of bank finance for trade, the index number of wholesale prices rose. It stood at 116 in October 1958 and 119 in October 1959, against 108.9 in October 1957 (base: 1952-53 equals 100).

Flow of Money

The varying movements of money, interest rates, prices and production have inspired anxious enquiries about the value of the rupee and the methods of planning. It is estimated that between March 1952 and March 1959, the combined effect of the increases in the stock and flow of money has been a 32.8 percent rise in the supply of effective money, while the rise in national income has amounted to 26.2 percent at constant prices. This relationship between money and production might have reasonably explained a rise of about 5 percent in prices; but the actual rise works out to about 17 percent. It has also been calculated that the internal purchasing power of the rupee has declined by 29 percent since 1947. It is true that the declining value of money is an international phenomenon; during the corresponding period, the value of the pound sterling has fallen by 46 percent, the U.S. dollar by 19 percent and the French franc by 69 percent. But the impact of the fall in the value of the currency is less severe in an organised economy than in an unorganised and under-developed one. Most people in India live below the subsistence level; the distress caused by a bigger rise in prices than in income is, therefore, great.

The rise of 17 percent in prices has almost neutralised the benefit of an increase of less than 18 percent in *per capita* income recorded from 1951-52 to 1958-59. Questions are being asked whether the large outlays on social services, the inevitably deferred results of capital-intensive projects and the drastic curtailment of imports, are not responsible for money being more conspicuous than economic goods. It has been suggested that the money spent on community development projects is used more for social benefits than for the production of economic goods. Again, the rupee expenditure on massive industrial projects like steel mills is not immediately backed by the production of a corresponding volume of wage goods. Lastly, the dwindling foreign exchange reserves have made it increasingly difficult to import consumer goods on the scale required to absorb the extra money.

Social Services

It should be admitted that since inequalities of income are pronounced, some expenditure on social benefits is necessary. It is difficult, however, to estimate correctly the optimum level of such expenditure. A study of current outlays, as distinguished from investment outlays, on social services and other projects would show in what proportion the total of Rs. 1,000 crores (including Rs. 490 crores for social services) provided for the plan period 1956-61 bears an inflationary content. Unfortunately, the statistical organisations in India have not developed sufficiently to make such a study yield worthwhile results.

It remains a guess as to how far the money disbursed as current outlay has flowed back into investment channels through Governmental borrowings, new issues of joint-stock companies and deposits in the banking system, or otherwise through the complex media of non-corporate business; and how far it has been used for speculation in commodity markets or for buying scarce goods. It has, however, been authoritatively stated that the increased monetary power of farmers has enabled them to hold larger quantities of produce over longer periods of time, and thus reduced the marketable surplus, and increased the prices, of agricultural products.

Bank Offices

A survey of banking growth throws little light on the extent to which the banking system has succeeded in attracting this money. The number of banking offices has increased from 4,375 in 1957 to 4,616 in 1958 as a result of the opening of 328 new offices (of which the State Bank accounts for 90) and the closure of 87 old offices. The number of offices opened in 1958 at places having a population of less than 5,000 was 74, while the number of offices closed was 15. The corresponding numbers for places with a population of 5,000 and above but less than 25,000 were 75 and 32, respectively. It appears, therefore, that the number of offices opened at places with a population of less than 25,000 represents about 45 percent of the total opened in 1958, and that the number of offices closed at such places amounts to 54 percent of the total closed. The total number of offices operating at such places at the close of 1958 was 1,817, accounting for a little more than 39 percent of all banking offices and representing a slight proportional rise over 1957. Even if these figures could be interpreted as indicating a tendency to extend into rural and semi-urban areas, the significance of the movement is not very clear. For one thing, many offices are being opened by the State Bank in pursuance of the statutory obligation to open 400 branches during the period July 1955 to June 1960, and not in direct response to the call of available business. Again, of the total increase in deposits of Rs. 213 crores during 1958, Delhi, which has no banking office at a place with population of less than 25,000, accounts for about Rs. 88 crores or 42 percent.

On the other hand, it is noteworthy that the increase of Rs. 2 crores in deposits in West Bengal was less than 1 percent of the total increase. The position in West Bengal, however, seems to be due to factors other than a shift of deposits to States having a comparatively large number of offices at places with a population of less than 25,000. Kerala, with more than 20 percent of the branches at the smaller places, accounts for only 3.2 percent of the total rise in deposits; in spite of a quantitative increase, it finds that its relative position has worsened from 3 percent of total deposits in 1957 to 2.8 percent in 1958. It is also worth noticing that while all States show an absolute rise in deposits—varying from less than 1 percent in West Bengal to about 42 percent in Delhi—the relative position of only five States has improved. The share of the total deposits held in Madhya Pradesh, Madras, Mysore, Punjab and Delhi increased from 2 percent, 6 percent, 3 percent, 5 percent and 15 percent in 1957 to 2.3 percent, 6.6 percent, 3.4 percent, 5.2 percent and 18.9 percent, respectively, in 1958. These States account for not more than 38 percent of the banking offices at places with a population of less 25,000. Even Bombay, which accounts for about 13 percent of the branches at smaller places and for more than 18 percent of the total increase in deposits in 1958, has suffered a decline in its relative position from 31 percent in 1957 to 29.8 percent in 1958.

The trend in small savings and deposits with co-operative societies is also not clear. Small savings continue to rise somewhat erratically, but the net increase of about Rs. 72 crores in 1958-59 is markedly short of the plan target of Rs. 100 crores a year. No data are available for a proper assessment of the contributions made by various income and occupation groups to small savings. Deposits with co-operative societies hardly represent genuine savings; they are really a counter-

part of a portion of the credit created by the co-operative movement.

Impact of Government Finances

A classification of the Central Budget issued by the Finance Ministry shows that the total expenditure of the Central Government (excluding the operating expenses of departmental commercial undertakings) amounted to Rs. 4,463 crores over the three-year period 1956-57 to 1958-59. This expenditure has been met to the extent of Rs. 2,544 crores by (i) tax receipts of Rs. 1,599 crores; (ii) transferred profits of commercial undertakings (departmental and non-departmental) aggregating Rs. 42 crores; (iii) transferred profits of the Reserve Bank of Rs. 80 crores; (iv) interest income of Rs. 138 crores; (v) other income, fees and miscellaneous receipts of Rs. 145 crores; (vi) retained profits and reserves of departmental commercial undertakings of Rs. 222 crores; (vii) foreign grants of Rs. 76 crores; (viii) sterling pension annuities of Rs. 46 crores; and (ix) repayment of loans by State Governments and others of Rs. 196 crores. The balance of Rs. 1,919 crores was raised by (i) net receipts of long-term rupee debt, Rs. 627 crores; (ii) net receipts on foreign debt, Rs. 264 crores; (iii) small savings, Rs. 203 crores; (iv) floating and unfunded debt, Rs. 729 crores; (v) other debt, issue of one-rupee notes and sales on cash balance investment accounts, Rs. 96 crores.

The net increase of Rs. 1,919 crores in the financial liabilities of the Government of India has certain important implications. It has been used for meeting the deficit on transactions in commodities and services to the extent of Rs. 663 crores, in loans and investments to the extent of Rs. 1,202 crores and in increasing cash balances to the extent of Rs. 54 crores. The economic justification for the increased debt will depend on the contribution to production and services made by the current and capital expenditures directly involved in the transactions relating to commodities and services, and indirectly arising out of the financial operations of loans and investments. Although the broader economic aspect of the question is of overriding importance from the long-term point of view, the monetary consequences are of immediate concern. The portion of the debt which does not represent savings arising in the private and public sectors, and which is obtained by creating money, normally tends to generate inflationary pressures.

It has been estimated that Governmental (Central and States') financial operations (including plan outlays of the order of Rs. 2,466 crores) during the period April 1956 to March 1959 have resulted in deficit financing of Rs. 892 crores. But although the Reserve Bank's holding of rupee securities have increased by Rs. 817 crores to Rs. 1,543 crores during this three-year period, about 65 percent of the increase (or Rs. 533 crores) represents replacement of the Reserve Bank's foreign reserves by rupee securities; it does not, therefore, add to the money supply but involves drawing down the Reserve Bank's accumulated foreign assets, which in fact fell from Rs. 746 crores in March 1956 to Rs. 213 crores in March 1959. The interaction of the various financial operations has brought about an increase of Rs. 234 crores in notes in circulation, from Rs. 1,424 crores to Rs. 1,658 crores.

Banking Control

The total volume of money supply is, however, determined by the economic and financial activities of both the public and the private sectors. The conventional method of calculating money supply, in terms of notes in circulation and demand deposits, does not provide a correct assessment of the monetary influences on prices and distribution. Credit plays a dominant part in money supply, and the banking system sets the pattern of credit activities in an organised economy. The control of banks and banking functions has, therefore, come to be regarded as an important instrument of State policy.

The Banking Companies Act, 1949, which inaugurated the system of comprehensive control of banking in India, is under continuous review. It has undergone several modifications calculated to improve and strengthen the machinery of control. The Banking Companies (Amendment) Act, which came into force in October 1959, marks the latest attempt to streamline the apparatus. The amendments it has introduced do not, however, imply any significant change in the method and policy of control. They enable banking companies to form subsidiary companies for carrying on banking business outside India, subject to the previous permission of the Reserve Bank; extend the Reserve Bank's powers of inspection of banks to the foreign branches and foreign subsidiaries of Indian banks; make the provisions relating to payment of dividend and maintenance of the reserve fund more flexible and adaptable to contingencies; enable the Reserve Bank to issue conditional licences to banking companies; prohibit a banking company from creating a floating charge on its assets without the prior consent of the Reserve Bank; elaborate the conditions under which the Reserve Bank may initiate proceedings leading to the winding up of a banking company; and extend to all banking companies the restrictions relating to voluntary winding-up. The other provisions of the amending Act either clarify or relate to procedural questions.

The scheme of banking control in India, however, seems to be inconsistent with avowed principles of the division of the public and private sectors. It is true that the conditions in which the concept of the freedom of private enterprise was enunciated by Adam Smith in his *Wealth of Nations* have changed beyond recognition. The right of the State to interfere in private economic activities is no longer questioned. But it is still a valid assumption that the exercise of this right should combine responsibility with discretion. The essence of the distinction between the public sector and the private sector is the seat of responsibility and the source of discretion. State control of the private sector should be formulated in terms of specific rules and regulations (whether in the form of statutory enactments or well-publicised executive orders); and action in any matter or on any question which is outside the scope of such a specific formulation, should be left to the judgment and discretion of the management.

Basic Principle

It is disquieting to note the increasing tendency of banking control to go against this basic principle. The right of the banking authorities to take action against the management of a banking company is not limited to cases of infringement of specific provisions in the Banking Companies Act or of directives issued under the Act. The Act provides that if the Reserve Bank is satisfied that the affairs of a banking company are "being conducted in a manner detrimental to the interests of depositors or in a manner prejudicial to the interests of the banking company", the Bank may issue such directions (as distinguished from general directives) to the banking company "as it deems fit"; the banking company in question "shall be bound to comply with such directions" (Section 35A of the Act). The Reserve Bank is also authorised to refuse a licence to a banking company or cancel the licence already granted, if it is satisfied that the company is not, or will not be, "in a position to pay its present or future depositors in full as their claims accrue", or that its affairs are being, or are likely to be, "conducted in a manner detrimental to the interests of its present or future depositors" (Section 22 of the Act). The powers of judgment and discretion are thus vested in the official executive, instead of the business executive who remains accountable for the ultimate fate of the organisation. Nor is there any provision for consulting or ascertaining the desire of the parties most vitally involved—the depositors and shareholders. The entire pattern of banking control seems to be based on the assumption that official interference generates economic wisdom. It is true that similar administrative powers form part of the banking control in a number of other countries, particularly the U.S.A. But its methods are being devised at the same time in these countries to combine responsibility with discretion. The various measures of credit risk insurance and the deposit insurance scheme operating in the U.S.A., try to prevent demoralisation on the one hand and sterility on the other.

Credit Losses

It is an irony that while talk of a socialist pattern of society is growing, the social implications of the problems of a modern economy are not receiving adequate attention in India. The type of credit control which is evolving, if unaccompanied by provisions for the social absorption of credit risks, not only distorts the scheme of division of the public and private sectors, but also fails to take into account the changing needs of a technology-based economy and rapidly changing markets.

The administrators and planners are aware of the need for social or collective absorption of credit losses in a developing economy, but their hesitant approach causes confusion and concern. The export risks insurance scheme, introduced in September 1957, reflects a belated recognition of the progress already made in this direction in Europe and America; but its organisers do not yet seem sure of what they should do to mobilise the co-operation of the parties concerned in order to make a worthwhile contribution to the stability of export finance. Again, it has been recently announced that a scheme has been finalised for guaranteeing the loans given by selected banks and apex co-operative banks to small-scale industries. The scheme will be operated by the Reserve Bank and is expected to start functioning early in 1960. It will cover 21 selected districts in the first year of working and another 21 districts in the second year. The guarantee will cover 20 percent of the loan amount where the loan is of Rs. 25,000 or less, and 10 percent of the loan amount where the loan is of more than Rs. 25,000. In the latter case, the amount of the full guarantee will be subject to a minimum of Rs. 5,000 and a maximum of Rs. 50,000. Any loss in excess of the full guarantee will be shared equally between the lender and the guarantor, provided the guarantor's total liability in relation to any one borrower does not exceed Rs. 1 lakh. The scheme will be operated on an experimental basis for two years. It is calculated that the loans advanced will aggregate Rs. 25 crores.

Such measures are encouraging in one way: they reflect the realisation that the soundness of credit, the stability of prices and the value of the rupee depend ultimately on wider employment, rising production, and the smooth functioning of the channels of production, whether through distribution of the product to the consumer or through collective absorption of the losses arising from infructuous production. But the guarantee scheme also reflects a lack of faith in the cause it is intended to serve. It was estimated that bank advances to small and medium-sized industrial units amounted to Rs. 46 crores on 30th September, 1957. This calculation does not include apex co-operative banks. The estimate of Rs. 25 crores, as made by the promoters of the scheme, shows, therefore, that no increase in the total of the loans is visualised. The authors of the scheme appear to be doubtful whether an emotional approach and operational efficiency will be enough to enliven credit activity in the field of small-scale industry.

The rôle which an efficient device for the collective absorption of losses can play in a scheme of credit control is brought out by a study prepared by the Division of Research and Statistics of the U.S. Federal Deposit Insurance Corporation, published in the Corporation's report for the year ended 31st December, 1957. The study warns that it should not be assumed that an improved banking system and elaborate supervision of banks exclude "the possibility of numerous bank failures accompanying a business recession". It emphasises that the "fundamental nature of banking" involves the acquisition by banks of assets "not immediately convertible into cash", and that the consequences of "deteriorating economic conditions" require, therefore, to be dealt with by adequate provisions for a deposit insurance fund.

Monetary Control

It may be noted, however, that while arrangements for the collective absorption of losses are considered an important element in the mechanism of credit control, the search for other measures to prevent an unbalance in costs, prices and incomes also continues in the U.S.A. and other countries. A steady increase in the cost of production and rising prices have led the American Bankers Association to appoint a Committee for Economic Growth without Inflation. It is the task of the Committee not simply to concern itself with "monetary and budget policy", but mainly to deal with "industrial wage and price policies". Meanwhile, the U.S. Administration is studying the "remedies offered by doctors in economics and practitioners in politics". The practical measures so far recommended by the U.S. President, and supported by the chairman of the Federal Reserve Board, are enhancing interest rates and raising the statutory limit for the national debt. The chairman, Mr. Martin, has declared that inflationary measures can be avoided if the Treasury is not required "to comply with arbitrary ceilings on the size of the debt or the rate of interest it pays".

The British Government is also engaged in a search for measures designed to control costs and prices while promoting production and maintaining full employment. The third report of Cohen Council on Prices, Productivity and Incomes, pulished in July 1959, has suggested that expanding demand and rising productivity should permit a decline in prices while allowing a gentle rise in wage rates. It is also stated that there should be less reliance on retained profits, and a larger resort to the capital market, for financing the expansion of capital equipment, in order to provide an opportunity for suitable price reductions. It is significant, however, that while the Council discusses the question of finding a rational method for holding the balance between money incomes and physical output, it does not attempt a solution. Then there is the report of the Radcliffe Committee, appointed in May 1957 "to enquire into the working of the monetary and credit system", which was released last August. The Committee discusses "the impact of monetary measures on the pressure of demand for goods and services" and pessimistically observes that no method, new or old, provides the remedy for all our troubles". "Violent manipulation of interest rates," "changes in the rules under which the banks operate", "capital issues control" and "hire-purchase controls" are examined, but found not to offer a proper answer to the problem. The Committee notes, however, that while "violent manipulation of interest rates" in the form of changes in the short-term Bank rate, does not influence "stocks of commodities", investment in fixed capital is affected by long-term interest rates. It concludes that the only practicable instrument of monetary policy is "a facet of debt management"—regulation of the long-term interest rates by suitable adjustments of sales of Government securities. Sir Ralph Hawtrey has expressed disappointment at the conclusions of the Committee, and feels that it lost sight of "the important principle of the inherent instability of credit, the vital need for prompt action to prevent a vicious circle of inflation or deflation developing". The confusion of expert opinion on the efficacy of various methods of monetary control should, perhaps, restrain the tendency to extend banking control in India.

Role of Banking

The statistics indicate that the Indian banking structure is sound. Scheduled banks' liabilities (excluding borrowings from banks) rose further by about 14 percent between December 1958 (last Friday) and October 1959 (second Friday). Advances increased by only 7 percent. The advance-deposit ratio fell from about 55 percent to 52 percent. Investments in Government securities increased by 23 percent. Their ratio to deposit liabilities thus rose from 40.49 percent to 43.73 percent. Balances held with the Reserve Bank continued to exceed the statutory minimum while time deposits rose further from 56 percent to 60 percent of the total deposits. Although the ratio of paid-up capital and reserves to total deposits declined to 5 percent from 8 percent in 1954, it still compared favourably with that of banks in the U.K., where it is not much above 3.5 percent (the ratio is, however, about 9 percent for banks in the U.S.A.). Scheduled banks' advances showed a wide distribution of risks. According to the figures relating to 24th April, 1959, no trade or industry had got more than 4 percent of the total advances, except the cotton textile industry (13 percent), raw cotton (4.1 percent) and the sugar and *gur* industry (5.3 percent). The advances are directed towards the economically useful sectors of production and distribution; those given for personal or other non-productive purposes do not exceed 11 percent. Investments in Government securities maturing within ten years represented 88 percent of the total investments on 31st December, 1958. The net profits of the Indian scheduled banks, however, declined from Rs. 12.50 crores in 1957 to Rs. 10.50 crores in 1958. The ratio of gross earnings to deposits showed a fractional fall from a little above 5 percent to a little below 5 percent, while the cost of interest on deposits rose from 1.7 percent to 2 percent of deposits. As establishment costs seem to have stabilised at 1.7 percent of deposits, it appears that the diversion of banks' assets to lower-earning Government securities and rising interest rates on deposits account for the poorer earning capacity.

The apparent strength of the banking structure, however, has to be assessed not only against the background of the U.S. special funds coming under P.L. 480, but also in light of the fact that while bank deposits and notes in circulation amount to only about 35 percent of national income (against more than 60 percent in the U.S.A.), prices have risen in India by about 17 percent since 1954 (compared with less than 9 percent in the U.S.A.). It seems that money performs less productive work in India than in the U.S.A.

Creeping Inflation

The influence of the banking system on the volume and character of credit operations in an unorganised economy like India's is small. Banking control, therefore, tends to create a barrier between the bank finance and the wide field of economic activity. The inflationary forces operating in the sector of non-bank finance escape the moderating influence of contact with bank finance. The creeping nature of these inflationary forces creates a false sense of well-being.

Mr. William A. McDonnell, ex-president of the Chamber of Commerce of the United States, recently called attention to the steady deterioration in value suffered by the French franc, which is now worth only 1 percent of what it was in 1918 in terms of U.S. dollars. He emphasised that it is not a case of "runaway" inflation but one of "creeping" inflation, and ascribed it to a policy of deficit financing to serve the needs of social welfare. Creeping inflation is in the long run as harmful as runaway inflation. The latter is obtrusive, aggressive and easy to recognise. The necessity for dealing with it, therefore, is accepted more quickly. But creeping inflation is slow to observe. It creates a deceptive feeling of prosperity among those whose money income increases. It encourages the dangerous impression that an increased money supply is necessary for financing increased economic activity, and that rising prices are a historical process as well as an economic necessity.

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By

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IN an under-developed region, the basic policy of the Government constantly aims at the rapid development of the country's economy. Its policy pre-supposes the formulation, direction and stimulation of economic activity, as well as widely distributing the fruits of improved and more productive economic technique and organisation. Economic development, as a Government function, requires on the part of all administrative personnel, regardless of the echelon of their service, an experimental and creative attitude towards the policy they mould and the programme they make. It is neither necessary nor desirable that the economy should be of the monolithic type, offering little scope for experiments, either on forms or the methods of its functioning.

The greatest limiting factor in an under-developed economy is the scarcity of financial resources, as a basis for large-scale investment in industries. Closely interlinked with it are the problems of capital formation and investment. Obviously, the availability of such resources will depend on the surplus of total production over current consumption, and in an under-developed region, the margin is bound to be a narrow one. Furthermore, savings cannot be used to the fullest extent because an under-developed economy lacks, compared with a developed economy, the financial institutions and the facilities whereby savings can be mobilised into industrial investments.

Prophylactic Measures

The small industries are today fighting for their existence, and their organisers are beset with many difficulties. The main problem in developing these industries is one of devising effective policies as well as of making suitable organisational arrangements. There has been a deterioration in their output and because of the declining demand and production, they are unable to pay good wages to their labour. The lack of access to raw materials, unsatisfactory state of equipment, inadequate marketing facilities, absence of contact with new techniques of production and the lack of finance, are some of the various obstacles in the way of their progressive development. Furthermore, the changing requirements of the markets set a limit to the capacity of the worker to use his labour-power and skill to the fullest advantage.

The Planning Commission has pointed out that the main problem in the small industries sector is not one of merely safeguarding the interests of workers in existing small units or of maintaining the demand for existing types of cottage industry products. But it is "one of finding new types of products and trying out new modes or techniques of production which cater more efficiently to the new demand created by rising incomes. It is the promotional rather than the protective aspect of policy which has to become more and more important in the adaptation and re-organisation proposed in this sector. If cottage and small industries have not fared well so far, one reason is the stagnancy of the economy and the consequent lack of demand. The increase in investment activity which developmental planning involves will increase existing demands and create new ones. In a country like India with vast distances and a large potential market, the demands can and ought to be met through production in efficient, decentralised units."

Potential Domestic Market

India provides a large domestic market with immense potentialities, so the possibilities for the development of small industries are great. If the country can fully exploit and develop the market, both in urban and rural areas, it can help in stimulating a great Industrial Revolution. India will then become one of the foremost producing and consuming areas in the world. Her large manpower can well be used for this purpose. Obviously, in any scheme of national planning, cottage and small-scale industries must find an important place with a view to extending the opportunities for work, employment, raising of incomes and living standards. Their development will also bring about a balanced and an integrated rural economy. The orthodox small crafts have, therefore, to be given all encouragement initially. The pattern of industrialisation will change only gradually and slowly, with the application of improved techniques and developments, to cater for the requirements of a more advanced nature. Till then, to ensure the stability and a balanced growth of the economy, it is necessary to provide for proper legislation and measures to extend assistance to the small industries in order that their utility is not completely eclipsed. This is especially important as the country is busy planning for large-scale industries either in the private or in the public sector.

One should not fail to take into account the efforts that have been made by the Government to assist and develop small industries. During the period of the second World War when imports were restricted, many small industries were established in India. Some of them have subsequently grown. Among these, special mention should be made of small engineering industries, industries for the manufacture of textile accessories, the manufacture of bicycle components and several other miscellaneous industries engaged in the production of buttons, pencils, fountain pen ink, slate and slate pencils, preserved fruits, etcetera. Among the older industries which continue even today, the most important are the *jari* works of Surat (Bombay), the bangle industry in Firozabad (U.P.) and a few others. Small re-rolling mills and foundries, units producing steel castings and small spinning machines are some of the other lines in which considerable progress has taken place.

All-India Boards

During the first plan period, the Government took various steps, especially since 1953, to build up a network of all-India boards to deal with the problems of different groups of small industries, namely, the Khadi and Village Industries Board, the Handloom Board, the Handicrafts Board, the Sericulture and Coir Industries Board and the Small-scale Industries Board. A special feature has been the acceptance of the principle of common production programmes, for both small and large-scale industries, under which spheres of production were being reserved. The imposition of cess or excise on products of large-scale industries and positive measures for the supply of essential raw materials, equipment and technical and financial assistance to small units, have also been undertaken.

In 1954, a separate department known as the office of the Development Commissioner for Small-scale Industries was established, and it was decided to set up a Small-Scale Industries Board to advise the Government on the development of small-scale industries. Extension of technical assistance and guidance and counselling to small entrepreneurs in urban and rural areas has been provided through the Small Industries Service Institutes and Industrial Extension Centres set up under the scheme. A number of such institutes and centres are functioning in different industrial towns in India. Investigations into the economic and industrial possibilities of manufacturing different items on a small-scale in different areas have been carried out. The institutes have been staffed with Indian technicians, as well as foreign experts for a number of industries, *e.g.*, foundry, hand-tools and surgical instruments. Advice is offered to prospective entrepreneurs on setting up new industries and, for this purpose, model schemes have been prepared. Through on-the-spot visits by officers, by organising mobile and pilot workshops, and by providing information and advice on improved techniques, equipment, designs, lay-out, etcetera, these institutes offer assistance in a practical manner to a large number of existing small industries as well as to entrepreneurs who wish to start new industries.

Expenditure Pattern

The National Small Industries Corporation, which was set up in February 1955, with an authorised capital of Rs. 10 lakhs, supplies machines to small industrial units on easy hire-purchase terms and also offers marketing and commercial assistance. It also helps them by securing Government orders for their products, opens wholesale depôts for the sale of quality marked goods and operates mobile vans for demonstrating goods and equipment. It is gratifying to note that by the end of the first plan period, the corporation had supplied machines worth Rs. 8 lakhs on hire-purchase terms. During the first five year plan period, the total allotment for the village and small industries was originally about Rs. 17.5 crores. In addition to this, a sum of about Rs. 20 crores was made available from the proceeds of a cess levied on the textile industry for the development of the *khadi* and handloom industry. In the States, expenditure incurred by the end of the first plan was estimated at about Rs. 43 crores, of which roughly Rs. 33 crores was incurred by the Central Government and agencies responsible to it and about Rs. 10 crores by the States.

Ford Foundation Team

In spite of these, the remarks of the International Planning Team hold true even today. "Efforts have been largely sporadic and have dealt chiefly with isolated segments of the problem. Lacking a systematic approach, they fall far short of making any appreciable impact towards the overall advancement of industrial development and no satisfactory overall solution of appreciable progress can be expected from them. It would be a false illusion to think otherwise." The Small Industries Service Institutes and Extension Centres functioning in different industrial towns are far less in number than required, so many more are needed. Those already in existence are still not fully equipped and well staffed. Their assistance to small industries in providing technical know-how and management skill has been inadequate due to their limited resources. Furthermore, State Governments have not taken much initiative and interest, and their Industries Departments are mostly under-staffed. But greater initiative in enlarging the programmes for the development of small industries has come from the Central Government. It has provided the bulk of finance, too. The Planning Commission, however, remarked that "it has not yet been fully recognised that the vitality of most small industries depends on the degree to which they become integrated with the development programmes and the needs of each local area." The lack of availability of precise knowledge concerning the organisational and economic problems of most of the small industries is another hurdle in their growth.

The development of small-scale industries, on the whole, has been slow. The International Planning Team in its report on small industries in India attributed the deterioration and the slow rate of progress to numerous factors, such as "too little initiative on the part of the private sector; too great reliance upon the Government to take action, and upon Government purchasing orders; out-dated production and marketing methods; the lack of credit facilities and systematic approach towards improvement." In 1955-56, the Central Government accepted, in principle, the following recommendations of the Stores Purchase Committee: (a) certain classes of stores should be reserved exclusively for purchase from cottage and small-scale industries; (b) price differential should be allowed to them in relation to the products of large-scale industries; (c) certain relaxations in standards should be permitted for hand-made products; and (d) facilities for the registration of cottage and small-scale industries should be improved. As a result of the implementation of these recommendations, the value of purchases made from cottage and small-scale industries by the supply organisation of the Government of India increased from about Rs. 75 lakhs in 1953-54 to Rs. 341 lakhs in 1955-56. But this has led to greater dependence on the Government for orders, and the small industries have not tried to secure or build up their own markets.

Modernisation and Rationalisation

But the basic cause of the slow growth of small industry is the present method of management and production. These industries are incapable of adopting modern improved and rationalised

methods. It has rightly been remarked by experts that without modernisation, India's small industries not be easily implemented.

Finance and Credit

The problem of finance and credit so far has been tackled superficially. It should be remembered that without sufficient finances, no efficient planning of small industry is possible. The experts of the International Team found that "real finance does not seem to exist at all and there is a severe lack of capital as well as credit largely because of low productivity and overpopulation in many branches of small industry." It may be pointed out that co-operative credit, which has for long been limited to rural areas, should now be "toned up" for industrial growth. A chain of banking and administrative agencies for moving the funds from the Central and State Governments to the small industries should be organised. The linking of credit with marketing should now be translated from a purely theoretical to a practical level. To ensure the recovery of loans, it may be made obligatory on the borrower to market such part of his produce through the marketing co-operatives or through the societies providing both credit and marketing facilities, as is likely to cover the loan taken by him. In fact, co-operative credit institutions have been struggling in India for a long time to arrive at this goal.

The provision of cheap, quick, and easy credit may be regarded as the most essential pre-requisite for the success of the small industries. A vast majority of people, both in villages and towns, either engaged in agriculture or industry remain outside the co-operative field and as such cannot avail themselves of co-operative credit. Even among those who are members of co-operatives, only a small minority can obtain credit to the fullest extent required by them. But this situation is not entirely due to the paucity of funds at the disposal of the co-operative banking institutions. If it had been, a simple solution could have been found by augmenting these funds. In fact, most of the central banks have failed to borrow up to their maximum credit limits fixed by the Reserve Bank of India, simply because they cannot lend more than they have already done to the primary-credit societies.

The financing of small industries is helped by the State Aid to Industries Act. In addition to this, State Financial Corporations have also been assisting the small industries. With a view to making available easier and better credit facilities to them in a co-ordinated manner, a "pilot" scheme was taken up by the State Bank of India in 1955-56 in consultation with the Reserve Bank of India and in collaboration with other institutions and agencies. Its object was to offer credit facilities to small industries in such a manner that they may not have to approach too many agencies. Another object of the scheme was to co-ordinate and partly supplement, rather than replace, the facilities already provided by the existing agencies to small tries will continue to cling to obsolete equipment and will be condemned to mediocrity and eventual elimination. The early adoption of efficient methods of production, therefore, becomes imperative. It should be noted that the rationalisation of industry is a comparatively slow and evolutionary process and takes long time to implement. Planning on a long-term basis is necessary, and Government initiative, control and guidance is required. But the Government should not go to the extent of assisting the industries in their "managerial responsibility" while profits remain with the manufacturer: this is not also conducive to the growth of a sound economic base for industrialisation and is opposed to all principles of industrial economics and planning, for it kills private initiative and retards its growth. But without finance and credit, modernisation and rationalisation programmes can-industries. The scheme is being widely adopted. The experts of the International Team were also of the view that in addition to the facilities already available, the commercial banks should delegate more authority to their branches to offer loans to small businesses and work with the aim of decentralising their loan business. The recommendation is worth accepting, and an atmosphere should be created for its implementation. The provision of credit and finance should, therefore, be the key-note for the success of small industries, and the facilities should be intensified and extended on these lines.

Role of Co-operatives

Sustained efforts are needed to overcome the difficulties of small industries. It should be noted that co-operatives have a special rôle to play in helping them in their smooth growth. The establishment of small industries on co-operative principles will enable the small producer to enjoy the advantages of collective purchases of raw materials and joint selling of his products on a scale not hitherto possible. The provision of institutional credit will facilitate their development and improved methods and techniques could be easily made accessible to the small producer through co-operatives. Mobile co-operative banking and marketing units may be set up, wherever necessary, to serve the needs of small industries. For exploiting the vast potentialities of India's domestic market, it is necessary that the products should be of good quality to cater for the needs of the consumer, and they should be standardised as far as possible. To make co-operatives a real success, "de-officialisation" and a public-relations programme should also be initiated.

Any scheme for the development of small-scale industries must be preceded by proper research and co-ordination in all the spheres. There is an urgent need for market research to trace the promising sector of the market. Research is also needed on the design and finish of the articles; suitability of raw materials for a particular article and, its best source of procurement; optimum unit of production, its size and equipment; distribution and promotion of industries and, above all, to modernise and rationalise the methods of production. In this manner, the artisans, craftsmen and small industries as individual units have no great influence and, therefore, the promotion of trade associations for them is indispensable, for the lack of such associations is a serious difficulty which has retarded their growth. These organisations can help in acquainting their members with new methods and techniques of production, serve as information centres and provide a common platform for discussing their problems.

Long-term Planning

The planning of small-scale industries on the lines suggested above cannot be piecemeal. It should be taken up as part of the programme of industrial development on a long-term basis. Gone are the days when the villages were considered as self-sufficient units and the barter system was the order of the day. The village economy is now a cash-based one, for villagers have more purchasing power and they need goods like pumps, bicycles, household equipment and fancy goods. But once a decision is made on the decentralisation of industry, the development of small-scale industry must occupy an important place in any phase of industrial development in India. It is, in fact, the best method by which agriculture can be effectively balanced with industry.

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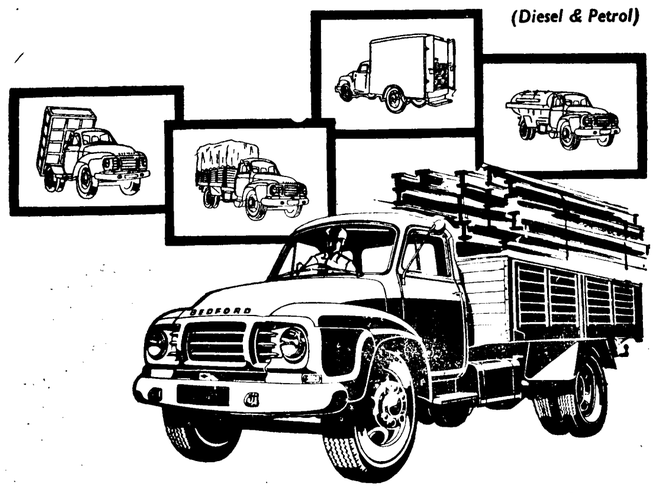

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The Progress of the Life Insurance Corporation

Business Expanding, but Organisational Difficulties Continue

LIFE insurance was nationalised on 19th January, 1956, and the Life Insurance Corporation was formed on 1st September, 1956. The companies were in the charge of custodians during the intervening period. Today, even after three years, the L.I.C. is not fully formed. Its baffled sponsors have tried to reorganise it, but experience shows that the custodian régime should have been prolonged considerably so that the sponsors could have integrated and organised the life insurance business properly under the L.I.C. When the Corporation was officially brought into being in September 1956, it found itself in the midst of serious difficulties. It took about three years to rearrange its affairs. Even so, the process has not been quite completed. The cost in terms of the financial and human effort involved in reorganisation will never be possible to assess fully. Nationalisation has not created any new wealth; it has only provided a certain emotional satisfaction to the jealous pundits of socialism. Nevertheless, it seems pointless to examine now the economic arguments for and against nationalisation. The regret which many feel over the decision will linger. But the country is concerned mainly with the progress of the L.I.C., and its vital services to the economy.

This progress can be judged from the latest accounts, which cover the year 1958. They show that new business completed amounted to Rs. 343.07 crores during that year, against Rs. 281.90 crores in 1957. There was thus an increase of 21.7 percent in the completed business. (During the nine months ended 30th September, 1959, the Corporation completed new business of Rs. 175 crores.) The figures do not, however, include the new business under the Janata Policy scheme which was introduced as a pilot project in selected centres

By

A SPECIAL CORRESPONDENT

in India during 1957. During 1958, the Corporation received under the scheme 25,245 proposals for a total sum of Rs. 1.67 crores and issued 24,325 policies assuring a sum of Rs. 1.61 crores. The comparative figures for the new business transacted during the last five years are given in the following table:

In India

Year	Number of policies	Sum assured (Rs. crores)	Average sum assured a policy Rs.
1954	740,000	237.60	3,210
1955	796,030	240.51	3,021
1956	549,401	187.69	3,416
1957	810,738	277.67	3,424
1958	954,771	339.06	3,551

Outside India

Number of policies	Sum assured (Rs. crores)	Average sum assured a policy Rs.
32,682	17.65	5,400
35,461	20.33	5,733
17,956	12.59	7,011
5,055	5.40	10,682
5,399	5.62	10,409

The total business in force on 31st December, 1958, was Rs. 1,682 crores under 6,234,000 policies, out of which Rs. 1,584 crores under 5,974,000 policies was the business in India and Rs. 98 crores under 260,000 policies was the business outside India. In 1957, the lapse ratio—that is, the ratio of the sum assured lapsed less the sum assured revived to the mean business in force during the year—was 6.4 percent. The detailed statistics of the lapses in 1958 are being compiled. The available figures, according to the report of the chairman, indicate that the lapse ratio for last year will be lower than for 1957. The balance-sheet as at 31st December, 1957, showed the life insurance fund at Rs. 410.41 crores. This included the capital redemption fund of certain insurers amounting to Rs. 57.95 lakhs, which in the absence of certain particulars could not be separated by the Corporation. The latter amount has been segregated from the life insurance fund from 1st January, 1958. The other adjustments made are: (1) the deduction of Rs. 1.45 crores, being the Government's share of the surplus as disclosed by the first valuation of the Corporation; and (2) the addition of Rs. 11.57 lakhs on account of divestments under Section 35, and Rs. 106.16 lakhs on account of share capital and reserves applicable to deficit insurers which were not adjusted against net cost of acquisition in the accounts for 1957 but which have now been adjusted. After making these adjustments, the life insurance fund, as at 31st December, 1958, amounted to Rs. 447.81 crores. This represented an increase of Rs. 38.26 crores over the adjusted life insurance fund a year previously.

Premium Income

The premium income in 1958 was Rs. 73.08 crores, against Rs. 88.12 crores in the 16 months ended 31st December, 1957, Rs. 37.56 crores in the eight months ended 31st August, 1956, and Rs. 68.55 crores in the whole year 1955. The rate of interest realised on the mean life insurance fund during 1958, after deduction of income tax at source and taking into account refund of income tax, was 3.52 percent a year. It was 3.75 percent during the previous accounting period. The reason for the fall, the chairman explained, was that a considerable amount by way of refund of tax relating to the year had not been received. Taking the anticipated refund into account, the rate of interest earned during the year is expected to be very nearly the same as in the previous accounting period. The overall expense ratio—the ratio of expenses to premium income—was 29.2 percent in 1958, against 27.3 percent in the earlier accounting period. The increase is attributed to the first year's commission and other initial expenses on the larger volume of new business completed during 1958. The authorities of the Corporation go on to say that the overall expense ratio, which is highly sensitive to the proportion that the new business bears to the existing business, is not a proper index of economy. According to them, this is appropriately measured by the renewal expense ratio calculated in accordance with Rule 25(b) of the Insurance Rules, 1939. The renewal expense ratio for the year was 15.46 percent. The corresponding ratio for the previous accounting period was 15.89 percent.

Distribution of Investments

The total investments pertaining to the life business of the Corporation, as at 31st December,

from the seed...

In the steel blaze of noon,
men of the earth 'drag the sun upon their backs',
toiling in the furrowed fields.

For a tomorrow, when the seed will burst to plant, flower and fruit.

For the fruits of tomorrow then, the striving, the effort.
For a world that offers a little more—
a little less of the care, a little more of the joy.

Today, as in the past, our products help to make homes cleaner, healthier, happier. But today we are also working for... Tomorrow, when the evergrowing urge for better living will demand still greater efforts. And we shall be ready with wider service, new ideas, new products...

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1958, amounted to Rs. 420.94 crores. The break-up of this figure is as follows:

	In India	Outside India
	(Rs. crores)	
Central and State Government and other approved securities	292.76	—
Foreign Government, municipal, securities, etcetera ...	—	9.36
Debentures and shares of joint-stock companies ...	76.17	0.06
Mortgages of properties ...	12.30	0.11
House property	21.64	0.54
Other investments ...	7.26	0.20

Bonus for Employees

In accordance with the Government's directions, the Corporation introduced a free insurance scheme from 1st January, 1957, as part of a scheme of amenities to replace bonus. However, as the employees were opposed to the replacement of bonus by amenities, the matter was reconsidered in consultation with the Government. A revised directive was issued. It enabled the Corporation to pay cash bonus to employees in the supervisory, clerical and subordinate cadres drawing a basic salary of not more than Rs. 500, and as a corollary to withdraw the amenities provided to such employees in the form of the free insurance scheme, etcetera. The Corporation then held negotiations with the representatives of the two employees associations on the amount of bonus and allied matters. Under the agreement which was signed, the supervisory, clerical and subordinate staff drawing a basic salary not exceeding Rs. 500 a month will receive an annual cash bonus for each of the five years commencing from 1957 at the rate of 1½ months' basic salary. Generally, any employee who completes six months of service by 31st December of a particular year is eligible to the bonus for that year even if he is not confirmed. The free insurance scheme is being replaced by a free term assurance scheme, under which the sum assured is payable if the employee dies while in service. Those who were previously covered under the free insurance scheme are allowed to continue at their own cost a similar insurance plan, and [illegible]e who were not covered are allowed to apply [illegible]new policies and date them back. It is hoped [illegible] this agreement will generate an atmosphere [illegible]utual co-operation, enhance the administrative [illegible]iency and lead to the more economical work[illegible] of the Corporation. The total amount of bonus paid to the employees in the supervisory, clerical and subordinate cadres for 1957 was Rs. 40.76 lakhs.

Operations Abroad

The Corporation transacts new business in the following areas abroad: Kenya, Uganda, Tanganyika Territory, Zanzibar, Mauritius, Aden, the Federation of Malaya, Singapore, Hongkong and Fiji. Insurance in each of these areas has its special features and problems. After the chairman toured East Africa and Malaya, a number of measures were taken. The field organisation was strengthened and on the administrative side the divisional offices were given more powers. The Corporation claims that it has now been able to increase its business and improve its service.

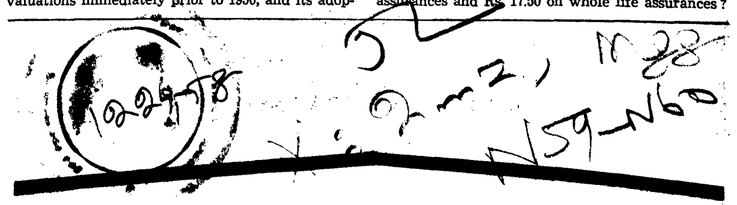
Valuation Report

The long-awaited first valuation report of the L.I.C. was published this year. Unfortunately, it was prepared and processed entirely by Corporation's own salaried actuaries. Although Section 26 of the L.I.C. Act lays down that an actuarial investigation should be made once every two years, it is not stated what qualifications the actuary should possess. Public interest demands that the person entrusted with the investigation be independent of any control of, or influence from, the Corporation and the Central Government, and that the policyholders should have an opportunity to say what they think about the appointment. A semi-judicial status for the actuary is essential for a fair investigation. The fact that the first valuation has been done by the Corporation's own actuaries exposes the procedure to criticism. Yet, it is a matter of gratification that the Corporation has been able to complete the task, particularly when it is realised that the number of policies at the end of 1957 was about 5.7 million, involving a total sum assured of Rs. 1,470 crores.

The valuation report remarks that the nationalisation of life insurance brought into one group a mixed bag of 245 individual concerns—good, bad and indifferent. The Government realised that, in the interests of equity, policyholders who had insured with the better-managed companies were entitled to preferential treatment. Provision was made, therefore, for declaring differential rates of bonus in accordance with Section 49(2)(k) of the L.I.C. Act. The profits allocated to policyholders as a result of the actuarial valuation represent the share of the profits of holders of "with profits" policies "as a whole". A system of distribution can be considered good if it is equitable and practicable. For the Corporation, the problem bristled with difficulties. Eventually, after close examination, it came to the conclusion that, in the interests of equity, it would be reasonable and fair if the rates of bonus applicable to various groups reflected the respective contributions to the profits disclosed at the valuation, or, in other words, their respective financial strength. The principle was recognised in Section 49(2)(k) of the Act, which provides that the Corporation may make regulations for classifying policies for the purpose of declaring differential bonuses, that is, bonuses at different rates on the policies of different companies.

Mortality and Interest

In any actuarial investigation, if the actual mortality and interest earnings are more favourable than those assumed, a surplus will emerge. It is also necessary, when making a valuation, to assume that future expenses will be maintained at a particular level. The mortality basis of the Corporation's valuation was the Oriental (1925-35) Ultimate Mortality Table. The Oriental table was used by a large number of Indian insurers in their valuations immediately prior to 1956, and its adoption by the L.I.C. was justified. The net rate of interest earned by the Corporation during the entire period 1956-57 was practically 3¾ percent, although the valuation basis was fixed at 3½ percent. The final result of the valuation showed a surplus of Rs. 27.04 crores. After making certain adjustments for income tax liability and tax deducted at source, the net profit was Rs. 29.01 crores. The policyholders' share was Rs. 27.56 crores and the Government's share Rs. 1.45 crores. This resulted in the declaration of a bonus of Rs. 14 a thousand a year on endowment assurances and Rs. 17.50 a thousand a year on whole life assurances. These were the standard rates applicable to policies issued by the Corporation, and to policies issued previously by 31 insurers. But a special group, comprising mainly foreign insurers, was also created for a higher rate of bonus. Other groups got successively lower bonus rates, until finally there was a group earning no bonus at all. While the justice of this method of allocating the bonus is generally accepted, the question which has never been satisfactorily answered is: how could the Corporation, being only a little more than a year old, earn for its own policyholders a bonus rate of Rs. 14 on endowment assurances and Rs. 17.50 on whole life assurances?



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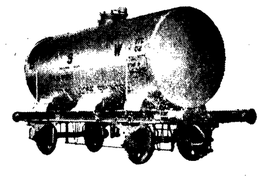
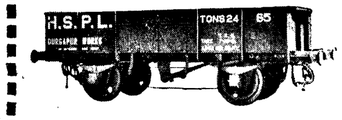
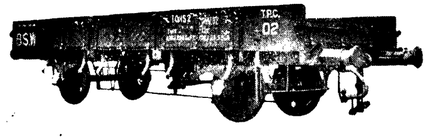


TPR Steel Wagons for Bhilai



Special O-Type Steel Wagons for Durgapur



OM-Type Steel Wagons for Bhilai

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Subscribed Capital	,,	**88,60,000**
Called & Paid-up Capital ..	,,	**82,98,990**
Reserve & other funds (including share premium) ..	,,	**83,01,884**
Deposits as on 30-6-59 ..	,,	**43,77,46,578**

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Rao Bahadur T. S. Kachapikesa Mudaliar,
O.M.SP.L.M. Meyyappa Chettiar,
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Code of Conduct Hampers Growth of General Insurance Business

Need to Check Malpractices Stressed

By
A. C. GUHA RAY

BY the end of 1959, general insurance in India was expected to acquire a certain stability. Unfortunately, it did not. On the contrary, it was still afflicted by a large proliferation of rules and laws and by the regulations of the Code of Conduct. To its sponsors, the Code was something of an experiment. The executive committee met periodically to alter it, to plug loopholes which experience brought to light, and sometimes to confer recognition on actual market practices which differed widely from the terms of the Code. With this somewhat uncertain and erratic trend, no tangible evidence emerged about the reportedly deteriorating market practice of illegal rebates and inducements being checked. So the Controller of Insurance appointed a sub-committee "to take stock of the present position and to recommend the future course". These rather generalised and vague terms of reference amount to an indictment of the Code, and imply that it has failed to achieve its purpose. The attempt to overhaul general insurance originally started as a counter to the threat of nationalisation implicit in certain statements made by Mr. C. D. Deshmukh as Central Finance Minister while piloting the Life Insurance Corporation Act in the Lok Sabha. The House was examining the case for nationalisation in the light of malpractices, and the Code was designed to arrest those malpractices. But the failure of the Code does not invest the vague threat of nationalisation made in 1956 with any special significance. On the contrary, there is a growing realisation in the Government that nationalisation of existing trades and industries does not serve India's economic interests. The emotional partiality for nationalisation has subsided since troubles were experienced in reorganising life insurance. The Government is even reluctant to approach the legislature about giving the Code legal sanction following its reported failure as a voluntary measure.

Against this background, the sub-committee, after meeting various representatives of the trade, is not expected to gather any new material on which it can recommend the "future course". It has heard a tale of woe from the trade and an almost universal denunciation of the terms of the Code of Conduct. The shortcomings in the device of measuring expenses (under Section 40C) by an arbitrary scale has also been explained. It has been pointed out to the sub-committee that Section 40C has contributed little to the financial strength of companies. It has simply branded, by a measure adopted in 1950, a number of companies as "extravagant" (*vide* Rule 17H of the Insurance Rules) although some of them are very solvent, declare handsome dividends and have large free reserves. Yet the law has been in force for nine years. It has encouraged the scramble for business which the Code of Conduct now seeks to eradicate. The contradiction in such a system is evident. If the sub-committee has so far been unable to prepare its report, that is because on the evidence tendered it will have to make recommendations that will mean drastically changing the Code of Conduct and the system of measuring expenses now in vogue.

Unhealthy Practices

Various devices have been tried by the Controller of Insurance in collaboration with the executive committee and the Tariff Committee to curb the unhealthy practices that lead to the payment of bigger commissions than those provided in the Act. They are many and various, and each is accompanied by its plethora of returns and long-winded forms. They have achieved very little so far. Various suggestions from the trade have been mooted. A somewhat novel proposal has come from the Indian Insurance Companies Association, Bombay. It has expressed the view that the "inspector form of organisation" is being widely exploited by general insurers for paying rebates. It has, therefore, recommended that the institution of inspectors should be abolished outright and that there should be no intermediary between the agent and the company. Realising that the agents should be given sufficient incentive for securing business, it has recommended various regulations for their registration and control and also a graded scale of commissions. But it seems rather rash to denounce the institution of inspectors as a whole for the alleged faults of a few. The inspector system is a recognised method of developing business and is used in many advanced countries such as Britain. The implications and practicability of the recommendation for graded scales of commission need to be examined much more closely, particularly from the angle of bigger agents swallowing the smaller ones and thus leaving a few agents eventually in control.

Series of Examinations

A series of examinations have been conducted during the year by the Federation of Insurance Institutes, under instructions from the executive committee, with a view to giving the field force a trained professional character. The method of conducting such examinations has been a subject of controversy. It has been suggested that without creating a chain of professionally equipped training centres, it is unfair to examine the field force on the technicalities of general insurance. The Federation of Insurance Institutes or the executive committee would do better to organise training institutes where inspectors can receive instruction. After training has been given, it would be fair to hold examinations, provided those holding them are experienced and professionally trained in drafting questions and judging candidates. The questions set during the year appeared to be designed mostly to test the ignorance rather than the knowledge of candidates. The present amateurish way of setting papers and conducting examinations does an injustice to inspectors, whose careers are supposed to be determined by the results of these examinations.

Revision of Fire Rates

The view that the money for paying excess commissions and illegal inducements comes from the favourable balance in fire insurance has long been favoured by the Controller of Insurance. He, therefore, argued before the Tariff Committee that fire insurance rates should be reduced by stages, so as to produce for Indian fire insurers a progressively increasing loss ratio. That would so tighten the finances of insurers that they will eventually have no surplus money left to divert to malpractices. The Controller of Insurance laid stress on fire insurance only, for the other branches of general insurance hardly produce a sizeable profit in India. During the year, the question of the second instalment of a reduction in rates continued to engage the attention of the Tariff Committee.

The first revision in fire tariff rates took effect in 1955. The second revision was due in 1958 but the Tariff Committee had a statistical compilation for only one year. The view that fire insurance rates should not be revised on the basis of inadequate statistics was voiced powerfully by Mr. B. K. Setalvad, one-time President of the Tariff Committee, and also later by Mr. M. S. Dastur, the outgoing chairman of the Indian Insurance Companies Association. The computation of premiums depends on an adequate compilation of statistics. If, on the basis of adequate statistics, a reduction is warranted, it will be quite logical to propose a reduction in rates. But to propose a reduction on considerations divorced from the scientific basis of fire insurance would be wrong.

Workmen's Compensation Insurance

Material alterations were made during the year in the scope of the employers' liability by the amendments to the Workmen's Compensation Act. The meaning of the term, dependent of a deceased workman, has been enlarged. A new provision has been added whereby an employer who does not accept the liability for compensation to the extent claimed will be bound to make a provisional payment based on the extent of liability he accepts; this payment will have to be deposited with the Commissioner or made to the workman, as the case may be, without prejudicing the right of the workman to make a further claim. Further, any employer who defaults in paying the compensation due under the Act within one month from the date it fell due will have to pay interest at the rate of 10 percent. Where there is no justification for the delay, a further sum not exceeding 50 percent of such an amount will be recoverable from the employer by way of penalty. The existing waiting period of seven days has been reduced to three days, where the temporary disablement is for less than 28 days. But where the disablement lasts for a period of 28 days or more, compensation is payable from the date of disablement. The list of occupational diseases has been considerably enlarged and will now include silicosis, asbestosis, bagassosis, etcetera. Workmen's compensation insurers are still engaged in examining the nature and scope of their increased liabilities. They are transacting workmen's compensation insurance on the existing rates and terms, but their policies are now endorsed to exclude claims which they have not covered but for which employers are liable and thus have to go without insurance. In due course, on the basis of experience, rates will have to be revised so as to enable employers to obtain comprehensive insurance in so far as their liabilities are insurable.

Marine Insurance Act

A measure to codify the law relating to marine insurance, to be called the Indian Marine Insurance Act, 1959, has been introduced, during the year, as a private member's Bill in the Rajya Sabha. The move marks the commencement of a new era for marine insurance business. The quaint phraseology of the sea-borne marine insurance policy, known as Lloyds form of policy, appearing in the first schedule of the British Marine Insurance Act, 1906, has been universally adopted in India for trading in marine insurance. But there has been no law in the country to govern this important branch of maritime commerce. Indian marine insurance has continued to be governed by the British Marine Insurance Act by custom and usage, but there is no special marine law on which reliance can be placed for support and interpretation. The Statement of Objects and Reasons in the new Bill points out that, at the same time, insurance contracts in India are also subject to the provisions of the Indian Contract Act, 1872. The insurance policy form used in this country is the same as the British one. The wording of a marine insurance policy is to a great extent based on mercantile customs and business conventions. It may at times appear to be in conflict with the provisions of the Indian Contract Act, 1872. The result is that the courts have to put their own interpretation. This, the Statement of Objects and Reasons points out, is unsatisfactory and for the smooth development of marine insurance it is essential to have legislation consistent with Indian conditions. The Bill has since been circulated for eliciting public opinion and the insurance associations will, no doubt, gather material to support the view that its enactment is necessary and to counter the view attributed to the Finance Minister that the enactment of the law will create a "disturbance" in international trading.

Marine Tariff

It is relevant in this context that the plea for an obligatory marine tariff was raised almost simultaneously by Mr. A. D. Shroff, chairman of the New India Insurance Company, and Mr. M. S. Dastur, outgoing chairman of the Indian Insurance Companies Association, Bombay. Both of them viewed the deteriorating claims ratio in marine insurance with concern, and no doubt felt that an obligatory marine tariff would check competitive rate-cutting and thus restore the balance in marine trading. What they possibly ignored was that even with a tariff there can be uneconomic competition if the practice of granting rebates and illegal inducements continues. The profit ratio in marine depends more on the quality of underwriting than on tariffs. International marine business is conducted by contracts between buyers and sellers. If Indian marine tariff rates are higher

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(Incorporated under the Industrial Finance Corporation Act of 1948)

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BRANCH OFFICES:

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P-11, Mission Row Extension, CALCUTTA.

38, Whites Road, Royapettah, MADRAS.

AUTHORISED CAPITAL: ... Rs. 10,00,00,000
ISSUED & PAID-UP CAPITAL: ... Rs. 5,00,00,000
TOTAL LOANS OUTSTANDING (As on 30-6-1959) ... Rs. 33,36,73,452

AUTHORISED BUSINESS

(a) Granting of medium and long-term loans to, and subscribing to debentures of, existing industrial concerns engaged in, or new ones proposing to engage in, the manufacture or processing of goods, or the generation or distribution of electricity or any other form of power, or mining, or shipping or hotel industry;

(b) Guaranteeing of loans raised by aforesaid industrial concerns which are floated in the public market and are repayble within a period not exceeding twenty-five years;

(c) Underwriting the issue of stock, shares, bonds or debentures by aforesaid industrial concerns;

(d) Guaranteeing deferred payments in respect of import of capital goods by aforesaid industrial concerns;

PURPOSES FOR WHICH LOANS ARE SANCTIONED

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IMPORTANT TERMS AND CONDITIONS OF LOANS

(i) **SECURITY:** First charge of all the fixed assets such as land, buildings, plant and machinery and fixtures. Raw materials, stock-in-process and finished goods will not be mortgaged and will therefore be available for raising working capital from elsewhere.

(ii) **MARGIN:** Generally 50% on value of total assets including those to be acquired with the loan.

(iii) **INTEREST:** 7% per annum with a rebate of ½% for punctual payment of instalments of principal and interest.

(iv) **REPAYMENT:** Will be spread over up to 25 years to suit borrower's convenience.

TERMS & CONDITIONS RELATING TO OTHER BUSINESS (Will be furnished on application by the Corporation's Head Office.)

H. V. VENKATASUBBIAH
General Manager

K. R. K. MENON
Chairman

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than those offered by the overseas insurers, business will be diverted to the latter. Sound marine insurance protection is an important factor in international transactions and should be freely and easily available to either party. Its source of supply and the form it takes should be as freely determinable as any other condition of the transaction. The opiate of monopolistic and restrictive underwriting of insurance, remarked the executive vice-president of the American Institute of Marine Underwriters, undermines and could destroy the foundation of sound underwriting of transport risks. In her own larger interests, India cannot have a parochial outlook in international transactions. Since an obligatory and comprehensive marine tariff would defeat their aims, marine insurers might find it hard to endorse the views of Messrs Shroff and Dastur.

I.I.C.A. Pool

The management of the I.I.C.A. Pool was reorganised during the year. The controlled companies, meaning the subsidiaries of the Life Insurance Corporation, now share in 50 percent of the pool business. In accordance with the wishes of the Government, they are now being actively associated with the management and underwriting of the pool. At the annual general meeting, the outgoing chairman, Mr. P. U. Patel, mentioned that changes have been made in the pool agreement under which certain powers have been delegated to a sub-committee, consisting of the chairman and the representatives of the controlled companies. Mr. Patel emphasised the need for precision in the pool agreement so that the pool can understand the type of business it is to underwrite in the future. The scope of the agreement must be carefully defined. In saying this, Mr. Patel suggested that "there should be no further treading on the toes of the private sector. It is necessary to clarify this because if there is any further encroachment—direct or indirect—I have my own doubts whether the pool could function in a satisfactory manner in the future."

During 1958, the pool showed adverse results primarily due to a few heavy losses in the marine department. Because of large Government projects started in recent years, the pool has been [illegible] upon to cover all sorts of risks. Considering the support and patronage it has received from the Government, it is not in a position, said the outgoing chairman, to refuse any risk that is offered. Nor is it practicable for the pool to pick and choose because, "if we did so, our motives would be completely misunderstood." During 1959, the marine department is showing still heavier losses and its paid and outstanding losses will undoubtedly adversely affect the final results for the year.

Insurance Results

It is unfortunate that by the end of 1959, official figures for the general insurance business in India could be had for 1957 only. The *Indian Insurance Year Book*, which is the only authoritative publication available, is traditionally back-dated. In a review of 1959, one has perforce to examine figures relating to 1957. This back-dated review, although unfortunate, nevertheless gives information on which it is possible to project the course of the future and to obtain an indication in the trading trends in the year. In 1957, Indian insurers spent 38.8 percent of their net premium income in fire insurance claims, against 16.9 percent spent by non-Indian insurers. Likewise, they paid 63.2 percent in marine and 51.1 percent in miscellaneous insurance by way of claims, against 46.6 percent and 44.0 percent, respectively, by non-Indian insurers. This is of absorbing interest to Indian insurers. To the age-old argument that the British underwriters have the advantage of large vested interests in India, the answer is that the position hardly stands scrutiny in 1957. The patronage from Government and semi-Government sources, received almost exclusively by Indian insurers, and the rapid progress in industrialisation have given Indian insurers an advantage, through which, by judicious selection, it should be possible to show a more favourable claims ratio. This was shown in 1956, and is likely to be projected in the accounts of the trading of Indian and non-Indian insurers in 1958 and 1959.

Non-Indian insurers have higher management expenses than the Indian ones. Thus, management expenses were 54.3 percent, 40.9 percent and 46.7 percent in fire, marine and miscellaneous insurances for non-Indian insurers, against 46.7 percent, 28.7 percent, and 42.9 percent, respectively, of Indian insurers. And yet, the balance of trading is favourable to non-Indian insurers, it being 20.3 percent, against 9 percent for Indian insurers in fire insurance, 10 percent, against minus 0.5 percent in marine and 4.5 percent, against minus 2.2 percent in miscellaneous insurance of Indian insurers.

GROWTH OF GENERAL INSURANCE BUSINESS

Year	Indian insurers Amount	Non-Indian insurers Amount	Total Amount
Gross premium written direct in India			
1951	13,49,25	10,38,55	23,87,80
1952	12,42,29	9,52,64	21,94,93
1953	19,01,23	8,80,54	20,81,77
1954	12,45,90	8,89,51	21,35,41
1955	13,77,10	9,32,83	23,09,93
1956	16,42,60	9,58,25	26,00,85
1957 (provisional)	17,92,76	9,86,16	27,78,92
1957 (estimate) ...	18,12,73	9,86,16	27,98,89
Net premium income in India			
1951	7,74,80	7,15,70	14,90,50
1952	7,01,70	6,78,92	13,80,62
1953	6,78,45	6,33,67	13,12,12
1954	7,11,84	6,48,70	13,60,54
1955	7,59,05	6,81,64	14,40,69
1956	9,06,08	7,15,51	16,03,70
1957 (provisional)	10,93,52	7,15,51	18,09,03
1957 (estimate) ...	10,96,23	7,15,51	18,11,74

Of the total gross premium written direct in India by Indian insurers during 1957, fire insurance business accounted for 40 percent, marine for 24 percent and miscellaneous for 36 percent. The composition of the gross premium written direct in India by the non-Indian insurers was: fire 48 percent, marine 27 percent and miscellaneous 25 percent. The fire insurance business accounted for 32 percent of the gross premium written direct by Indian insurers outside India, marine for 31 percent and miscellaneous for 37 percent. The share of the fire insurance business in the gross premium written direct in India by Indian insurers has decreased while that of the marine and of miscellaneous business have both increased over the period from 1951 to 1957. As for the business in India of non-Indian insurers, the share of the fire insurance business has increased and that of marine has decreased over the same period. The miscellaneous insurance business has accounted for an increasing proportion of the gross premium written direct outside India by Indian insurers while the fire and marine insurance business have both recorded decreasing proportions.

Management Expenses

Section 40C of the Insurance Act seeks to limit management expenses which can be lawfully incurred by an insurer in relation to his general insurance business in India. The basic limits for expenses are prescribed in Rule 17E of the Insurance Rules, 1939, while the proviso to sub-section (1) of Section 40C of the Act empowers the Controller of Insurance to fix, in relation to any year, the extent of relaxation from the basic limits. In terms of the above proviso, the Controller of Insurance fixed the extent of relaxation for 1951 at 2½ percent of the gross premium written direct in India during that year. For each of the years from 1952 to 1954, the relaxation was fixed at 20 percent of the fall in the gross premium written direct in India during the year concerned, compared with the gross premium written direct in India during 1951 subject to a minimum relaxation of 1½ percent and a maximum relaxation of 5 percent of the gross premium written direct in India during the year concerned. The extent of relaxation was reduced for each of the years from 1955 to 1957 and the fire and miscellaneous insurance business was treated differently from the marine insurance business. The relaxation for the fire and miscellaneous insurance business was similar to that for 1952 to 1954 but only 15 percent of the fall in gross premium income was allowed, subject to a minimum of 1 percent and a maximum of 4 percent of the gross premium written direct in India during the year concerned. The relaxation of the marine insurance business was fixed at 1 percent of the gross premium written direct in India during the year concerned.

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A MONTH-BY-MONTH SURVEY OF PRICE TRENDS FROM JANUARY TO OCTOBER, 1959

	JANUARY H. Rs.	JANUARY L. Rs.	FEBRUARY H. Rs.	FEBRUARY L. Rs.	MARCH H. Rs.	MARCH L. Rs.	APRIL H. Rs.	APRIL L. Rs.	MAY H. Rs.	MAY L. Rs.
CENTRAL GOVT. LOANS										
3% 1946/86	74 27	73 25	74 25	73 65	74 25	73 95	74 10	74 00	73 97	73 50
2½% 1961	97 25	97 20	97 25		97 25		97 25		97 40	97 25
2¾% 1962	97 00	96 97	96 97	96 95	96 95		96 95		96 95	96 90
3½% 1964	99 90	99 80	99 80		99 80		99 80	99 75	99 80	99 70
3½% 1968	98 95	98 85	98 95		98 95		98 95		98 95	
3½% 1968	100 60		100 65	100 60	100 65		100 65		100 65	100 60
3% 1970/75	91 00	90 85	91 00	90 85	91 15	90 97	91 30	91 15	91 45	91 20
4% 1972	101 35	101 20	101 55	101 25	101 65	101 55	101 70	101 65	101 75	101 70
4% 1973	101 00	100 90	101 50	101 00	101 63	101 50	101 65	101 60	101 72	101 65
PREFERENCE SHARES										
Anglo-India Jute (7%)	102 00	101 00	102 00	101 00	105 00	103 00	106 00		106 00	
Alkali & Chemical (5%)	101 00	100 50	102 00		103 50	102 00	102 00	100 00	102 00	
Bengal Assam Steamship (7%)	58 00		58 00		60 00	59 00	61 00		61 00	
Burn & Co. (7%)	121 00		123 00	122 00	125 00	123 00	125 00		125 00	
Do. (6%)	112 00		115 00	114 00	117 00	116 00	117 00		118 00	117 00
Dunlop Rubber (6%)	115 00		115 00		118 00	117 00	118 00		118 00	
Indian Iron (5%)	101 50	100 50	101 50	101 00	103 50	102 00	105 00	104 00	104 00	
Kesoram Cotton (7%)	99 00		100 00		105 00	103 00	105 00		105 00	
Titaghur Paper (8%)	136 00		136 00		140 00	138 00	140 00	136 00	136 00	
BANKS										
Allahabad Bank (Fully Paid)	362 00		362 00		362 00		353 00		353 00	
United Commercial	69 00	67 50	68 50	67 50	69 25	68 50	68 50	65 25	65 75	63 50
RAILWAYS										
Ahmadpur Katwa	50 00		50 00		50 00		50 00		48 00	47 50
Arrah Sasaram	48 00		48 00		48 00		48 00		47 00	
Howrah Amta	49 00		49 00		49 00		49 00		48 00	46 00
Shahdara (Delhi)	85 00		90 00		85 00		85 00		80 00	
ELECTRICS										
Agra	145 00		145 00		145 00		145 00	144 00	144 00	
Benares	14 12		14 25	14 12	14 50	14 37	14 50		14 50	14 25
Calcutta	15 12	14 81	15 00	14 44	15 12	13 87	15 06	14 75	15 12	14 87
Patna	11 25		11 25		12 00	11 56	11 87		12 00	11 87
Jubbulpore	13 87		13 50	13 19	13 19		13 00	12 94	13 16	
U.P.	136 00		136 00		137 00	136 00	136 00	135 00	140 00	138 00
JUTES										
Agarpara	11 12	10 75	10 25	9 56	12 62	9 37	13 56	12 31	13 25	12 31
Anglo-India	228 00	216 00	217 00	205 00	238 00	203 00	259 00	231 00	241 00	224 00
Belvedere	168 00	166 00	160 00		200 00	152 00	200 00	167 00	175 00	169 00
Barnagore	145 00	137 00	136 00	129 00	159 00	135 00	155 00	147 00	140 50	132 50
Champdany	131 00	123 00	124 00	117 00	142 00	119 00	141 00	135 00	137 00	135 00
Dalhousie	138 00	129 00	130 00		158 00	134 00	135 00	130 00	133 50	132 00
Empire	19 44	18 87	20 81	19 56	21 25	19 50	20 87	19 87	18 00	
Fort Gloster	257 00	235 00x.r.	250 00		290 00		242 00	220 00	290 00	
Do. (New)	—		—		226 00	209 00	242 00	220 00	232 00	229 00
Gourepore	387 00	362 00	385 00		380 00	370 00	380 00	370 00	370 00	
Howrah	20 62	19 60	19 19	18 69	25 00	18 37	25 87	23 87	24 75	22 19
India	16 25	15 31	15 50	14 94	16 75	14 75	16 62	16 00	16 19	15 37
Kamarhatty	180 00	168 00	164 00	155 00	202 00	158 00	209 00	195 00	209 00	190 00
Megna	14 94	14 62	14 50	13 94	16 37	14 12	16 19	15 69	15 81	15 12
Northbrook	19 81	18 12	19 31	18 69	20 62	18 50	20 69	19 87	19 25	19 12
Nuddea	61 50	58 00	57 00	56 00	62 75	57 00	63 25	59 00	59 75	55 50
National	26 50	25 25	26 75	25 12	25 50	23 00	24 62	23 87	24 50	23 00
COALS										
Amalgamated	22 50	21 31	22 25	21 69	26 00	22 25	25 56	25 19	27 00	25 25
Bengal	285 00	273 00	285 00	280 00	308 00	283 00	318 00	303 00	313 00	305 00
Equitable	30 00	28 00	30 37	29 50	30 94	29 94	31 75	30 81	32 19	31 37
East Indian	23 62	22 00	24 12	23 75	24 25	23 94	25 50	25 19	24 00	23 75
Katras Jherriah	71 00	69 75	66 75		73 00	66 25	74 50	73 00	75 25	74 00
South Karanpura	13 00	12 06	12 80	12 31	13 56	12 44	14 62	13 50	13 75	12 81
ENGINEERINGS										
Britannia Engineering	11 12	10 25	11 69	10 69	13 12	12 75	13 75	13 25	13 56	13 00
Braithwaite	31 75	31 37	32 37	30 75	31 87	30 00	32 12	30 00	29 37	29 12
Burn	365 00	364 00	365 00	364 50	420 00	407 00	453 00	427 00	452 00	443 00
Indian Iron	26 38	25 62	26 30	25 36	24 42	22 30	24 78	24 02	24 95	23 93
Indian Standard Wagon	86 00		86 00		98 00	96 00	106 00	92 00	101 00	97 00
Jessop	25 19	24 62	26 00	25 05	29 62	26 25	33 75	29 00	32 81	30 12
Guest, Keen, Williams	38 31	36 00	37 56	36 87	38 12	36 37	40 87	37 50	41 00	37 50
SUGARS										
Belsund	12 06	11 69	12 00	11 87	13 25	12 00	13 50	13 12	13 56	12 62
Carew	9 55	8 37	8 75	8 31	8 69	8 00	9 37	8 25	9 53	8 44
Champaran	17 75	17 50	16 94		15 50	15 44	17 06	16 06	17 06	
Ramnugger	18 75	18 25	19 06	18 62	21 31	19 12	20 87	20 31	20 25	19 12
COTTONS										
Dunbar	141 00	139 50	142 00	140 00	151 00	140 00	170 00	165 00	168 00	166 00
Elgin	11 75	11 50	12 31	12 00	14 31	12 56	14 87	13 12	15 62	12 87
Kesoram	12 31	11 25	12 94	11 87	13 06	11 62	13 62	12 87	15 25	13 87
MISCELLANEOUS										
Alkali & Chemical	18 12	17 59	19 19	18 00	20 44	18 81	22 75	19 94	25 81	22 62
Angelo Brothers	20 00	19 25	19 91	19 50	19 37	18 56	19 87	19 00	18 50	18 37
Balmer Lawrie	145 00	143 00	153 50	143 00	172 00	152 00	175 00	162 00	167 00	159 00
Britannia Biscuits	20 12	17 44	20 25	19 75	20 56	18 81	20 12	19 06	20 50	19 75
Calcutta Trams	14 81	14 69	15 00	14 00	14 44	13 81	15 25	14 24	15 62	14 56
Dunlop	30 87	29 25	30 12	29 37	33 50	26 69	35 25	33 31	35 50	31 19
Eastern Investments	153 00	149 00	154 00	152 50	142 00	141 00	140 00		137 50	134 00
India General Navigation	73 00	50 75	71 50	68 00	70 00	68 00	73 00	66 50	60 00	
Indo-Burma Petroleum	25 44	25 12	25 25	24 75	27 00	25 00	26 81	26 31	26 69	25 12
India Paper Pulp	21 25	20 25	20 87	20 50	25 56	20 87	25 12	23 50	24 25	21 75
India Steamship	14 19	13 70	14 25	13 87	15 06	14 12	15 00	14 09	14 87	14 06
Indian Oxygen	23 81	23 25	24 62	23 62	27 44	25 00	28 75	26 75	28 44	26 12
Indian Wood Products	43 00	42 75	41 75		40 87	40 50	40 75	40 62	41 37	40 50
Indian Aluminium	17 35	16 06	17 31	16 72	21 50	17 00	22 62	20 62	22 37	20 06
Jardine Henderson	83 00	73 50	86 00	78 00	83 50	75 50	92 00	80 50	91 00	80 00
Martin Burn	29 69	28 75	30 12	28 87	30 94	29 06	30 37	29 50	30 12	28 12
Metal Box	31 00	30 75	31 12	30 62	34 69	30 00	36 00	34 25	37 37	36 00
National Carbon	28 56	26 87	28 56	27 25	30 62	29 00	32 94	30 19	33 12	30 00
Orient Paper	31 10	29 65	31 75	30 30	38 00	31 80	38 60	36 35	37 30	35 10
Sone Valley Cement	5 44	5 12	5 28	5 00	6 81	5 28	6 50	5 25	6 05	5 62
Titaghur Paper	41 87	40 37	42 75	42 00	44 75	42 81	47 00	43 87	42 75	41 25
Triton Insurance	151 00		150 00		155 00	150 00	160 00	155 00	158 00	155 00
MININGS										
Burma Mines	1 55	1 35	1 80	1 52	1 80	1 66	1 70	1 57	1 60	1 51
Chrestien Mica	10 31	10 12	10 25	9 75	10 25	10 19	10 75	10 19	10 69	
Indian Copper	3 68	3 54	3 63	3 51	4 38	3 65	4 41	4 23	4 35	4 04
Karanpura Development	11 50	11 25	12 56	10 37	14 25	12 19	15 56	14 12	14 25	14 19
TEAS										
Baradighi	18 75	18 50	20 37	19 87	21 25	20 62	22 12	20 44	23 25	22 00
Bishnauth	19 00	17 25	20 00	18 69	20 25	19 75	20 12	19 62	22 31	20 00
Brooke Bond	16 50	15 75	17 25	16 56	18 31	17 50	19 75	18 00	21 12	18 19
Dufflaghur	35 75	32 50	34 50	33 00	35 00		35 00		38 25	36 87
East India	20 20		18 62	18 50	19 25		19 12	18 87	21 00	19 30
Gohpur	21 50		23 50	21 94	24 31	24 00	23 75		25 25	24 25
Hasimara	20 87	20 12	23 25	21 00	23 87	22 94	23 87	22 94	25 75	23 00
Patrakola	131 00	125 00	140 00	139 00	140 00		137 00	134 50	150 00	134 00
Tezpore	15 06	14 75	17 00	14 94	17 09	16 25	17 06	16 06	20 75	17 44

	JUNE H. Rs.	JUNE L. Rs.	JULY H. Rs.	JULY L. Rs.	AUGUST H. Rs.	AUGUST L. Rs.	SEPTEMBER H. Rs.	SEPTEMBER L. Rs.	OCTOBER H. Rs.	OCTOBER L. Rs.
CENTRAL GOVT. LOANS										
3% 1946/86	73 80	73 70	74 18		74 25	73 55	75 00	73 93	74 95	74 90
2½% 1961	97 90	97 40	98 20	97 90	98 25	98 15	98 25		98 25	
2¾% 1962	97 35	96 55	97 63	97 40	97 68	97 55	97 80	97 70	97 90	97 80
3½% 1964	100 08	99 80	100 20	100 08	100 20	100 10	100 30	100 20	100 30	100 18
3½% 1968	99 25	98 95	99 30	99 25	99 40	99 30	99 55	99 40	99 65	99 55
3½% 1968	100 65		100 68	100 65	100 65		100 65		100 65	
3% 1970/75	91 67	91 45	92 15	91 67	92 35	92 15	92 85	92 40	93 15	92 85
4% 1972	101 75	101 70	101 70		101 75	101 60	101 65	101 60	101 65	
4% 1973	101 65	101 50	101 55	101 50	101 55	101 50	101 65	101 50	101 70	101 65
PREFERENCE SHARES										
Anglo-India Jute (7%)	110 00		111 00		111 00	110 00	109 00	108 00	108 00	
Alkali & Chemical (5%)	103 00	102 00	103 00		105 00	103 00	105 00		102 50	
Bengal Assam Steamship (7%)	61 00		60 00		60 00		58 00		58 00	
Burn & Co. (7%)	125 00		122 00		125 00	123 00	125 00		126 00	
Do. (6%)	118 00		116 00	115 00	116 00		116 00		117 00	
Dunlop Rubber (6%)	118 00		115 00		116 00	115 00	116 00		117 00	
Indian Iron (5%)	103 50		105 00	104 50	105 00		105 50		105 50	
Kesoram Cotton (7%)	106 00		108 00		110 00	105 00	105 00		105 00	
Titaghur Paper (8%)	140 00	138 00	140 00		140 00		135 00	130 00	128 00	
BANKS										
Allahabad Bank (Fully Paid)	353 00		353 00		353 00		342 00		342 00	
United Commercial	62 75	61 50	62 50		63 25	62 00	62 50	61 00	61 50	
RAILWAYS										
Ahmadpur Katwa	47 50	44 00	44 00		44 00	40 00	40 00		39 50	
Arrah Sasaram	47 00		47 00		49 00	47 38	47 00		47 00	
Howrah Amta	48 00	46 00	47 00		47 00		47 00	46 00	47 00	
Shahdara (Delhi)	78 00		78 00		78 00		78 00	75 00	73 00	
ELECTRICS										
Agra	143 00	142 00	143 00		143 00		133 00		137 00	133 00
Benares	14 50	14 44	14 50	14 37	15 06	14 25	15 00	14 75	14 87	
Calcutta	15 06	14 75	15 25	14 94	15 64	15 12	15 37	15 12	16 12	15 37
Patna	11 87	11 75	11 81		11 81		11 81	11 25	12 06	11 94
Jubbulpore	13 00		13 12		13 00	12 94	13 44	13 06	13 25	12 31
U.P.	138 50	136 00	140 00	133 00	137 00	133 50	135 00	134 00	137 00	136 50
JUTES										
Agarpara	13 19	12 00	13 19	12 87	14 37	12 81	13 50	12 56	13 50	12 94
Anglo-India	250 00	237 00	268 00	248 00	262 00	252 00	242 00	241 00	257 00	248 00
Belvedere	191 00	166 00	185 00	183 50	192 00	188 00	193 00	191 00	186 00	178 00
Barnagore	156 00	131 00	166 00	157 00	176 00	159 00	167 00	160 00	182 00	169 00
Champdany	137 00	122 00	143 00	136 00	143 00	136 00	138 00	136 00	143 00	134 00
Dalhousie	139 00	127 00	137 00	133 00	140 00	129 50	134 00	132 00	151 00	136 00
Empire	18 37	17 75	18 50	18 00	17 87	17 75	17 81		17 87	17 50
Fort Gloster	308 00		372 00	340 00	385 00	365 00	352 00	350 00	380 00	
Do. (New)	258 00	240 00	291 00	280 00	292 00	283 00	275 00		286 00	285 00
Gourepore	396 00	384 00	425 00	401 00	417 00		430 00	418 00	410 [illegible]	[illegible]
Howrah	24 81	23 12	24 94	23 06	24 37	23 50	23 62	22 56	[illegible]	[illegible]
India	16 50	15 62	16 75	16 12	16 25	15 75	16 56	15 00	[illegible]	[illegible]
Kamarhatty	207 00	196 00	229 00	205 00	218 00	212 00	206 00	204 00	220 [illegible]	[illegible]
Megna	16 44	15 31	15 81	14 87	16 44	14 75	14 19	13 94	14 50	14 12
Northbrook	20 25	19 00	20 12	20 00	22 50	19 75	22 12	21 69	22 12	21 62
Nuddea	63 50	56 50	66 00	59 00	63 00	60 00	61 00	58 00	59 25	57 00
National	24 00	21 50	23 62	22 50	23 25	22 50	24 00	22 50	24 50	23 94
COALS										
Amalgamated	25 94	25 19	26 37	25 25	26 87	25 62	26 50	25 55	25 50	25 25
Bengal	308 00	302 00	323 00	306 00	317 00	306 00	300 00	294 00	303 00	289 00
Equitable	32 00	31 62	32 37	31 12	32 25	32 00	34 00	32 25	35 00	
East Indian	23 69		25 87	24 06	24 25	24 12	23 69	22 50	21 75	21 62
Katras Jherriah	75 25	74 50	75 25	73 62	75 00	71 00	71 00	70 00	70 00	
South Karanpura	12 50	12 37	13 62	13 00	12 81	12 50	12 25		11 50	11 37
ENGINEERINGS										
Britannia Engineering	13 12	12 87	13 06	12 62	13 12	12 62	12 75	12 37	12 87	12 75
Braithwaite	28 75	28 31	28 50	28 00	27 00		25 75	24 75	26 31	24 75
Burn	442 00	439 00	456 00	446 00	471 00	445 00	455 50		445 00	
Indian Iron	24 87	23 92	25 56	23 85	26 06	23 62	24 00	23 29	24 61	23 87
Indian Standard Wagon	95 50	92 50	93 00		92 00	90 00	86 75	79 00	92 50	91 00
Jessop	31 31	30 37	30 50	28 50	29 25	28 50	30 00	28 50	33 50	30 50
Guest, Keen, Williams	39 87	38 12	41 25	38 62	39 50	38 37	39 12	38 00	40 62	39 50
SUGARS										
Belsund	13 00	12 87	13 62	13 25	13 50	12 94	13 31	13 00	15 56	13 00
Carew	12 06	8 87	12 31	11 87	12 06	11 12	11 19	10 25	12 50	10 56
Champaran	16 62	15 50	18 25	18 00	20 56	18 00	20 00		20 25	19 50
Ramnugger	19 12	17 62	21 75	20 00	21 25	20 00	20 53	18 94	19 87	18 81
COTTONS										
Dunbar	162 00		167 00		201 00	165 00	205 00	190 00	230 00	224 00
Elgin	14 37	13 19	14 12	13 56	16 12	13 75	17 31	15 00	16 94	16 06
Kesoram	14 81	14 06	17 12	15 25	18 25	16 06	19 06	17 75	19 37	18 62
MISCELLANEOUS										
Alkali & Chemical	24 56	22 50	23 56	22 12	23 25	22 62	24 32	22 00	24 19	24 00
Angelo Brothers	18 50	18 31	18 87	18 56	19 81	18 31	19 75	19 00	19 25	19 12
Balmer Lawrie	208 00	163 00	203 00	197 00	198 00	193 00	202 00	190 50	199 00	194 00
Britannia Biscuits	23 56	20 37	25 75	25 37	26 56	26 25	27 31	26 87	26 50	26 25
Calcutta Trams	14 50	14 31	14 50		14 56	14 37	14 50	14 00	14 81	13 94
Dunlop	35 00	31 19	34 00	33 37	34 87	33 75	35 06	33 25	38 25	34 94
Eastern Investments	138 50	136 00	141 00		142 50	141 00	142 00		142 00	141 00
India General Navigation	69 00	58 00	65 00	64 00	62 50	62 00	62 25	60 50	69 00	59 50
Indo-Burma Petroleum	25 62	24 37	28 62	27 25	27 12	26 00	28 00	26 69	26 25	
India Paper Pulp	22 87	21 87	25 00	23 50	25 50	23 75	26 44	24 56	22 56	21 56
India Steamship	15 09	14 00	14 37	14 09	14 56	14 00	14 25	13 31	14 06	13 12
Indian Oxygen	29 00	26 00	28 37	26 62	29 00	26 25	29 25	27 25	29 50	29 19
Indian Wood Products	40 25	38 50	36 50	34 75	34 25		34 25	34 00	33 37	33 25
Indian Aluminium	22 00	20 06	22 87	21 94	22 83	21 31	21 93	21 00	23 44	22 37
Jardine Henderson	83 00	81 00	85 50	82 50	86 50	80 00	90 00	75 00	81 00	79 00
Martin Burn	28 75	28 12	29 50		29 12	28 19	28 25	25 87	26 25	25 37
Metal Box	44 25	37 00	43 50	42 00	42 37	41 87	42 87	41 75	43 87	42 50
National Carbon	37 50	31 50	35 00	34 25	37 12	34 31	40 12	36 40	41 12	37 75
Orient Paper	37 50	35 68	36 95	35 95	38 69	36 00	38 90	37 70	38 50	37 75
Sone Valley Cement	6 19	5 80	6 19	5 75	6 37	6 00	6 00	5 75	5 94	5 62
Titaghur Paper	45 25	41 00	43 87	43 37	45 31	43 62	45 31	43 75	45 50	44 62
Triton Insurance	158 00		158 00		158 00	148 00	148 00		148 00	
MININGS										
Burma Mines	1 78	1 50	1 68	1 51	1 66	1 50	1 74	1 60	1 64	1 55
Chrestien Mica	10 37	10 25	10 44	10 12	10 44	10 31	10 44	10 37	10 37	10 25
Indian Copper	4 19	4 07	4 28	4 02	4 19	4 08	4 17	4 02	4 03	3 91
Karanpura Development	12 87	12 69	14 81	13 25	14 25	12 87	15 44	13 12	14 50	14 25
TEAS										
Baradighi	21 75	21 37	21 50	21 37	21 25	21 00	21 06		20 37	
Bishnauth	20 37	19 81	20 25	19 50	20 12	19 37	18 94	17 12	19 44	18 00
Brooke Bond	20 56	19 81	20 81	19 50	19 75	18 25	18 06	17 00	19 00	[illegible]
Dufflaghur	37 50		39 31	39 25	41 12	40 50	36 25		36 25	
East India	21 00	20 87	20 37	20 25	19 06	18 87	19 31	18 87	20 06	19 25
Gohpur	24 50	24 00	24 19	23 94	24 00	22 00	21 00		21 37	20 06
Hasimara	23 25	23 00	23 25	22 75	23 62	21 00	21 06	19 94	21 86	21 00
Patrakola	141 00	133 00	138 00	134 00	150 00	140 00	141 00	139 00	166 00	152 00
Tezpore	18 62	18 05	17 62	17 12	17 75	16 62	16 12	15 87	17 37	16 50

H = HIGHEST L = LOWEST Figures between columns indicate that the highest and lowest quotations were the same.

RISING TREND OF SHARE PRICES CONTINUES

INVESTORS SHOW GREATER CONFIDENCE IN THE ECONOMIC OUTLOOK

FOR the second year in succession, the average investor has had the satisfaction of seeing a substantial appreciation in the capital value of his equity holdings. The Reserve Bank's index number of variable dividend industrial securities rose from 136.5 at the end of 1958 to 156.8 at the end of October 1959. This 14.8 percent increase followed a 13.6 percent rise in 1958. The overall appreciation in share values in the last two years, therefore, comes to 28.4 percent. Lest this should give an exaggerated picture of shareholders' prosperity, it should be set against the heavy losses of the two earlier years. The variable dividend securities index declined by 16 percent in 1957, after a fall of 11 percent in 1956. The position at present is that the gains of the two good years, 1958 and 1959, have a little more than offset the losses of the two bad years of 1956 and 1957. If the base year 1952-53 is taken as the starting point, the index records a rise of about 56 percent in the last seven years, or an average rate of rise of about 8 percent a year in equity values.

Capital Appreciation

This may be regarded as a reasonably satisfactory rate of capital appreciation, which has more than made up for the fall in the value of the rupee over the same period. The Economic Adviser's index number of wholesale prices has the same base year, 1952-53, and it stood at 117 at the end of October 1959. During the past seven years, therefore, equities have served as an excellent

By

A SPECIAL CORRESPONDENT

hedge against inflation. What is perhaps more significant is that they have proved more effective, for this purpose, than the traditional store of value of the masses in India, gold. Between 1952-53 when the average spot price of gold was Rs. 88.01 a tola and the end of October, when it was Rs. 123.50, the appreciation was about 42 percent, or a little under 6 percent a year. It must be remembered that equityholders benefited, not only by way of capital gain, but through income receipts in the shape of dividends, while the hoarders of gold gained only through a rise in price. If gold is to be a better store of value than equities, its rate of appreciation will have to be substantially more than that of shares, to make up for its barrenness, in terms of income.

Over the past seven years, therefore, shareholders have proved wiser than peasants in choosing the form in which to hold wealth. But, unfortunately, for those who wish to see a change in the savings habit of the masses, and a large-scale diversion of funds from gold to equities, such rational calculations of relative advantage play an insignificant part in most decisions on the choice of a store of value. The vast majority of those who put their savings into gold, do so as a result of ingrained habit and long-established social conventions, to which must be added peasant conservatism and prejudice, ignorance of alternative forms of investment and lack of the organisational and institutional machinery necessary to draw the hoarded wealth of the masses into productive industrial investment in the private sector. All the same, the experience of recent years, particularly the last two, must have had some influence, at least among the middle classes, in diverting savings from bullion to shares.

Leftward Shift in Government Policy

What is particularly striking about the rise in share prices this year and the last, is that it occurred while a further shift towards the left in the Government's economic policy took place. There has been no change in the preposterous idea that private enterprise and competition are outmoded and unsuitable for a developing economy. There has been no easing of the burden of direct taxation, for the withdrawal of the wealth tax on companies and the excess dividends tax is only a superficial concession, and is practically offset by the changes in the system of company taxation. The preoccupation with co-operative joint farming and land ceilings, State trading in foodgrains and the increasingly socialist flavour of the proposals relating to the third five year plan, make it clear that there is little likelihood of any shift in the economic and political policies in favour of the private sector. Yet with all this, it is perhaps possible to discern a slight shift in emphasis since the approach to economic problems is now a little more pragmatic and, a little less doctrinaire. It would be politically inexpedient for the Government to resile from its declared socialist objective, even if it wished to do so. The pressure of the leftist and most vocal section within the Congress Party, as well as the dread of being branded by the Opposition as sympathetic towards private enterprise, rule out the possibility of any change in principles. But within the broad framework of its accepted policy, the Government has shown itself ready to consider, with an open mind, practical suggestions for increasing production, promoting exports and mobilising resources for economic development. The fear of nationalisation has virtually disappeared and the categorical rejection of the proposal for the nationalisation of banking suggests that the private sector will be spared further shocks like the sudden take-over of life insurance in 1956. The activities of the State Trading Corporation, especially in jute, have caused some anxiety as has the Life Insurance Corporation's acquisition of a stake in the private industrial sector through its investment operations. But by and large, the question of the relative rôle of the public and private sectors appears to have lost much of its importance.

Renewed Confidence

The revival of confidence among investors has been strengthened by the belief that the rise in share prices will continue in coming years and that the rate of increase in the last two years will be maintained or even improved. A continuous rise in share values is to be expected in a developing economy. Nearly every industry is doing fairly well and even cotton textiles have emerged from the "accumulation crisis" of last year, when stocks piled up with mills on account of a sluggish demand. Many industries are engaged in the implementation of their expansion programmes, confident that investment will be worth while. The new issues market has been active after a long spell of stagnation, and the appetite for new issues shows no signs of being appeased. The money market is easy, bank deposits are on the increase, and with the expenditure on planned development at the rate of about Rs. 1,000 crores a year and even more in the period of the third plan, deficit-financed to a large extent, it is virtually certain that there will be no lack of investible funds. To this will be added the investment demand from the L.I.C., amounting to some Rs. 30 crores a year. In spite of the activity in the new issues market, it is unlikely that the supply of floating scrip will increase to the same extent as funds seeking investment. The stage seems set for a faster rise in share prices than in the recent past.

The revival of activity in the market for new issues is one of the notable features of the year. In 1958, the total capital raised through such means by public companies (other than Government companies) was only Rs. 28.95 crores, compared to Rs. 48.63 crores in 1957. Of the 1958 figure, only Rs. 5.6 crores represented issues by new companies, Rs. 4.92 crores in ordinary and Rs. 68 lakhs in preference shares. The remaining Rs. 23.36 crores were issues by existing companies—Rs. 12.02 crores in ordinary shares. Rs. 2.33 crores in preference shares and Rs. 9.01 crores in debentures. There can be no doubt that this will be greatly exceeded in 1959. There has been a spate of new capital issues, for the most part in the form of rights issues by existing concerns and, to a lesser but still substantial extent, in the form of public issues by newly started companies. Details are given in the table on page 114.

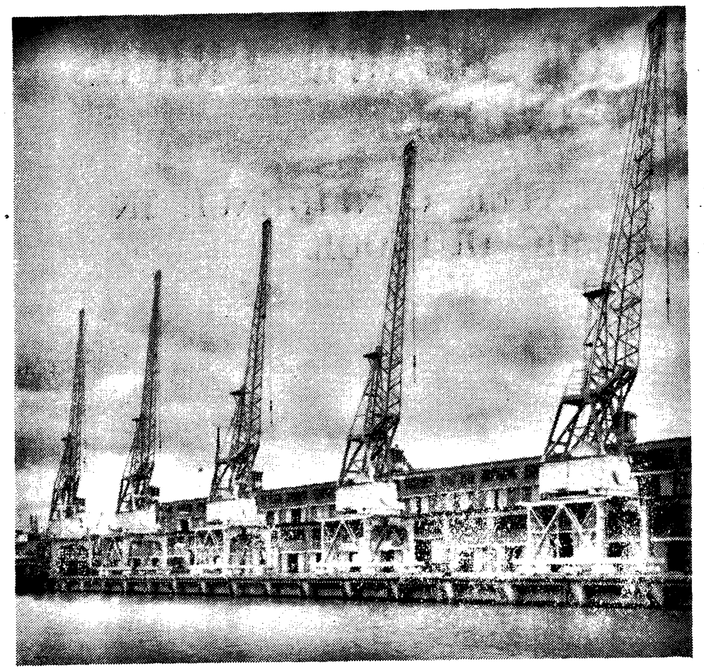
Revival of New Issues

This revival of new issues is important for several reasons. First, it is concrete evidence of the restoration of confidence in the future of private enterprise in this country. Business men do not launch new enterprises or expand existing ones, unless they expect a reasonably attractive return on their investment. Then, the response of the investing public to these issues has been striking. In the majority of cases, they were heavily over-subscribed—Colour-Chem 17 times and Cellulose Products no less than 37 times. This again is evidence of the revival of investors' confidence and of the rise of what may be described as "growth consciousness." Those who subscribe to the shares of a newly started concern or even to a big rights issue by an existing concern carrying out expansion, are aware that they are investing in the future and that they may even have to go without any return for some years. The scramble for new issues and for the shares of newly started companies shows that they are willing to make the short-term sacrifice for the sake of a long-term gain. Investors seem more concerned with the possibilities of capital appreciation than with yield considerations. In some cases, shares of newly started companies, which offer no prospect of dividend for some years to come, have gone at a premium. There have been cases of shares, not yet issued, being quoted in unofficial dealings at a premium over the issue price. This is a healthy sign, where it reflects an eagerness to take up new issues by genuine investors. The same cannot be said of the activities of the "stags" who take up new issues in the expectation that their prices will rise, and they will then cash in on the profit. Such activities cause a temporary spurt in the prices of newly issued shares, followed by an equally steep fall. Such dealings have undoubtedly played a part in the boom in newly issued shares, but there has evidently been also an influx of new investors and new money, lending strength to the new issues, quite apart from the operations of stags.

Industrial Expansion

The activity in new issues is welcomed because it indicates an increasing tempo of industrial expansion. Even from the narrower aspect of stock market prospects, it is a healthy trend because it will bring about a much-needed increase in the floating stock of scrip in the market. In the past while the deficit-financed development expenditure, the rising volume of bank deposits and the growing investment activity of the Life Insurance Corporation, all tended to increase the demand for equities, the supply of scrip showed no corresponding increase. The rise in share prices that was brought about in this way cannot be regarded as healthy, since there was no equilibrium between supply and demand.

The all-round rise in share prices has lowered equity yields to the point where, in some cases, the return on first-rate investments is scarcely more than that obtainable on gilt-edged. This is a phenomenon noticed in the stock markets of many foreign countries, where equities have increased in popularity with those who wished for a hedge against creeping inflation. In a developing economy such as India's, this consideration is reinforced by the greater growth prospects of industrial enterprises. Gilt-edged, preference shares and debentures tend to lose favour, because they are fixed-income yielding securities, and in a time of inflation, their holders stand to lose, because of the fall in the purchasing power of their fixed money incomes as well as in the capital value of the securities. Equities then have the advantage that both the money yield and the market value are likely to increase as inflation raises the price level, making greater profit margins possible. This is particularly to be expected in a developing economy, where opportunities for growth are likely to be much more than in advanced countries, and also because development expenditure tends to accentuate the inflationary pressure. One would



Indian Cranes for Indian Ports

A view showing five WHARF CRANES out of fourteen being supplied to the order of THE CALCUTTA PORT COMMISSIONERS

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expect, therefore, that the boom in share prices should be stronger in a developing than in a mature economy, and that the normal yield differential between fixed-interest bearing securities should be narrowed or even wiped out and perhaps even reversed. Investors, attracted by rosy growth prospects would be prepared to put up with negligible or even no returns at all, while the new enterprises are in the process of gestation, expecting to be richly compensated in the long run.

Boom in Equities

While the boom in equities in 1959 bears testimony to the awareness among investors of the almost unlimited growth potentialities in this country, it is significant that the boom on the Indian stock exchanges is so far a very modest affair, compared with those in the stock markets of most western countries. The explanation could be that the natural tendency towards rising share prices continues to be inhibited by the fact that it is taking place in a socialistic environment where the Government still has strong reservations about the value of private enterprise, and where economic and fiscal policies are inspired by the conviction that public enterprise is by its very nature superior, in every way, to that by private individuals. True, things now are better than in 1957 when the steep fall in share prices created a tendency to switch from equities to fixed-interest bonds, so that bond prices rose and yields fell while equity prices fell and yields rose, widening the yield spread between the two sorts of assets to an abnormal extent. Now a healthier trend has appeared, and the yield differential has been narrowed. But the movement should go further still. If the inhibiting influences of the Government's economic policy were removed, the tendency would be strengthened. Only when growth stocks stand at prices at which yields are even below those from gilt-edged, the share market should be regarded as giving a correct reflection of the development process at work in this country:

	Average net yield (percent a year)
Government Securities	2.45
Industrial Debentures	3.73
Preference Shares	5.95
Ordinary Shares	5.98

A study of the sectional indices for variable dividend industrial securities shows that almost every industry participated in the rise. The gain in the case of tea plantations was moderate, from 114.2 to 149.9, reflecting the limited scope for expansion in this field of production. Domestic consumption has been recording an encouraging rate of increase, so much so that, in some quarters, there is need for some limitation on home consumption so as to avoid the diversion of supply from export to the home market. But the position in the international market remains uncertain, because of the growing danger of world overproduction of tea and increasing competition from Ceylon and East Africa. Coal is another case where the rise was small (107.2 to 111.6). It reflects the earlier uncertainty and subsequent disappointment at the inadequate and long overdue increase in selling prices, on the basis of the deliberations of the Coal Prices Revision Committee. Sugar fared better (162.2 to 185.0) in spite of the lower production in the 1958-59 season and the ensuing scarcity. For the 1959-60 season, the Government has tried to boost production by allowing an increase in the cane price, a corresponding increase in the controlled selling price in certain regions and a reduction of excise duty in the case of output in excess of the average of the last two years. The effectiveness of the new policy will depend on whether the increase in the cane price will succeed in its objective of diverting cane supplies to the mills and away from the production of *gur* and *khandsari*.

Rise in Cotton Textiles

The remarkable spurt in cotton textiles (106.4 to 133.5) records the response of investors to the improved outlook for the industry, consequent on the revival of demand and the fall in the accumulation of stocks. On the export front however, the outlook is not so promising, especially because of the intense competition from communist China and other countries. The rise in jute shares (86.5 to 99.3) points to the consolidation of the gains made in 1958, further progress this year in modernisation and rationalisation and the easier availability of raw material. The long-term outlook is clouded by the growth of substitutes, the competition from mills in other countries and above all, by the rapid expansion of the Pakistani jute manufacturing industry. While the offtake of hessian has been fairly satisfactory, that of sacking continues to cause anxiety. The rise in iron and steel (147.4 to 162.9) was modest in comparison with that of silk and woollens (410.7 to 711.7) and transport equipment (182.1 to 295.5) partly because of the continued limitation on dividends, the disappointing T.I.S.C.O. dividend, and fears of an impending glut in steel beyond the capacity of the steel fabricating industries to absorb. Cement fared rather well (118.1 to 134.0), considering the persistent sluggishness of offtake while paper was as popular with investors as ever, moving up from 181.6 to 214.7. Among the few sections that moved contrary to the general upward trend, the most notable was banking, which declined from 201.6 to 184.9. Surprisingly for a period of rising share prices, investment trusts also fell slightly, from 103.1 to 99.9.

INDEX NUMBERS OF VARIABLE DIVIDEND SECURITY PRICES

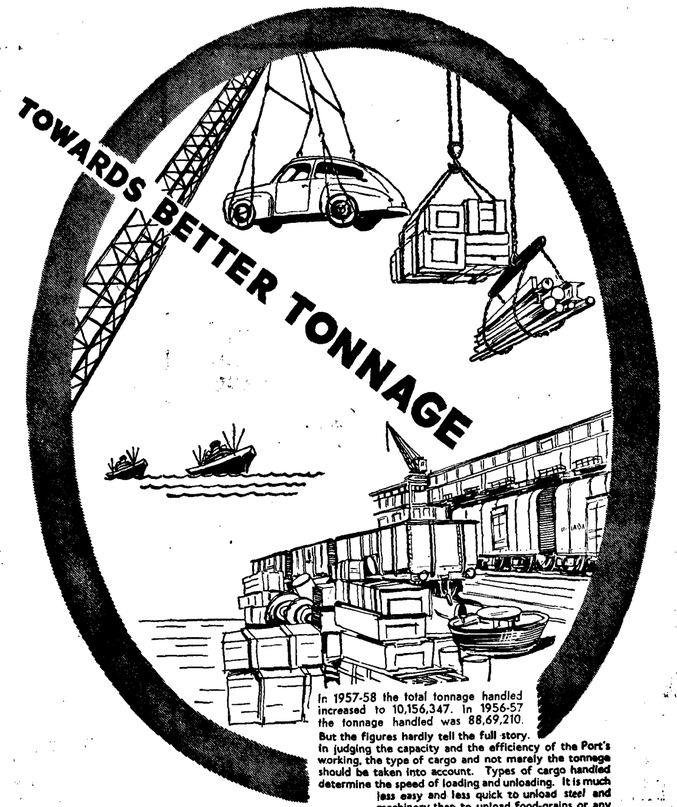
	27th Dec., 1958	24th Oct., 1959	Percentage + or −
Total	136.5	156.8	+14.8
Agriculture and allied activities: total*	146.7	157.7	+ 7.4
Tea plantations	141.2	149.9	+ 6.1
Coffee plantations	197.0	206.2	+ 4.6
Rubber plantations	147.6	162.3	+ 9.9
Mining and quarrying: total	136.3	143.6	+ 5.3
Coal	107.2	111.6	+ 4.1
Other mining	156.2	165.6	+ 6.0
Processing and manufacturing: total	134.5	164.4	+22.2
Processing and manufacturing (foodstuffs, textiles, etc.) total*†	122.9	157.5	+28.1
Sugar	162.2	185.0	+14.0
Cotton textiles	108.4	133.5	+23.1
Jute textiles	86.5	99.3	+14.7
Silk and woollen	410.7	711.7	+73.2
Processing and manufacturing (metals, chemicals, etc.): total*	153.5	181.9	+18.5
Iron and steel	147.4	162.9	+10.5
Transport equipment	182.1	295.5	+62.2
Electric machinery	140.0	142.3	+ 1.6
Machinery other than transport and electric	171.7	196.4	+14.3
Basic industrial chemicals	125.6	180.5	+43.7
Processing and manufacturing (Others): total*	134.2	153.1	+14.0
Cement	118.1	134.0	+13.4
Paper	181.6	214.7	+18.2
Other industries: total*	115.9	115.1	− 0.6
Electricity generation and supply	94.3	90.2	− 4.3
Trading	86.6	105.2	+21.4
Shipping and other transport	137.0	123.0	−10.2
Construction	249.9	320.8	+28.3
Financial: total	179.2	169.6	− 5.3
Banks	201.6	184.9	− 8.2
Insurance	127.1	142.3	+11.9
Investment trusts	103.1	99.9	− 3.1
Calcutta index	134.6	146.7	+ 8.9

* Including "Miscellaneous".
† Including "Edible and Vegetable Oils".

Considering the hesitant note on which the share markets ended the year 1958, and the fact that the index of share prices dropped by 5.7 percent in the last quarter of that year, the outlook at the beginning of 1959 did not appear to be promising. The Congress Party seemed to be moving further to the left and in its discussions on the shape and the size of the third five year plan, limitation of profits was a major theme. Yet a new spirit of optimism seemed to pervade the market, almost from the start. Prices and the volume of business began to move up and the wave of bullish enthusiasm lasted almost without a break, until the middle of May. It looked as if operators were no longer overmuch disturbed by the thoughts of a socialistic pattern of society and were more impressed by the irrefutable logic of corporate working results. Jute shares, the mainstay of the Calcutta market, attracted support as the industry reaped the fruits of modernisation and relatively plentiful raw jute supplies. The Prime Minister contributed to the growth of confidence by rejecting the move for a ceiling on incomes. The Life Insurance Corporation helped by its purchasing operations.

Budget Influences

As always happens, the approaching Budget cast its shadow over the market well in advance. But for it, the rise in share prices would have



In 1957-58 the total tonnage handled increased to 10,156,347. In 1956-57 the tonnage handled was 88,69,210.

But the figures hardly tell the full story.

In judging the capacity and the efficiency of the Port's working, the type of cargo and not merely the tonnage should be taken into account. Types of cargo handled determine the speed of loading and unloading. It is much less easy and less quick to unload steel and machinery than to unload food-grains or any other homogeneous cargo.

To-day's cargo consists largely of items that require better equipment that helps the workers to increase their output.

Above all the Port needs more and more co-operation of the workers for a drive towards better and greater tonnage.

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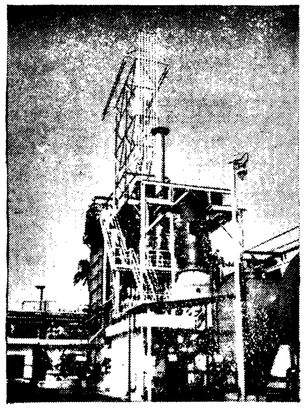

A close up view of the Converter of the Polythene plant at Rishra

Investment in India's future

In recent years I.C.I. (India) has been associated with a series of manufacturing schemes of great significance to the nation's economy. In November 1958, the President of India opened the Indian Explosives Ltd. plant at Gomia, Bihar—the country's first commercial blasting explosives factory. I.E.L. is a joint undertaking of I.C.I. and the Government of India.

In April 1959, Atic Industries Private Ltd., in which I.C.I. is in partnership with Atul Products Ltd., inaugurated a major extension to their vat dyestuffs factory at Bulsar, Bombay.

A third plant, opened in May 1959, is India's first polythene plant, built at Rishra, West Bengal, by the I.C.I. subsidiary, the Alkali & Chemical Corporation of India Ltd. It cost Rs. 4 crores and will save the country Rs. 1.5 crores every year in foreign exchange.

Yet another project . . . Soon I.C.I. and its subsidiary, the Alkali & Chemical Corporation of India Ltd. will build a Rs. 2 crore Rubber Chemical Plant at Rishra, West Bengal, which will save the country Rs. 1 crore foreign exchange annually.

I.C.I. (India) furnishes technical advice to its customers, costing the company over Rs. 10 lakhs a year.

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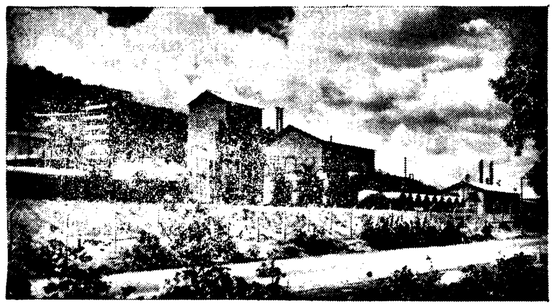
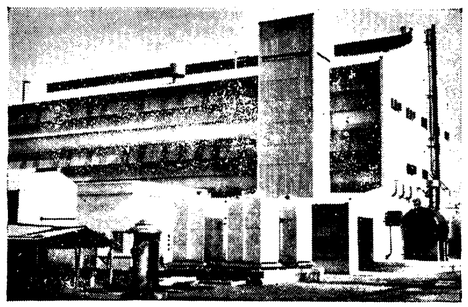


India's first Commercial Blasting Explosives factory at Gomia— General view of the area where raw materials are manufactured

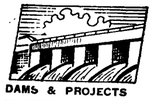


Part of the extensions at the Atic Industries Bulsar plant

ICG 862 C

2 five-year plan

ELECTRICITY



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gone further. As the day drew closer, there was the usual spate of rumours, conjectures, hopes, guesses and forebodings. Great hopes were built on the fact that this was to be Mr. Morarji Desai's first Budget, but not even the most optimistic among the prophets expected the abolition of the wealth tax on companies and the tax on excess dividends. The announcement of these proposals started a wave of speculative excitement, during which hardly anyone seemed to have clear ideas about the other major tax proposal, the change in the system of company taxation. When the new measure was finally clarified, expert opinion agreed that, on balance, the position of shareholders had not improved and may even have become worse, because of the abolition of the practice of grossing up of dividend incomes in the hands of shareholders and its replacement by the new system of deduction at source. Whether shareholders would be better off or not under the new system would depend on whether the company would be in a position to pay a dividend sufficiently high to compensate for the withdrawal of the facility of grossing. It is established that in most cases the advantage which the companies would derive from the abolition of the corporate wealth tax and the tax on excess dividends, and the reduction of the rate of corporate profits taxation from 51.5 percent to a provisional rate of 45 percent, would not be enough for the purpose. Yet, the buying spree showed no signs of slackening off, perhaps because the new system was not to take effect until 1960-61.

There can be little doubt that, in most cases, the new system of company taxation will affect shareholders adversely. Investors will henceforth have to be even more discriminating in their selection of shares for investment. In addition to the usual considerations of present and future profit-earning capacity, it is now necessary to estimate, in each case, the tax relief to the company because of the removal of the corporate wealth tax and the excess dividends tax and the lower rate of taxation of corporate profits. It will have to be estimated whether this tax relief will suffice to increase the gross dividend to the extent necessary to compensate shareholders for the loss they will suffer because the dividend, henceforth will not be, as in the past, net of tax, but before payment of tax. The position is more complicated in cases where the companies hold shares in other companies from which they receive dividends, and where tax-free preference shareholders have to be paid the prescribed rate of dividend net of tax.

Tax Relief

Operators, however, concentrated on the elements of tax relief in the Budget proposals and overlooked the other disturbing implications of the new system, although the Finance Minister himself made it clear that what he was proposing was only a simplification of the system of corporate taxation and not a measure of tax relief. His subsequent assurance, on 10th March, that he would try to remove any anomalies that might rise on account of the new system, finally dispelled all lingering fears and the bullish trend reasserted itself strongly. The market paid little attention to the other important changes in taxation, the inclusion of bonus issues out of the share premium account, in the scope of the tax on bonus shares, the increase in the percentage of profits of Section 23A companies to be distributed as dividends from 45 percent to 50 percent in the case of industrial profits and from 60 percent to 65 percent for non-industrial profits, the increase of ½ percent in the rates of personal wealth tax in every slab and the tightening up of the provisions relating to the expenditure tax. Taken together, these showed that there was to be no deviation from the socialist fiscal policy with its accent on the reduction of economic inequity through heavy taxation of the richer sections of society. With all this, out of the Rs. 23 crores which the tax proposals were expected to bring to the Treasury, indirect taxes in the shape of Customs and excise duties were to yield Rs. 21 crores. Operators took this to mean that the Government was aware that direct taxation had reached almost its saturation point and that additional revenue would have to come predominantly from the taxation of consumption.

Howrah Jute was placed on the forward list on 1st March, bringing the number of clearing shares to nine. It celebrated its new status by moving up from Rs. 20 to Rs. 22.37. The upswing in share prices continued during the first week of May, but then a sharp reaction occurred which continued into the first week of June. Then the underlying bullish trend reasserted itself, and share prices resumed their upward course. In part, the reaction was in the nature of a technical correction, after the almost continuous rise since the beginning of the year. The weakness was aggravated by Press reports that the third five year plan would involve additional taxation to the extent of about Rs. 2,000 crores. This was a frightening prospect, seeing that the stupendous tax effort in the second plan was expected to yield only a little over Rs. 900 crores. Reports of the All India Congress Committee Planning Seminar in Ootacamund increased the prevailing uncertainty because of the strongly socialist tenor of the discussions there.

Tata Rights Issue

One piece of good news that helped to some extent brighten the general gloom was the report that the Tata Iron and Steel Company proposed to issue at par, subject to Government sanction, rights shares to existing holders in the ratio of one for five and Preference shares to existing holders of the first and/or second Preference shares in the proportion of one for two. There had been some uncertainty as it had been rumoured that the Government would insist on the issue of the rights shares at a premium, but as consent from the Controller was available to the issue at par, the market was happy.

The notable event in the month of June was the heavy oversubscription of three new rights issues, Indian Rayon, Khandelwal Ferro-Alloys and Colour-Chem, proving once again what had been conclusively established on several occasions that investors are always ready to support first-class issues with growth prospects.

Central Government Loans

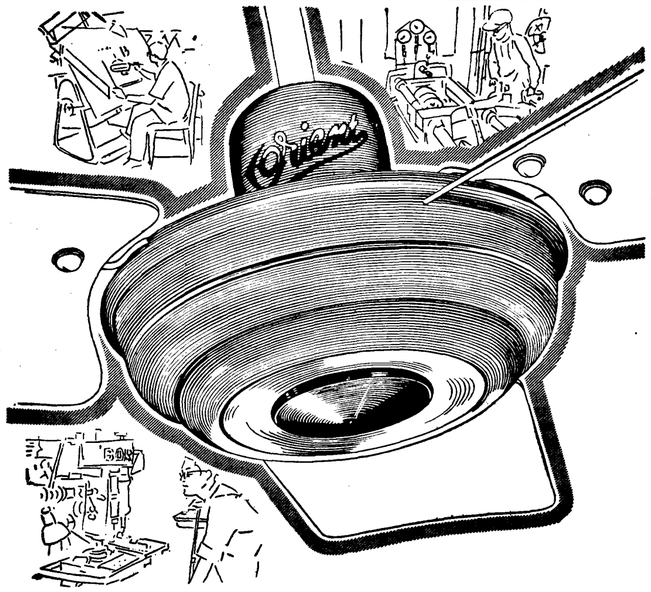
On 16th June, the simultaneous issue of Central Government loans (cash-*cum*-conversion) was announced for a total sum of Rs. 175 crores. They were the 3¼ percent Bonds (1969) at an issue price of Rs. 98.85, repayable at par on 1st July, 1969, and the 4 percent Loan (1979) issued at par on 1st July, 1979. As the Finance Minister in his Budget speech had fixed Rs. 225 crores as the target for public borrowing by the Union Government during 1959-60, it was expected that this would be followed by some further loans later during the year, but that proved to be correct.

In contrast to the almost continuous rise in share prices during the first half of the year, there was a more irregular trend in the second half. It seemed as if the strong underlying bullish trend was restrained by a revival of anxiety concerning the economic as well as political outlook. Conditions were buoyant at the beginning of July and the index of share prices rose to 155, then a sharp reaction set in and the index dropped to 151.7 at the end of the month. The principal restraining influence was the fear of impending sales by the Life Insurance Corporation, in accordance with its declared policy of acting as a stabilising factor in the stock market. Operators were already asking themselves whether the bull phase had reached some unhealthy proportions and whether even growth stocks were not somewhat overvalued as a result of the steep rise since the beginning of the year. Any substantial unloading by the L.I.C. at this juncture would have been interpreted as evidence that official opinion regarded the prevailing level of share prices as too high and that a corrective reaction was in order. This would have precipitated a wave of selling and a steep fall in prices. Fortunately for the bulls, no substantial selling on the part of the L.I.C. was reported.

The two new Central Government Loans were fully subscribed on 2nd July and both issues—3¼ percent 1969 and 4 percent 1979—were quoted at an initial premium of 5nP over the issue price.

Bank Dividends

Another reason, besides apprehensions of L.I.C. sales, for the more cautious mood of the market, was the disappointing dividends announced by banking companies, such as Dena Bank, the Central Bank of India and the Bank of India. This was interpreted as a foretaste of the effects of the new system of Company taxation and as evidence that companies would not be able to compensate shareholders for the loss on account of the abolition of grossing up of dividend income. But shareholders of banking companies were particularly adversely affected by the change because of two reasons. Banking companies were not liable to the wealth tax on companies and so derived no benefit from its abolition. Secondly, in most cases, they distributed dividends at rates which did not attract the excess dividends tax at the highest slab, so the gain to them, from the repeal of this levy, was not substantial. The experience of banking



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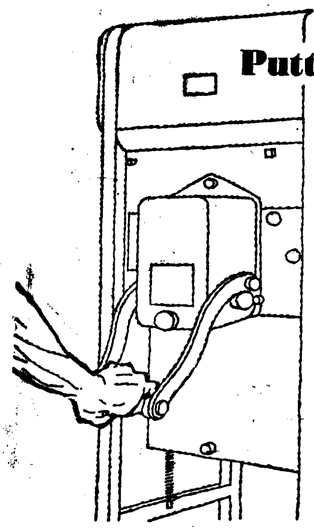

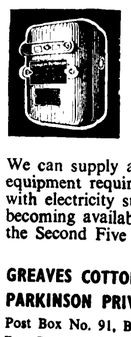

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companies under the new system only served to underline the point that its effects on companies would vary widely and would depend on the circumstances of each case. Investors would, therefore, have to be discriminating in their selection of shares. The only safe generalisation seems to be that the majority of companies would henceforth distribute lower net (after tax) dividends than before and that their shareholders would, therefore, be worse off.

The greatest blow to market sentiment at this juncture was the declaration of a reduced ordinary dividend by the Tata Iron and Steel Company. The directors recommended a dividend of Rs. 6.80 a share on the old ordinary shares (including the bonus shares issued in July 1958 in the ratio of one bonus share for five shares held) and a similar distribution on the new ordinary shares in March 1956 (made up of a dividend of Rs. 3.80 and interest to be paid out of capital at Rs. 3 a share). The market was sorely disappointed as the general expectation was that the dividend would be maintained at Rs. 8.25 a share on the larger capital and even the bears, who were in a minority, had expected at least Rs. 7.50 a share. T.I.S.C.O. shares slumped from Rs. 190.75 to Rs. 175, and Indian Irons weakened in sympathy from Rs. 24.73 to Rs. 23.72.

The directors of the company have refuted the charge that shareholders have been unfairly treated. At the annual general meeting of the company early in September, Mr. J. R. D. Tata clarified the position. He denied that the dividend had been cut. On the contrary, he argued that the assurance given by him in 1957 had been more than fulfilled. That assurance was to the effect that it was the intention of the directors to pay, until the new one-million ton plant gave full production and yielded adequate additional profit, a dividend that would be equal to Rs. 10.50 a share on the old ordinary share capital and a return of 5 percent on the new ordinary capital. He maintained that the dividend of Rs. 6.80 a share for 1958-59 was equivalent to Rs. 10.50 an old ordinary share and a return of 5¼ percent on the new ordinary share, inclusive of the premium of Rs. 30 a share.

There were good reasons for the reduction of its dividend, and there can be no doubt about the excellent growth prospects of the company. Nevertheless, shareholders felt that they had been let down and that the assurance of 1957 had not been implemented. The confusion over the interpretation of the meaning of this assurance was between the quantum of dividend and the rate of dividend. Shareholders took it to mean that the rate of dividend would be maintained and were not convinced by Mr. Tata's argument that the reduced rate amounted to the promised quantum.

Apparently, such confusion of terms will be avoided in future. At the annual meeting, when shareholders questioned him about the dividend they might expect for 1959-60, Mr. Tata indicated, without giving any definite undertaking that, barring unforeseen circumstances, it would be about Rs. 6.64 a share on all existing ordinary shares and about 26nP on the proposed new ordinary shares, representing a return of about 5¼ percent a year for the short period from the date of allotment up to the end of March 1960.

Borrowing by States

On 28th July, the Reserve Bank announced that the State Governments would enter the market on 19th August to borrow an aggregate sum of Rs. 57.50 crores. All the loans carried interest at 4 percent and were redeemable in 1971. Details are given below:

State Government	Amount in Lakhs	Issue Price Rs.
Andhra Pradesh	600	99.50
Assam	250	99.00
Bihar	300	99.50
Madhya Pradesh	300	99.00
Madras	800	99.50
Mysore	500	99.50
Orissa	350	99.00
Punjab	200	99.00
Uttar Pradesh	800	99.50
West Bengal	700	99.50
Bombay	600	100.00
Rajasthan	350	99.50

August got off to a good start, with the announcement that Government sanction had been received for the T.I.S.C.O. issue at par. Following the end of the Communist Party rule in Kerala, the Union Government included Kerala in the list of States which had announced new loans. The amount which was proposed to be raised by the Kerala Government was Rs. 4 crores, the rate of interest 4 percent, maturing in 12 years (1971) and the issue price Rs. 99. The entry of Kerala raised the number of borrowing States to 13 and the total amount to Rs. 61 crores. The proclamation of President's rule in Kerala, as was to be expected, was welcomed by market operators who believed that it improved prospects for obtaining substantial foreign aid. Sentiment was further assisted by the hopes of an early and satisfactory settlement of financial disputes between India and Pakistan as a result of talks between the Finance Ministers of the two countries. This seemed to lend confirmation to the belief that the establishment of the military régime in Pakistan would make it easier to work out agreement on the various outstanding issues which have prevented friendly co-operation between the two States.

In the economic field, the improved offtake in the textiles market held promise of better working for the cotton mills. On 11th August, the eagerly-awaited announcement of the dividend of Indian Iron and Steel Company was made. The maintenance of the 10 percent or Re. 1 a share dividend was received without excitement as it was in line with market expectations and the price rose for a brief spell from Rs. 24.90 to Rs. 25, and then returned to the old level. Operators did not take seriously the possibility of a cut in dividend as in the case of T.I.S.C.O. and their confidence proved to be well-founded. Hopes next turned to the possibility of a rights issue at par, but these have remained unrealised. The response to the dividend announcement might have been somewhat more demonstrative but for the decision of the leftist parties in West Bengal to start an agitation over the food situation, and the subsequent threat to law and order.

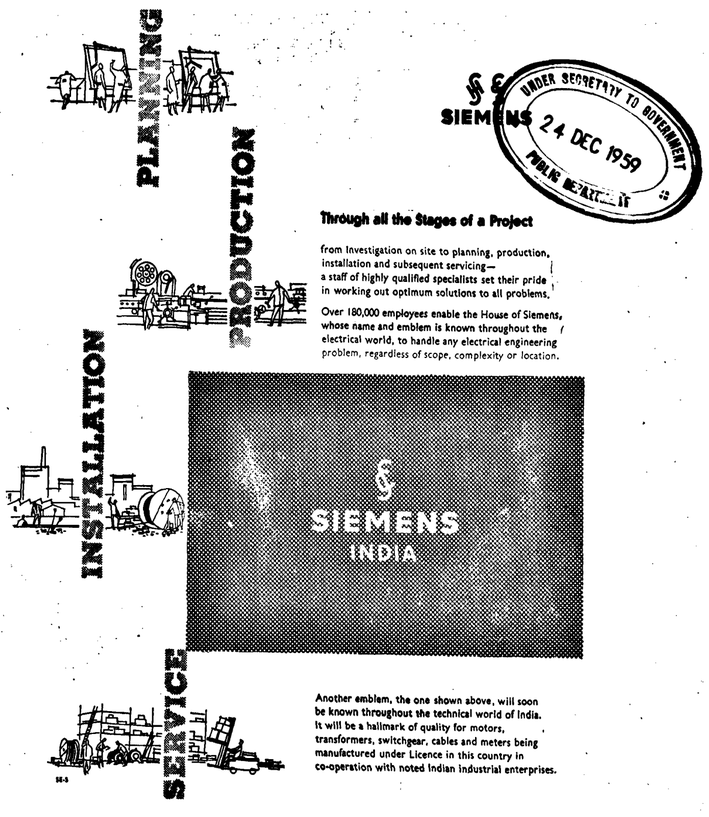
The decision of the Indian Jute Mills Association on 11th August, to unseal a further 2½ percent of the looms of member mills from 24th August, 1959 to 2nd January, 1960, thus bringing the percentage of sealed looms to 10, the lowest for some years, was hailed by the market. Earlier, in June, the percentage of sealed looms had been lowered from 14 to 12½. These successive decisions to permit increased production were made possible by the improvement in the competitive strength of the industry through the progress of modernisation and rationalisation and the easier availability of raw jute. Operators felt that while the short-term outlook for the industry had undoubtedly improved, the position of sacking still gave cause for anxiety and the long-term prospects were uncertain because of the progress of substitutes as a packaging material, and the setting up of jute manufacturing capacity in a number of other countries, especially that in Pakistan which is rapidly expanding. The market seemed to attach little importance to such clouds on the horizon and concentrated on the immediate prospect. As a result, jute shares moved up sharply. The improved working of mills was reflected in dividends. Howrah announced a dividend of 10 percent, thus returning to the dividend list after two years. Bally raised its dividend from 6 percent to 10 percent. Alexandra and Birla maintained their 10 percent distribution and Fort Gloster paid 20 percent.

New Lines of Jute Mill Activity

Another factor which has contributed to the spurt in jute shares is the growing practice of jute mill companies of extending their activities to new kinds of operations, which promise higher profits. For example Birla Jute, in addition to the manufacture of jute goods, has started the production of calcium carbide, cement, and staple fibre spinning. New Central Jute proposes to set up a chemicals factory. Anglo-India Jute, in collaboration with its managing agents, Duncan Brothers, proposes to set up a wool-combing plant. India Jute has purchased a cotton mill which has remained closed for some years. Megna Mills, it is reported, is planning the setting up of a paper mill, while Fort Gloster has embarked on a cable-making project.

The long-delayed announcement concerning the increase in the selling price of coal (50nP a ton on all grades above III A in the Bengal-Bihar fields, with corresponding changes in the prices of hard and soft coke) was made on 24th August. The increase permitted was considered by the industry to be grossly inadequate and coal shares reflected the disappointment by losing ground in most cases under selling pressure.

In September, the attention of the stock market as well as of the nation as a whole, was drawn increasingly to the developments along India's border and the deterioration in relations with China. For the rest of the year, operators have



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remained preoccupied with attempts at analysing the economic implications of Chinese aggression against India.

A substantial increase in defence expenditure is one of the consequences to be expected. It is also likely that under the shadow of a threat to national security, the Government may move further in the direction of a totalitarian regimentation of economic activities. But there may be compensations. The prospects for receiving foreign aid may be considered brighter, now that India has been subject to direct communist military action. Even if the foreign policy of non-alignment is continued, it is reasonable to hope that in future, there will be a greater measure of understanding and sympathy with the West than in the past. Internally, the discredit and discomfiture of the Communist Party of India will reduce its capacity to create trouble. Even more important, the exigencies of the situation may be expected to force the Government to show a greater sense of realism and a more pragmatic and less ideological approach to economic questions. A country's military strength, in modern times, is a function of its industrial development, and the national awakening to the Chinese danger may serve to create a sense of urgency and determination that economic growth should be achieved as rapidly as possible and in the most efficient manner.

Besides the anxiety over the deterioration of relations with China, the market was dull in September on account of the disruption of normal life in Calcutta by the food agitation of the leftist parties under the aegis of the Price Increase and Famine Resistance Committee. Reports of differences between the Defence Minister and the Commander-in-Chief accentuated the bearish trend and prices declined over a wide front. The approach of the Puja holidays and the usual tendency to lighten commitments at this time added to the prevailing weakness.

Holders of preference shares had an unpleasant surprise when they received their preference dividends from Burrakur Coal, Allahabad Bank and Budge Budge Jute. These three companies distributed the same gross preference dividends as before, despite the requirement of the Finance Act 1959, under which a system of deduction of income tax on dividends at source was made obligatory. As the previous dividends were tax free, preference shareholders found that they received considerably less than before. It is understood that, except where it is specifically stated in the Articles of Association of a company that the preference dividend will be "tax free", companies are not under a legal obligation to pay such dividends on a tax free basis. Prices of preference shares which were not expressly stipulated to be "tax free" fell heavily as a result, and the yield pattern changed correspondingly.

Another important development was the announcement that the rates of remuneration of managing agents were to be reduced, through the introduction of a slab system of payment, ranging from a rate of 10 percent on the lowest slab of Rs. 10 lakhs of net profits, to 4 percent on the slab in excess of Rs. 1 crore, in place of the present flat rate of 10 percent of net profits. In market opinion, this move was motivated less by concern over the interests of shareholders than by the political need to placate leftist opinion in the Congress Party by action against the managing agency system. The shares of managing agency companies fell somewhat, but the fall was limited because most of these companies are engaged in expanding their activities on their own account as well as through the companies they manage, and, as a result, rising earnings are likely to reduce the loss from the cut in rates of remuneration. Shares of managed companies were relatively unaffected by the argument that their prospects were brighter.

Both before the market closed for the Puja holidays on 7th October, and when it reopened on 19th October, relations between India and China were the principal talking point. The Conservative victory in the British general elections was welcomed as evidence that socialism was in retreat and that the British example might act as a restraining influence on Congress enthusiasm for socialist economic policies in India.

Extended Forward List

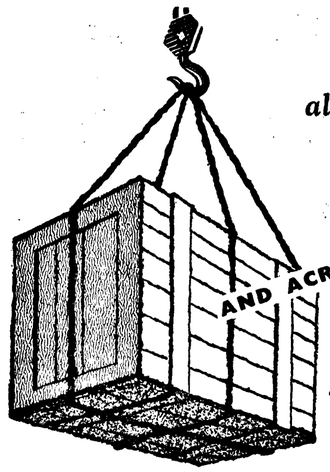
An important event for the Calcutta market was the decision of the Calcutta Stock Exchange Committee, at a meeting on 29th October, to add four shares to the forward list, bringing the total to 13, compared with 66 in Bombay. The selected shares were Dunlop Rubber, Rohtas Industries, Shree Gopal Paper and Hindustan Motors.

The fact that at the end of October the index of share prices was the highest attained during the year, suggests that the market did not regard the Chinese danger as important enough to counterbalance the underlying bullish trend. Once again, the eagerly debated question was whether or not the rise was overdone, and consequently, whether the time was ripe for a change from the persistent trend of increases in the past two years. Market sentiment remains strongly bullish and if the restraining influence of the Chinese threat can be removed, the market is likely to witness a sharp rise. Not for long has confidence in the economic outlook been so pronounced. Operators refuse to be daunted either by the prospect of further doses of socialism or heavier taxation. They prefer to turn their attention from the uncertain and unpredictable future to the present reality, with its plethora of investible funds, the revival of new issues, the reasonably attractive profits earned by almost every industry and the spread of the investment habit among the rising middle classes whose members find increasing opportunities for employment and modest affluence in the course of industrial expansion. In the middle of November 1959, the dominant note on the stock market is one of quiet confidence and sober optimism about the investment outlook.

On 11th November, the Government announced the decision to increase the retention prices payable to the Tata Iron and Steel Company and the Indian Iron and Steel Company for the period 1955-56 to 1959-60 by Rs. 5 a ton. Before this increase the retention price of both the companies was Rs. 419 a ton, excluding the excise duty of Rs. 45.75 a ton. The news had no marked effect on the prices of steel shares, partly because the increase had been expected and partly because it would serve at most to offset the increases in costs, and would not, therefore, bring any substantial additional profits to the steel producing concerns.

IMPORTANT ISSUES DURING 1959

Company	Type of Issue	Issue Price	Details of Issue
Bowreah Cotton	Offered to public	Rs. 500	Issue of Rs. 20,00,000 6½ percent (taxable) debenture stock 1968-73 at par.
Central Cachar Tea	Rights ordinary	Rs. 100	Issue of 2,000 shares of Rs. 100 each in the ratio of one for every five shares held.
Colour-Chem	Offered to public	Rs. 100	Issue of 35,000 ordinary shares of Rs. 100 each at par.
Dalmia Cement	Rights Ordinary	Rs. 10	Issue of 217,788 shares of Rs. 10 each in the ratio of one new ordinary share against paid-up value of the existing ordinary and/or deferred shares of Rs. 60 or part thereof.
Dhunseri Tea	do	Rs. 10	Issue of 23,103 shares of Rs. 10 each in the ratio of one for every two shares held.
Grob Tea	do	Rs. 7.50	Issue of 155,272 shares of Rs. 5 each at a premium of Rs. 2.50 in the ratio of one for every two shares held.
India Paper Pulp	do	Rs. 12.37	Issue of 252,000 shares of Rs. 10 each at a premium of Rs. 2.37 in the ratio of two for five shares held.
Indian Iron and Steel	Bonus ordinary	Free	Issue of 2,073,483 shares of Rs. 10 each in the ratio of one for five shares held.
Indian Steel and Wire	do	Free	Issue of 645,316 shares of Rs. 10 each in the ratio of two for one fully paid-up share and one for every five partly paid-up shares.
Kelvin Jute	do	Free	Issue of 7,000 shares to the ordinary shareholders in the ratio of one for every three shares held.
Khandelwal Ferro Alloys	Offered to public Ordinary	Rs. 25 on application Rs. 25 on allotment	Issue of 34,937 ordinary shares of Rs. 100 each and 50,000 7½ percent tax free redeemable cumulative preference shares of Rs. 100 each at par. The balance subscription of Rs. 50 for each preference share is payable in such calls as may be determined by the board of directors. The directors do not propose to call the balance of Rs. 50 on ordinary shares at least for a period of two years.
	Preference	Rs. 25 on application Rs. 25 on allotment	
Indian Rayon	Offered to public Ordinary and Preference	Rs. 12.50 on application Rs. 12.50 on allotment	Issue of 52,000 ordinary shares of Rs. 100 each and 48,000 7 percent (tax free) preference shares of Rs. 100 each at par. Balance subscription is payable in six equal instalments.
Metal Box	Rights ordinary	Rs. 10	Issue of 460,000 shares of Rs. 10 each at par, in the ratio of two new shares for every five ordinary shares held.
Kumardhubi Engineering	Rights ordinary	Rs. 3	Issue of 307,200 shares of Rs. 3 each in the ratio of one for two shares held.
Mandya National Paper	Offered to public Ordinary	Rs. 2.50 on application Rs. 2.50 on allotment	Issue of 396,941 ordinary shares of Rs. 10 each and 59,987 7 percent tax free redeemable cumulative preference shares of Rs. 100 each at par. Balance subscriptions of Rs. 50 for redeemable preference shares and Rs. 5 for ordinary shares will be payable in such calls as may be determined by the board of directors.
	Preference	Rs. 25 on application Rs. 25 on allotment	
National Insulated Cable	Rights ordinary	Rs. 10	Issue of 300,000 shares of Rs. 10 each in the ratio of one for every two shares held.
Orissa Cement	do	Rs. 10	Issue of 750,000 shares of Rs. 10 each in the ratio of one for two shares held.
Reliance Firebrick and Pottery	do	Rs. 10	Issue of 420,000 shares of Rs. 10 each in the ratio of seven for every one share held.
Star Paper	Rights preference	Rs. 100	Issue of 40,000 third preference shares of Rs. 100 each and 30,000 convertible third preference shares of Rs. 100 each at par to the holders of existing first preference, second preference and ordinary shares as on 4th May, 1959, in the proportion of four third preference and three convertible third preference shares for every existing ordinary shares and/or first preference and/or second preferenc shares for the total paid-up capital of Rs. 1,000.
Tata Iron and Steel	Rights ordinary	Rs. 75	Issue of 613,953 ordinary shares of Rs. 75 each in the ratio of one for five ordinary shares held.
	Rights preference	Rs. 100	Issue of 371,909 7½% (taxable) "A" Second preference shares of Rs. 100 each in the ratio of one for two first or second preference shares or one preference and one second preference shares held.
Textile Machinery	Rights preference	Rs. 50 on application	Issue of 100,000 6½% (tax-free) cumulative redeemable preference shares of Rs. 100 each in the ratio of one for every 19 ordinary shares and 10 new preference shares for every 19 preference shares held. Balance subscriptions of Rs. 50 a share will be payable by one or more calls as may be made by the directors by giving three calendar months' notice of each call.



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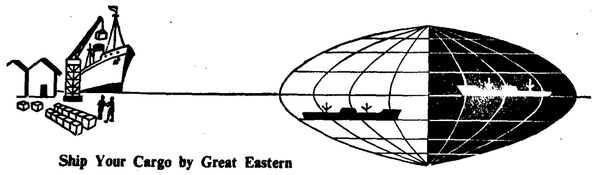

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Role of Joint-stock Enterprise in Industrial Progress

Cut in Taxation Urged

By

V. R. NATARAJAN

INDUSTRIALISATION is a product of joint-stock enterprise, so an examination of the factors which have assisted or hindered its progress in recent years may serve to remove some of the prevailing misconceptions on its true rôle. The impetus which industry has received through the joint-stock form of organisation is so great and yet so insufficiently appreciated in India that an elucidation of its character and function is necessary for the formulation of a correct policy. Joint-stock enterprise stimulates both saving and investment, and thereby quickens the pace of industrial progress. It is a condition of its existence that a joint-stock concern should steadily grow, and it is vital to remember that, in a large measure, it creates its own resources with which to grow. Not only does productive investment tend continually to expand, but the funds which enable such expansion are generated mostly from within. So joint-stock enterprise has a vitality and strength all its own with which it is able to move forward. It is the organic character of its growth which accounts for much of the economic development that has taken place in many parts of the world, including India. The industrial evolution of any country, industry or enterprise, is the result of the self-expanding nature of this process. Its entity as a corporation gives to joint-stock enterprise a permanence of character with the result that, provided it survives an early period of stabilisation, it is capable of moving by its own momentum, and unlike an individual does not wither away from age, but on the contrary gathers strength. In short, it transforms industrial life from an individual to an institutional basis, and thus facilitates economic expansion.

The advanced western countries are now turning more and more towards improving labour productivity. But India is still a long way from attaining full employment which should be the primary objective of economic policy. When one examines how the western countries have solved the problem, one gets the impression that it is as a result of the growth of joint-stock enterprise that people in them have found gainful employment. It is the merit of joint-stock enterprise that it generates the resources with which to grow out of profits. Joint-stock companies create their own savings which, for example, account for nearly half of the net investment in progressive countries. This is well borne out by recent studies of the Reserve Bank of India on company profits, and it is really the secret of success of joint-stock enterprises.

Broad Trends

Recently, certain trends in the structure of joint-stock enterprise have become evident. First, the ownership has become more broad-based—the capital being owned by a large number of shareholders—which is certainly a welcome trend and may be regarded as a step towards evolving a "share-owning democracy." Secondly, the shift from purely personal management to a largely institutional form is also an encouraging feature. Recently, the Government, through the Life Insurance Corporation, has acquired ownership in a portion of the capital of private joint-stock companies. Conversely, the private sector, as recommended by the Estimates Committee of Parliament, may acquire ownership of about 25 percent of the capital stock of State enterprises. If this trend gathers momentum, the line of demarcation between the two sectors will slowly fade away, and a new pattern of joint-stock enterprise is likely to emerge in the future. But will this happen? Will the Government allow any relaxation of its hold on the key industries? Will the private sector be interested in acquiring ownership of concerns in the management of which it will have little say? Above all, what purpose will the joint-stock ownership serve? These are important questions.

Joint-stock enterprise in India is of recent origin, and the idea has been imported from the West. Its technique and its *modus operandi* were not adequately grasped in this country till recently. Up to the turn of the century, the formation of joint-stock companies was limited to a few pioneering individuals, and the persons who joined in them were mostly confined to the promoters and their friends and relations. The idea of tapping the savings of the community on any big scale and pooling the resources for venturesome enterprises had not yet dawned on the country. At the beginning of the century, there were barely 1,360 Indian joint-stock companies and their paid-up capital amounted to Rs. 36.28 crores. Seven years later in 1907, their number increased to 2,661 and their paid-up capital to Rs. 50.81 crores. The "swadeshi movement" was launched about this time, and it gave an impetus to industrial enterprise. By 1914, when the first World War broke out, the number of Indian joint-stock companies had risen to 2,552, with a paid-up capital of Rs. 72.1 crores. The war years, 1914 to 1918, gave a further fillip. Due to stress on war requirements, the basis of the industrial structure broadened. The production of steel began to be undertaken in the country for the first time. When war ended, the number of Indian joint-stock companies had risen to 2,789 and their paid-up capital to Rs. 106.61 crores. Many new enterprises were started by inexperienced promoters during the postwar boom of 1920-21, and they were unable to stand the strains imposed on them in a period of transition from a war-time to a peace-time economy. Also, these new companies were faced with severe competition from foreign interests, and the conduct of their day-to-day affairs became difficult. These new companies had to go to the wall, and this explains the decrease in the paid-up capital by 1930-31. Even established companies had to re-organise their capital structure: this accounted in part for the lower paid-up capital. During the period 1930-31 to 1938-39, the progress of joint-stock enterprise was, on the whole, slow.

Rapid Expansion

The second World War brought an expansion of joint-stock enterprise. The activity in the stock markets led to the flotation of a further series of new issues, with a temporary lull in 1941 and the first half of 1942. The growth of private corporate enterprise during and since the war had some welcome socio-economic effects. The number of enterprises in the less industrial States has rapidly increased. Except for the cotton textile industry of such centres as Nagpur, Sholapur and Coimbatore, a couple of large-scale enterprises like coal and cement in Hyderabad and a number of modern industries, but operating in small units, in Mysore, central and south India, others were considered relatively backward before the war. Although Bombay and West Bengal no doubt continue to hold their pre-eminent position in industrialisation, the industries of the central and south India and of such States of the north as Bihar and Delhi are today more diversified than ever before. Communities, which were customarily unenterprising, successfully took to business. An example is the Brahmin community of the south which has made a significant contribution to the manufacture of motor-cars, heavy chemicals and cement. In engineering, too, Indian enterprise has latterly made considerable headway. The Indian joint-stock enterprise is said to have democratised industrial organisation and shorn it of concentrations of economic power in closed oligarchies. Sometimes when entrepreneurs protest against a proposed impost or curb on industrial activity, they try to make out that they are doing so more on behalf of shareholders than for the sake of themselves. The total number of new registrations in 1955-56 was 1,448 companies, with a total authorised capital of Rs. 157 crores, comprising 186 public companies (Rs. 68 crores) and 1,262 private companies (Rs. 89 crores).

In 1954-55, the total number of new registrations was 1,303, of which 211 and 962 were public and private companies, respectively. Joint-stock enterprise has, no doubt, substantially expanded in recent times. During 1956-57, 848 new companies were incorporated and registered under the new Companies Act, 1956. Their authorised capital amounted to about Rs. 211 crores, while Rs. 13 crores was actually raised during the year as paid-up capital. There was a fall in the number of companies registered in 1956-57, compared with those registered in 1954-55 and 1955-56, although their aggregate authorised capital exceeded the corresponding figures for 1955-56. The fall in the number of companies registered in 1956-57 is attributable to several causes. Exaggerated apprehensions about the provisions of the new Companies Act might have led to a rush of registrations during the last quarter of 1955-56—just before the enforcement of the new Companies Act. This naturally affected the number of subsequent registrations. Company promoters and others interested in corporate activities, might have also wanted fully to understand the ramifications and implications of the new company law before forming companies under the present Act.

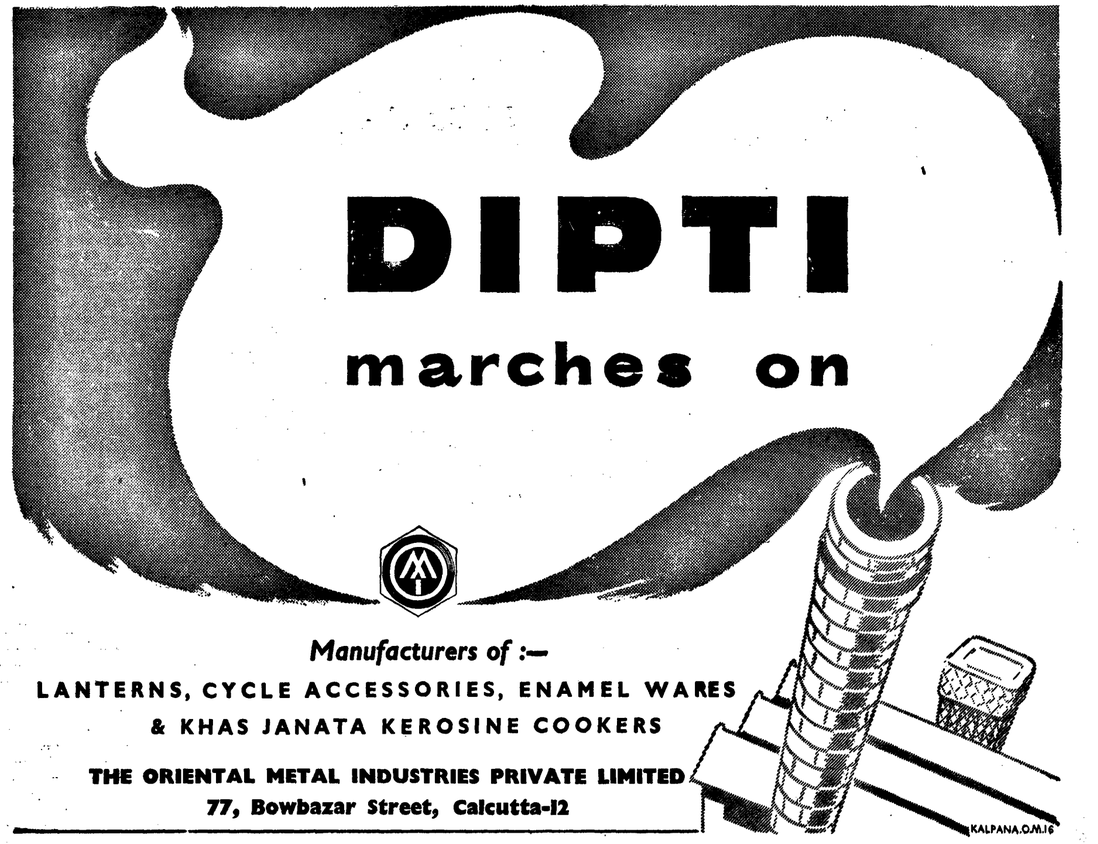
New Registrations

Some interesting trends in business activity may be seen from the fact that during the three years ended March 1959, 2,904 companies were registered with the authorised capital of Rs. 598 crores, and out of these, 207 companies with a capital of Rs. 166 crores were incorporated as public companies, while 2,697 companies with the total authorised capital of Rs. 432 crores were formed as private companies, thereby showing that the Companies Act has strengthened the preference for private companies. Out of the total new registrations, 1,024 were in West Bengal, 601 in Bombay, 284 in Madras and 359 in Delhi. These new company formations give an indication of a welcome shift in business activity from trade and commerce to industrial and manufacturing business along with mining and quarrying. Another interesting feature is the large number of companies that have been formed with capital not exceeding Rs. 5 lakhs. This shows that the scope for small undertakings is being more widely appreciated. Out of 2,904 companies, only 36 showed preference for managing agents to run the business, while 2,184 were to be managed by the board of directors.

Finance constitutes the base on which the super-structure of modern joint-stock enterprise is erected. The efficiency and profitability are chiefly determined by the adequacy of capital for short, medium and long-term needs. The financing of companies is an intricate and highly complex process. During the years after the war, the question of financing the Indian enterprises became a formidable and insistent problem. Indian entrepreneurs felt, rightly or wrongly, that the existing financial facilities were either inadequate or unsatisfactory, and realised that "a solution of this could not be found on the mere truism that long-period finance cannot be given from short-period deposits". They felt that banks in India worked very conservatively from the point of view of industrial borrowing, and that these institutions could not fully discharge their responsibility to industry. As is well known, industry requires two types of capital: (a) fixed or long-term capital for the purchase of block assets, such as land, machinery and buildings; and (b) working or short-term capital for financing stocks of raw materials, stores and finished products and for meeting day-to-day requirements.

Lending Capacity of Banks

In the past, some industrial enterprises, especially the Ahmedabad cotton mills, used to raise long-term capital by accepting fixed deposits, but this method is fast disappearing. In highly industrial countries, working capital for industry is mostly supplied by banks. But Indian banks have their own difficulties. They have to maintain maximum liquidity to meet the demands of their depositors. In other words, the lending capacity of a bank is limited both by law and by financial considerations. The Reserve Bank of India must do something to improve the position of non-scheduled banks in order to enable them to render assistance to the small and medium-scale enterprises. They should be persuaded to amalgamate. The consolidation of their resources will improve



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their earning capacity by reducing their operational cost and risk. Besides, this will effectively fulfil the requirements of small and medium-sized enterprises for working capital. Recently, the Reserve Bank of India became fully conscious of its obligations to the private sector. It has intensified its efforts in enhancing the efficiency of the Indian money and capital markets. In August 1954, in accordance with the recommendation of the Shroff Committee, the Reserve Bank announced its decision to treat the shares and bonds of the Industrial Finance Corporation of India and of State Finance Corporations on par with Government securities for the purpose of granting advances to scheduled banks under Section 17 (4) (a) of the Reserve Bank of India Act. This is a step in the right direction, since it would remove the reluctance of commercial banks to purchase the securities of the finance corporations. At the same time, the funds at the disposal of these specialised institutions will increase and be made available to the industrial sector.

Another step of the Reserve Bank in the provision of long-term finances to India's business enterprises was the appointment of a committee in July 1954 to consider the Shroff Committee's suggestion for the formation of a consortium or syndicate of banks and insurance companies for financing new enterprises. The Reserve Bank played an important rôle in 1957 for setting up a Refinance Corporation. As the central bank of the country, the Bank is responsible for bringing into existence a credit mechanism to meet the needs of an expanding economy. It should act as a friend, philosopher and guide for the various financial institutions so that they may not only have more liquid resources but may also direct them into desired channels. No less significant is the opening of the Industrial Finance Department of the Reserve Bank. In the past few years, a notable change in banking activity has been the shift from the financing of trade to the financing of production. In enlarging its usefulness, the Bank has shown imagination, enterprise and lively response to the changed needs of the times. The various industrial finance corporations, such as the Industrial Finance Corporation, State Finance Corporations, the National Industrial Development Corporations, Industrial Credit and Investment Corporation, the Refinance Corporation and the Life Insurance Corporation, as well as international institutions such as the World Bank and the International Finance Corporation, have done much to provide resources for development purposes to established and new industrial undertakings. This is a good augury for the future. Moreover, the Central Government itself has assisted individual enterprises by giving large capital and the best example is that of the shipping industry to which the Government granted loans at low rates of interest amounting to about Rs. 25 crores.

Capital Requirements

Recent statistics show that the capital market in India has grown rapidly in recent years. Last year, the market was able to supply Rs. 100 crores of new industrial capital. This, of course, does not mean that one can get capital for any kind of project. Capital requirements have enormously increased because of the high cost of plant and machinery: the smallest sugar or cement plant costs Rs. 1 crore and a paper factory several crores. What is vital, however, is to realise that the success of joint-stock enterprise is due, in large measure, to its ability to create savings for its own expansion. Apart from outside capital from individual and institutional savers, industry generates internal savings in the form of allocations to reserves and depreciation out of trading profits which meet a very large part of its needs. If one considers the growth of any leading enterprise in foreign countries, such as Imperial Chemicals or General Motors, one can see that the ploughing back of profits is primarily responsible for its steady expansion. In short, the efficiency of a particular enterprise is measured in terms of profits earned. Furthermore, the earnings are required to be accounted for accurately and completely to form the basis of the dividend policy. The ploughing back of profits acts as a cushion to absorb the shocks of business vicissitudes, and it creates greater resistance power for the enterprise to face depressions. A large amount of accumulated profits facilitates a stable dividend policy and enhances a company's credit standing. An assured credit position also assists in procuring limited funds for working capital and a stable dividend policy helps in enlisting the shareholders' support in the future. The deficiencies of depreciation, depletion and obsolescence can be made up by using the retained income.

India has ambitious projects in the public and private sectors. They are likely to remain unfulfilled unless adequate resources are made available. Corporate savings are an important source for financing the various expansion schemes. But Government regulation is necessary for the creation and utilisation of conserved profits of corporations. The newly-created Department of Company Law Administration can be entrusted with this task. From the published results of the private limited companies, it will be clear that internal capital formation in the industrial corporate sector has been considerably affected by the burden of taxation and that even to finance normal expansion, bank finance has been resorted to on a larger scale. So any further increase in company taxation is undesirable on two counts. First, with a view to fostering industrial growth in the corporate sector, it is necessary to give incentives, and that means that the rates of taxation should not be raised. Secondly, if foreign private capital is to be attracted to this country, an increase in corporate taxes cannot be entertained. Joint-stock companies have been feeling the heavy incidence of direct and indirect taxes since 1956, and it has not been possible to plough back profits on the same scale as before because of the need to pay higher interest charges and distribute dividends on capital which has been continually increasing. The third five year plan envisages an active private sector and the ceiling on profits may have a disastrous effect on the share market and act as a disincentive for future investment in joint-stock enterprises.

Significant Contribution

The joint-stock form of organisation is making a significant contribution to this country's rapid industrialisation. Both in the number of companies at work and the total paid-up capital, substantial increases have taken place during the last decade. The marked shift which is now taking place in the economy towards the manufacture of capital goods, against the production of consumer goods in the past, must necessarily have a far-reaching effect on the future progress of joint-stock enterprises. The progress recorded by the major enterprises in the past few years is gratifying. Apart from an improvement in the stature of established units, a large number of enterprises have been promoted. The future of the private sector depends much on its own behaviour. Its primary concern must be the interest of the people who, by investing their money, bring an enterprise into existence. So business men should ensure that the products they send out of their factories conform to the highest standard of quality and are sold at a fair price. Finally, enterprises have an obligation to the community in which they are physically located. Apart from the general code of ethics for business management, joint-stock companies must make a careful note of the fact that their basic characteristics have made it incumbent on them to keep themselves above suspicion. This can be done by giving honest and full information relating to the affairs of companies in an intelligible form. Companies should also realise that the complex provisions of the Companies Act have been necessitated mainly by their limited liability. Joint-stock enterprises will get public support once consumers are convinced that their products are of high quality and fairly priced.

The joint-stock enterprise in India in the years to come can be expected to draw a great deal of encouragement and assistance from U.S. capital and enterprise. In view of the tremendous American lead in the field of technology and science, this must benefit Indian enterprises considerably. In a modern joint-stock enterprise, the stake of the common investor has been steadily increasing. This is true in India as it is in other advanced countries. Considerable progress has taken place in this direction in recent years and it can be stated with confidence that the small investor in this country is beginning to appreciate the desirability and productiveness of making investment in Indian industry. This process must grow in time, and there would appear to be great scope for educating the general public in making investments in joint-stock companies in which the Stock Exchanges can play a useful rôle. One has only to consider the progress of joint-stock enterprises in the U.S.A. and the U.K. during the last 50 years to appreciate what great progress may be possible in mobilising the savings of the small man for developing industry. Similar developments in India can be expected in the future and this is likely to influence the future investment pattern considerably. The divorce between management and ownership of joint-stock companies, which is progressively increasing in other countries, is also beginning to be felt in India, and there is no doubt that this trend will gather momentum. The basis of joint-stock enterprise has to be institutional and be made independent of personalities because then only can it have a firm foundation and prospect of a steady growth. The public character of joint-stock enterprise requires to be emphasised, because without it sustained progress will not be possible and the small investor will not be encouraged to invest his savings in joint-stock companies. In the early stages of a country's economic advance, joint-stock enterprises may grow on a personal basis but in course of time they will come to be recognised in their own right. The expansion of joint-stock enterprise should proceed along these lines if it is to grow and play an effective rôle in the industrialisation of the country.

Managing Agency System

One's approach to the managing agency system requires to be revised in the light of present-day requirements. The future of joint-stock enterprise is bright in so far as business enterprises and managers are always able to look forward boldly and are alive to modern production techniques. There is no future for those who are not forward-looking. Due to cases of failure of joint-stock companies in the past and instances of dishonest and incompetent management, joint-stock enterprise has suffered considerably in public esteem and it is vital that this impression be removed. More stringent regulations on company administration and the prevalence of organised public opinion against mismanagement are having a healthy effect of restraining the growth of mushroom companies. The last point that should be made in dealing with the future of joint-stock enterprise is to refer to the pattern of mixed economy which is developing in India in several important industries, such as steel, locomotive, and machine-tool. Some enterprises are owned and managed privately and some by the State. This has come to stay and there will be more of it because industry in the public sector is developing rapidly. But the private sector should not fear competition from the public sector, and it should face such competition boldly. With proper encouragement and understanding on the part of the Government of the various problems affecting industry, there is no project which Indian enterprise is incapable of starting. If the experience of the last decade is any guide, it can safely be predicted that the large sums which will be available in future from new and old companies, will result in an addition to the total capacity to such an extent that dependence on foreign imports will be eliminated wholly in some directions, such as steel, cement and paper, and to a large extent in others, such as rayon, chemicals and fertilisers.

Due to the heavy tax burden and the constant fear of nationalisation, new enterprises have not been floated in larger numbers. The position might improve after some time if official policies are helpful. The Shroff Committee referred to several procedural uncertainties and difficulties which arose from the regulatory powers of the Government under the Industries (Development and Regulation) Act, Capital Issues Control, import licences and foreign exchange regulations, the Indian Companies Act, etcetera. So, it will be necessary to solve all these various problems if organised joint-stock enterprises are to play a more important part. It is only to be expected that the next Central Budget will be definitely helpful in this matter.

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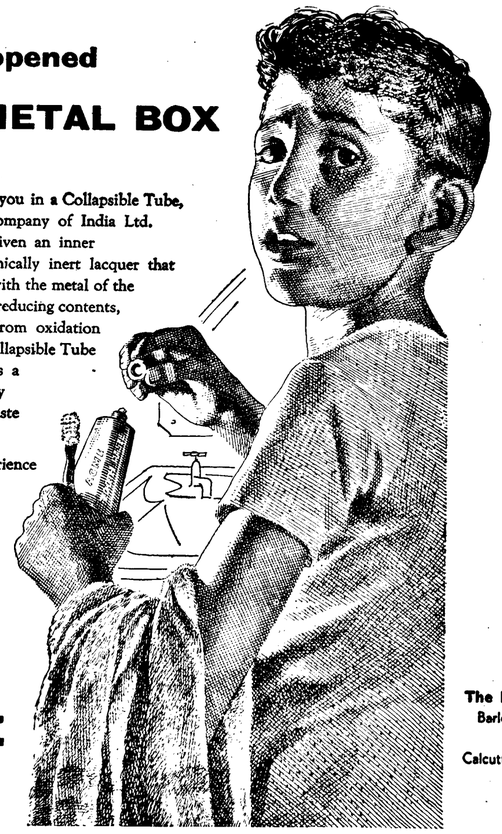

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THE MANAGEMENT SYSTEM ON PLANTATIONS

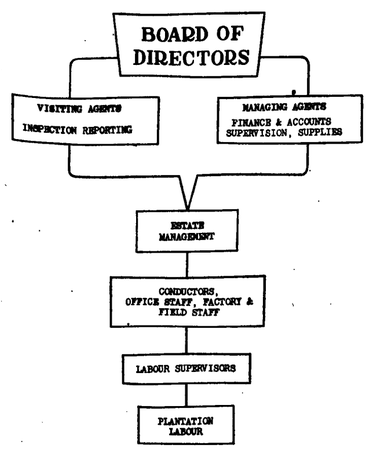
SCOPE FOR INITIATIVE REDUCED BY GOVERNMENT INTERFERENCE

By

V. I. CHACKO

IT is strange that a country which is trying to raise itself by its own bootstraps should happen to be so perversely indifferent to the system of management obtaining in plantations, which is the most successful agricultural sector of its economy. It cannot be said the Government is unaware of the special position that the plantations occupy. During the past five years, the produce of this industry was the largest single earner of foreign exchange, and, therefore, a substantial contributor to development finance. No other industry has been called upon to pay so large a share of its earnings by way of taxes and duties. In the case of a well-managed tea estate, the weight of taxes and duties falls so heavily that it amounts to about Rs. 1,300 an acre. The cost of labour welfare in the plantations has been higher than in any other industry during the past 15 years. There have been no less than ten different centrally directed committees and commissions appointed to enquire into the different aspects of the plantation industry during these 15 years. Apart from the enormous power of scrutiny and control of plantation activities taken under the very large number of statutes enacted during this period, three specific enactments, namely the Tea, Coffee and Rubber Acts provide the Government with the power to call for detailed information and to exercise exacting controls over the industry. Yet, a good deal of ignorance exists concerning the industry. Not only pathetically wrong decisions are at times taken, but the contribution it has made to the country is not understood. Measured in terms of hard cash, the industry's outlay in labour welfare, contributions to the State and Central Exchequers and in the earning of foreign exchange, the record is quite impressive, yet there is a tendency to overlook what constitutes its most valuable contribution—the concept and structure of management it has evolved. It is therefore, strange that the country has not given enough thought to this demonstrably successful system of management.

By the time the Royal Commission on Labour looked upon plantations as a system which applied the principles of industrial management to certain agricultural crops, the industry had already reached an advanced stage of such evolution in India. Two factors of a historical nature prevented the growth of national awareness about this system of agricultural management, which was to become so important to the national economy and foreign trade of many tropical countries. One was the exclusive European pioneering in the development of certain industries which met the demand for certain tropical produce in Western countries at the beginning of the expansionist colonial period in Asia. The Dutch who introduced coffee and pepper in Java, indigo in Ceylon, and the British who introduced rubber in several south-east Asian countries and tea in India, east and south Africa were trying to meet the growing demand for these produce in their own countries.



Plantation Crops

At the beginning, plantation crops were raised like any other agricultural crop, but the distribution of plantation areas away from agriculture in the plains must have induced large-scale monocrop cultivation. The location of the plantations and the concentration on monocrop cultivation must have given rise to the beginning of a system of tested and rational agricultural practices progressively spreading over an increasing number of units. Marketing of the produce inevitably introduced a new element uncommon to Indian agriculture where the tradition of village self-sufficiency went against the growth of large holdings and the need for producer-controlled export did not arise. The supply of goods from and through the ports to the interior where the plantations were situated and the handling of the produce from the estates down to the ports and from there by ships to the distant markets constituted a service which needed reliable and capable agents. That developed into the managing agency system so readily condemned by those who show inadequate appreciation of its contribution to the development of industry and commerce in this country.

Those functions that fell outside the immediate management of the estate like the production and the maintenance of the property, were progressively left to the agents who were engaged by the owners of plantations. Where the owners were not directly managing the properties either because they were outside the country or for any other reason, the most natural thing to do was to entrust the management to the agents. To those agents who realised the opportunities open to enterprising business men in planting, what was more natural than to promote plantation ventures? Original plantation ownership was mostly of a proprietory nature or partnerships within a family or other intimate groups. The need for large-scale capital investments in tea called for wider participation in ownerships and corporate enterprise entered this field on a large scale. Over 94 percent of tea, 36 percent of coffee and about 30 percent of rubber are owned and controlled by corporate enterprise in India. Since shared capital enabled large-scale holdings to be organised, the corporate sector became the initiator of advanced managerial practices. The standards developed by it have influenced plantation management under other categories of ownerships.

Practical Considerations

The divisions within the managerial functions of the planting industry were naturally dictated by practical considerations. While in the case of one group of estates all supplies are purchased through the managing agents and the crops sold through them, another may obtain their supplies and services through contractors and sell their produce directly. But by and large, the most convenient form of management organisation in plantations so divided the functions as to lay the responsibility for actual management of the estate separate from the agency that supplied the goods and services required by the estates and sold its produce. The estate manager, therefore, became one directly concerned with production and all ancillary functions connected therewith on the estate.

The production team within the industry does not differ in any great measure in the nature of its functions or organisation from one estate or crop to another. Taking a tea estate as a basic unit it is possible to see how management is organised within the industry, at least in south India. Above the base of unskilled to semi-skilled labourers are headmen called *maistries*, supervisors or *kanganies*. The subordinate management groups begin with field conductors, whose basic educational standards are equivalent to those entering clerical service in the Government. Their training on the estate is fairly extensive and lasts over several years before they are given responsibilities over a whole field or division. The executive level of management staff begins with the assistant manager. The assistants are given a period of apprenticeship where the current practices in estate management are learnt in the field, in office and in the factory. The manager is the head of the estate organisation and he has absolute authority over the day-to-day administration of the estate. Unless the estate is managed by the proprietor himself, the top management is vested either in the managing agency or in the board of directors or a managing director representing the board. With this, the chain of command is complete. Viewed in this form, the vertical structure

Labour Community

The isolated nature of plantations gave rise to the establishment on each estate of a self-contained community required for the operation of the estate. From the manager down to the workers, all are domiciled on the estate and the social and other services required by such a community are, according to a long custom, organised by the management. Long before industrial welfare became the object of prolific legislation, plantations were providing free housing, medical aid, primary education for workers' children, sanitation and health measures, facilities for gardens and cattle grazing, and the organisation of essential supplies.

The structure of management in plantations consists of a complex framework far greater than the production organisation on the estate. On the one hand, there was need to organise the supply of goods and services required for production, and on the other, to dispose of what is produced. The system that was evolved for the purpose of meeting these requirements which were outside the estate manager's area of direct responsibility, shows an advance in the development of management organisation which places plantations above the entire sector of Indian agriculture and several manufacturing industries.

Apart from supplies and services normally required by estates and supplied through agents or bought directly, the planters have a long tradition of organising certain vital services and supplies jointly through their industry-wide associations. In the early days, the most scarce supply was labour and this was obtained by organising an elaborate recruiting, processing and transhipping agency. War or famine, distance or disease required the organisation of other supplies from time to time and the associations were the industrial machinery pressed into service for such joint operations. For instance, the Association of Planters of Travancore took over the procurement, storage and distribution of foodstuffs for labour on plantations in the whole State during and after the war as long as acute shortages lasted. During the 'thirties, the war on malaria was conducted as a joint undertaking by the industry. So was medical organisation in many districts. One of the outstanding achievements of the planting industry has been its collective effort to set up research organisation whether it is in tea, coffee or rubber.

Co-operative Efforts

Co-operative efforts of the industry in the matter of marketing its produce is about as old as the organisation of supplies. The need for market promotion was recognised in the 'eighties of the last century and a voluntary effort to raise enough funds to finance the campaign was made during that period. The move for a statutory organisation to collect the necessary funds and to conduct promotional work were an extension of the original

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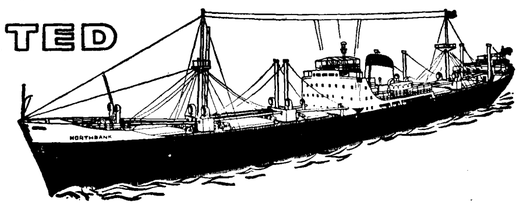

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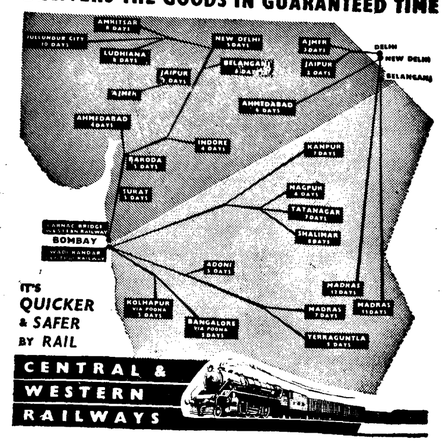

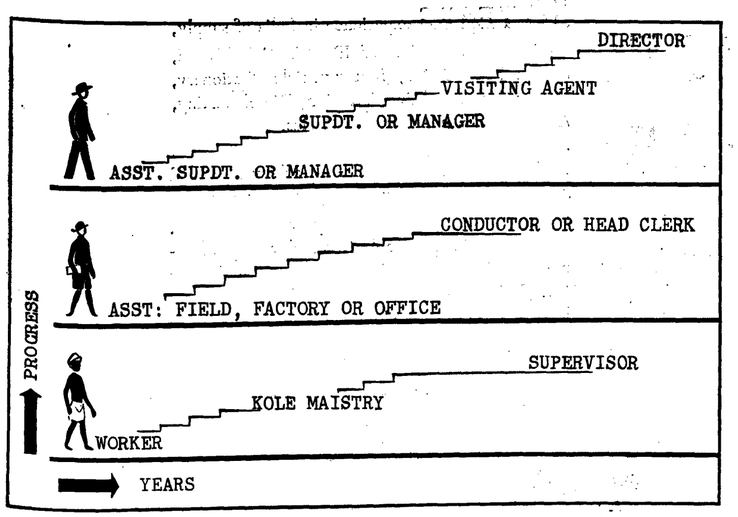

idea of jointly organising a service outside the field of production management on the estate. A further extension of collective management operation was in the sphere of crop regulation. This willingness to agree to such a common discipline as regulation of production and export and to implement it required a standard of managerial sophistication not met with in Indian agriculture. The fact that the statutory boards have taken over several of the functions detailed above and voluntarily originated by the industry itself does not alter the essential nature of the lateral growth of management structure in the plantation industry.

The extension of Government control over statutory boards and, in consequence, over certain vital areas of the managerial complex as developed in the plantations has provided not only increasing scope for confusion but also conflict. Plantation managements are now left with very little scope for initiative or free action even within the narrow limits of production responsibility.

The limitations under which managements perform in the planting industry are probably common in other industries, but not in the rest of agriculture. The manager, as the leader of the production complex on an estate, is no longer free only to pursue the primary objective of economic performance. The scope of management authority now left on an estate is considerably less than what was normally exercised by an estate manager 20 or 30 years ago. Apart from the fact that the burden of organising supplies required to maintain production and of disposing of what is produced, there are innumerable limitations checking the free exercise of management authority. Labour is no longer a simple item on the checkroll. It is articulate, clamant, organised and demanding with more political pressure at its command than managements can claim.

Management Initiative

The Government, whether ignorant or suspicious, of private enterprise and its management practices, and conditioned by the philosophy of controlling all economic activities, has by a plethora of laws and the liberal extension of administrative authority narrowed the area of management initiative. Plantation management is, under the circumstances, left with the choice of either carrying on within the limits set by the various factors described above or re-orientating its basic philosophy and operating methods to accord with the changed situation. While taking into account the impact of internal and external factors on management, the change must ensure the more competent fulfilment of management's primary responsibility to the industry and to society at large. It cannot do so if it loses all initiative.

In plantations, the lateral growth of the management structure has relieved the estate manager of several responsibilities outside production. Nevertheless, he is still saddled with many aspects of welfare administration and industrial relations that are in various degrees removed from his basic function. Whether management organisation and training should extend beyond what could be obtained by a few years of apprenticeship on an estate is likely to receive more attention than in the past. There are many who feel that the training is not sufficiently deep or wide-fronted or adequate for the purpose of providing a firm grasp of the essentials required to fit management thinking and action both as individuals and as a group to plantations' external world. During the past 50 years, agricultural knowledge and techniques have been vastly improved by experiments and scientific research. But there has been very little of plantation management research or a broadening concept of management organisation, the very basis on which the plantation industry lifted itself out of the primitive production organisation and farm management levels of India's agricultural enterprise.

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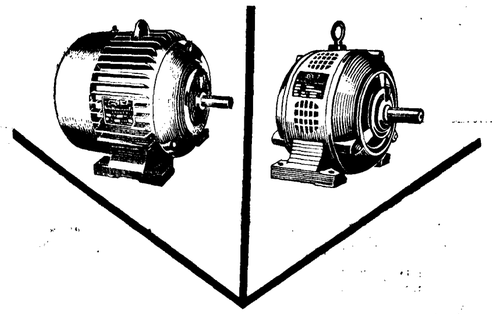

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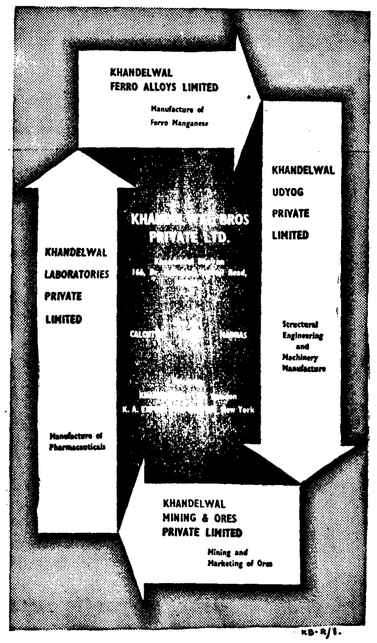

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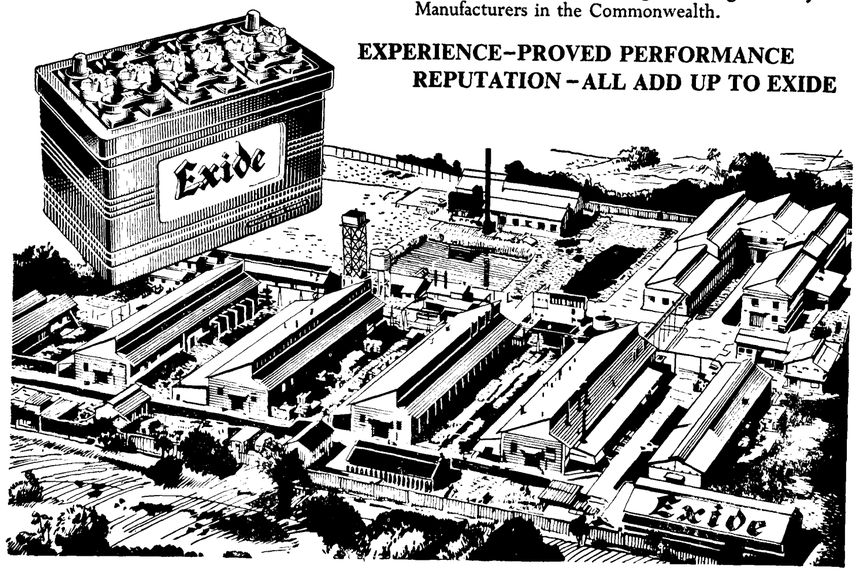

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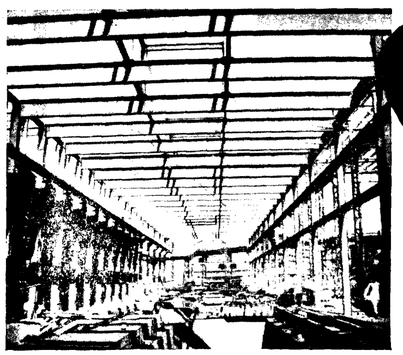

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Vigorous Measures Urged to Expand Indian Shipping

Diversion of Cargo: Better Port Facilities

By

VASANT J. SHETH

"IT is a mad dog that bites the hand which feeds it"; but one hopes the shipping industry will not be considered mad if it criticises the Government. The main point of criticism is that, whereas the Government aids the industry, it does not help to create propitious circumstances for its healthy growth. The Government helps in many ways: it gives generous loans and high development rebates, and has realised the need to include shipping in the hard core of the plan. But one cannot build a house with a design only; one has to have bricks, mortar and workmen. Similarly, the Government should help to create the institutions and attitudes which are favourable to its overall objectives, one of which is to develop the shipping industry. This lack of co-ordination between what might be called overall planning and operational (day-to-day) planning can be illustrated.

Diversion of Cargo

It is the stated objective of the Government to save foreign exchange by using Indian flag shipping space. Mr. T. T. Krishnamachari, when he was Finance Minister, said that "the Ministries of the Government of India should invariably inform the Transport Department of their contracts and their requirements of shipping space and every endeavour should be made to utilise Indian shipping. As far as possible, the Ministries of the Government of India should endeavour to make import contracts on an f.o.b. basis and export contracts on a c.i.f. basis". The Government has failed to carry out this objective. There have been repeated [illegible]mples of the Government giving contracts to [illegible]ign shipowners when Indian ships were idle. [illegible]r-worked Ministries have not been able to pay [illegible] attention to the interests of Indian shipping [illegible]en they have made contracts, with the result, [illegible] instance, that Indian shipping companies have been given only Rs. 25 lakhs (less than 1 percent) out of Rs. 31 crores, which is the total freight bill paid by the Indian Government during the last three years for importing food. If there had been a proper co-ordinating body to look after the carriage of Government cargoes, not only would there have been a net saving in foreign exchange, but the total freight bill would probably have been smaller. An expert body of shipowners and Government officers would have the knowledge and the ability to negotiate lower freight rates, besides being able to make the maximum use of the strong monopolistic position that they would be in. There is already a Shipping Co-ordination Committee set up with precisely these aims. However, at the moment it is ignored and left on the side-lines by the Ministries. If only the Ministries could be made to pay greater attention to this Committee, the country would benefit considerably. The fact that India's total annual freight bill has been estimated at between Rs. 150 crores and Rs. 200 crores indicates the magnitude of the potential.

A second illustration is the stated desire of the Government to help tramp steamers. As the Study Group of the Consultative Committee of Shipowners said in its report: "Tramp tonnage plays an important part in the carriage of bulk commodities .... These tramp ships should be utilised for the carriage of bulk cargoes to and from India." The demand for bulk cargoes will grow, as India has not solved her food problem. The continuous crises show that India will have to import food for a few years to come. The Government is, therefore, wise to aid tramp shipping. However, it fails to recognise the essential difference between tramps and liners. The crux of the matter is that tramp shipping, by its very nature, needs immediate action and quick decisions. Normally, one does not have more than 24 hours to fix business, but Government formalities are so cumbersome that the tramp operator has either to deviate from the regulations laid down or lose his business. Secondly, it is important for the tramp shipowner to have the maximum freedom in his operations between the coastal fleet and the overseas fleet. He must be allowed to place a chartered ship on the coast and one of his owned vessels overseas when it is necessary, as long as it does not involve the country in any net loss of foreign exchange or freight.

Third Plan Target

These are the very real difficulties which confront the shipping industry at the moment. Their elimination is essential for any progress in the future. The target for the third five year plan is to increase the national merchant fleet from 800,000 G.R.T. to 1.6 million G.R.T. at an approximate cost of Rs. 150 crores. If the economy remains static—a most unrealistic assumption—this will help India cover 100 percent of her coastal trade, 50 percent of her trade with adjacent countries and 28 percent of her overseas trade. But the proper ambition of any country should be to cover at least 100 percent of the coastal trade, 75 percent of the trade with adjacent countries, and 50 percent of the overseas trade. However, if the various trades grow, as they should in a dynamic economy, India will not be able to cover even the targets suggested. Thus, the plan is not over-ambitious; it is necessary now to see what State policies can achieve the target.

The primary need of Indian shipping is for more entrepreneurs, who will help the present shipowners to take up the burden of this rapidly expanding industry. The entrepreneurs cannot be attracted unless there is some measure of security. One of the hazards is that international competition is extremely fierce and in these depressed times totally unbearable for a new company. Over 10 percent of world shipping is lying idle, waiting for international trade to pick up. It is doubtful if all the laid-up tonnage will be scrapped in the near future, as foreign shipowners with large reserves and resources have tremendous stamina to "wait for better days." If the intention is to attract new entrepreneurs in this very hazardous industry, they have to be given incentives and scope for employment in the coastal trade, which has been rightly called a "nursery" for development of Indian shipping. An enlarged coastal trade holding out scope for employment and an assured return on the capital invested, is the easiest way to attract new entrepreneurs. Once the new entrepreneurs are in the field, they are bound to venture out in the more hazardous overseas trades in course of time and add tonnage to the mercantile marine.

Salt and Coal

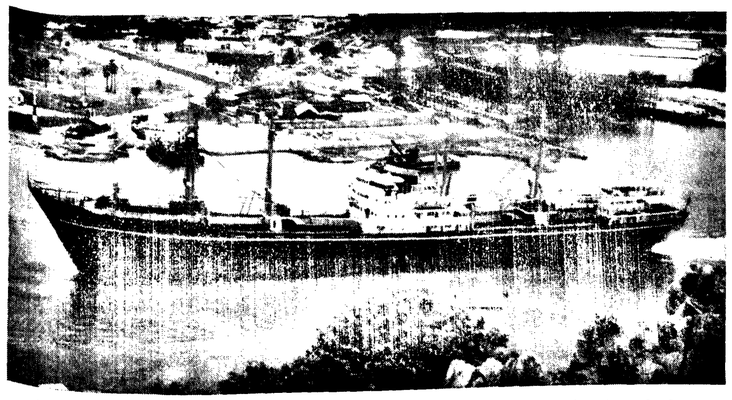
Most of the bulk cargo on the Indian coast consists of salt and coal. At the moment, there is direct competition between the railways and the shipping industry for the carriage of this cargo. It is, however, a fact that, on the coast, shipping could carry the cargo *much cheaper than the railways*. However, the railways at the moment carry nearly 95 percent of the cargo. They manage to do this by subsidising the expensive carriage of coal through the profits earned in carrying other commodities. The Government should force the railways to allow the shipping industry to carry 1.6 million tons more coal than it is doing at present, as recommended by the Rail-Sea Co-ordination Committee. This would raise the total carriage of coal by shipping to approximately 2 million tons, which is the maximum that the ports can handle. The difference it would make to the railways is a mere 3 percent to 4 percent of their total carriage of coal, while it would mean 60 percent more coal cargo for the shipping industry. Thus, it would give an enormous fillip to the shipping industry and permit the railways to use their wagon capacity for more profitable commodities.

One of the reasons why the railways have been able to compete so successfully with the shipping industry is that they have been able to offer better facilities by way of discharging, handling, lack of Customs interference, etcetera. There are two things the Government can do to help the shipping industry in this matter. Firstly, it can improve the present arrangements at many of India's ports. The U.K. Transport Commission of 1931 said in its final report: "Without shipping, the port is useless; without the port, shipping is helpless; their fortunes are inextricably bound together, each gains at the same time and in the same manner during years of trade prosperity, and each suffers similarly during the lean years of trade depression." Secondly, shipowners can lower their transport charges very considerably if handling is made easier. If too much time is spent in port by a ship, it becomes a "quayside storage depôt" instead of a means of transport. If the Government could be convinced of the importance of detailed operational planning, many benefits would come to the shipping industry.

Allocating Foreign Exchange

Finally, a more rational policy is necessary for the allocation of foreign exchange to the shipping industry. The present policy is to grant 20 percent of the purchase price of the vessel, the remainder to be given on a deferred payment basis. This arrangement is highly unsatisfactory as the shipowner loses much of his bargaining power if he has to seek credit from the seller. The loss is a serious one in an industry like shipping which has a very high initial investment in a single unit.

"But," the judicious reader might argue, "surely this is true of many industries; why should shipping be given a preference?" There is a crucial difference, however. A ship will start earning foreign exchange as soon as it is bought. Within five to seven years, a new ship can repay the entire foreign exchange invested in her. A second-hand ship can earn back its foreign exchange outlay in two to five years. It would surely be worth while for the Government to borrow exchange in order to lend to shipowners. If the Government follows rational and logical policies, if it makes more vigorous efforts to achieve its objectives, if the shipping industry is given the freedom essential for its proper growth, then India will be among the leading maritime nations, as she was in olden times.



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UNCERTAINTIES AHEAD FOR THE JUTE INDUSTRY

A GOOD YEAR BUT FUTURE PROSPECTS NOT BRIGHT

By
A SPECIAL CORRESPONDENT

IT has been a fairly satisfactory year for the Calcutta jute goods industry. Thanks to the last season's bumper raw jute crop, the price of the raw material has been consistently reasonable; demand for manufactures has improved with the recovery in world economic activity; the stocks position has been completely transformed from the unsatisfactory state in which it entered the new year; the spinning modernisation programme is now about 60 percent complete and has already shown results for many of the mills; labour has been comparatively quiet; and, most important of all for the health of the industry, most of the mills have been able to show fair profits for the first time for a number of years. The result of this remarkable coincidence of favourable factors is that the industry is better able than it has been for a long time to play its important rôle in the country's economy, and especially that of India's second largest foreign exchange earner, and the largest earner of dollars. The contribution which will be made this year to the country's overseas earnings and to the Government of India's taxation targets, should be easily the best for some time.

If it were possible to predict that this commendable state of affairs will persist throughout the coming 12 months, the jute industry would have cause for considerable satisfaction. But just as a coincidence of favourable factors transformed the fortunes of the industry last year, so a similar coincidence of unfavourable ones threatens to [redacted] the industry's fortunes for the coming [redacted] this time for the worse. The prices of raw jute are now rising and in some quarters a shortage is predicted for the coming season; foreign competition, especially from Pakistani sacking, is growing; another demand from labour for higher wages is on its way; and the period of profitable working, which most mills have enjoyed, now looks as if it may be short-lived. A few minutes' reflection on these potential difficulties is enough to remind the Government, the industry and the general public how small a proportion of the factors which affect the fate of the mills are actually under their control. While jute goods remain essentially an export industry, it is important that its problems be regarded with sympathy and that nothing be done to add unnecessarily to its burdens. At all times it must be remembered that the present period of satisfactory working is the only thing which has saved many mills from complete bankruptcy after the trading losses of recent years, and that the modest profits made this year have not yet offset the years of poor and indifferent trading nor by any means paid for the considerable investment that has been made in the mills' modernisation programmes.

Raw Material Prices

The change threatened in the raw material position is particularly disappointing for the industry. Last year, for the first time, India attained self-sufficiency in raw jute production. The achievement caught the country by surprise and the subsequent disorganisation of the raw jute market resulted in disappointingly low prices to cultivators in some areas. The industry acknowledged its interest in maintaining a satisfactory return to cultivators and in February, the mills were advised by the Indian Jute Mills Association to buy up to four months' requirements of raw jute so as to support prices. Many mills went even further than the I.J.M.A.'s recommendations and were encouraged to do so by a promise from the Government to finance a fifth month's requirements. This assistance was not required because most mills were able to meet their own needs for finance, at least up to the point where storage space itself became a serious problem. Most mills had lived on a hand-to-mouth basis with their jute supply for the previous two years and storage space, in many cases, had been given over to other things. The result was that sheer physical capacity prevented many of the mills from laying in all the raw jute they would have liked. But the industry's efforts had considerable effect on market prices, and together with the Government's own measures, undoubtedly helped prevent them falling disastrously low.

Inadequate Measures

The notable feature of this period was the way in which the long anticipated blessing of self-sufficiency in raw jute turned out to be almost a curse for some marginal classes of jute growers and how inadequate were the measures the Governments concerned had in hand to meet it. It is irrational that anybody should suffer from what is, after all, the long-term aim of official policy, or that the jute industry should be called upon except in cases of extreme emergency to help support jute prices—which inevitably means keeping up the price of jute goods to foreign consumers and, therefore, depriving itself of the competitive advantage of lower costs. The solution is, of course, for the Union and State Governments to increase their efforts to improve the yield of raw jute from each acre sown. This campaign is not at the moment being carried on with the vigour required, and complaints have recently been heard that fertilisers are not reaching cultivators at the speed or in the amounts necessary. That is unfortunate. The interests of growers, the industry, the State Governments, and the Union Government itself as a tax gatherer and an insatiable user of foreign exchange, demand that every effort be made to increase the yield of jute an acre, and along with the yield, the quality. That is the only way it will be possible to satisfy the demands of the industry for competitively priced raw material, the needs of the cultivator for an adequate return on effort expended, the requirements of the Government itself for tax revenue and foreign exchange, and the need of the country to devote the maximum area of land to food production.

The industry's minimum price policy, although not primarily intended for supporting raw jute prices, nevertheless had this effect right up to the time it was abandoned last February. Indeed, one of the main reasons the policy lasted so long and enjoyed so much official support, was the fact that without it raw jute prices would undoubtedly have come under serious pressure at a crucial stage in the season. All along, the industry has given ungrudging support to any reasonable measure for maintaining raw jute prices in the knowledge that it is in its own interests to ensure that the cultivator has sufficient incentive to continue planting jute. This year's predicted shortfall from last year's record crop of 6½ million bales is generally thought not to be due to any great extent to low prices last year, although the differential between these prices and the high prices of paddy, may have had something to do with it. The main reason is probably the weather and especially the transport difficulties created by the recent floods. Some sections of the trade are now talking of a total crop of about 5 million bales, of which around 4.3 million bales will be jute. This means a shortfall of 1.5 million bales on last year's figure of 6½ million bales and is covered by last season's carry-over of about 2 million bales, although there may be a shortage of particular grades. Other sections of the trade and industry do not believe the crop will be as low as this, but think instead that the recent shortage of arrivals is due largely to transport difficulties and that the situation will correct itself as soon as all the effects of the recent floods disappear some time in the new year. At this stage in the season, it is difficult to decide which view is the correct one.

Exports of Raw Jute

One measure devised by the Government to help maintain raw jute prices might have proved more effective if adopted earlier in the season. This was to resume the export of raw jute through the State Trading Corporation. As it turned out, this move did little to help the cultivator but merely served to introduce the State Trading Corporation to a field of activity where it is more likely to increase the difficulties of the

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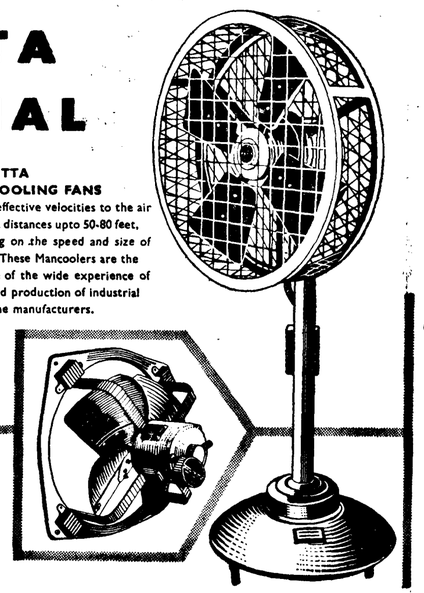

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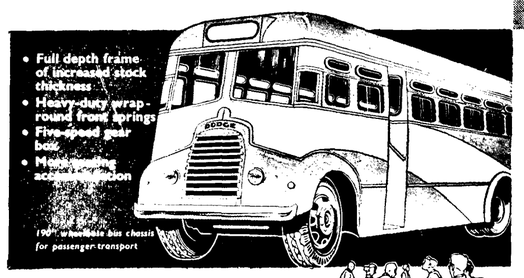

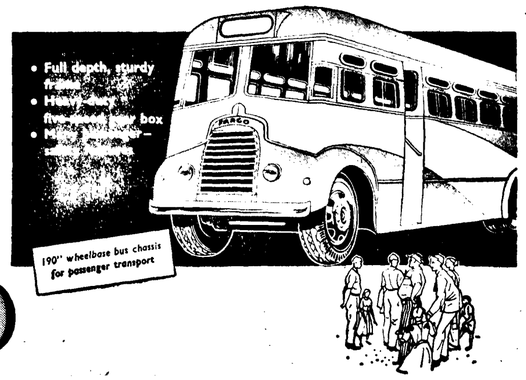

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raw material supply situation than to reduce them. It was at first stated that the Corporation would export only the jute which was not actually required by the Indian industry. But this is not how things have turned out. In order to sell any jute abroad at all, the Corporation has had to export jute of precisely that quality most urgently required by the mills and which, in spite of the achievement of self-sufficiency, is still in shortest supply in India. The consequences are that the industry and the Corporation have both been competing for quality jute in the Indian market. The situation is made all the worse when it is borne in mind that it requires at least two bales of better quality home jute to provide one bale for export. This is because the best half of the middles only is taken leaving the lower halves for local use. Such a completely unsatisfactory state of affairs points to the urgent need for the Government to rationalise its policy towards raw jute production, remembering the two inescapable necessities of adequate low-priced jute for the mills and a satisfactory return to the cultivator, and the fact that the growth of speciality manufacture in the Indian mills calls for an increasing supply of high quality jute.

Pakistani Competition

The importance to the industry of low-cost raw material is shown by the recent incursions of Pakistan into India's traditional sacking markets. The quality and colour of Pakistani heavy goods is certainly better than the Indian, but what makes them more saleable abroad is the fact that the East Bengal mills enjoy a very considerable cost advantage arising from raw material prices alone. This is partly offset by India in the form of other advantages, but even when the various factors have been averaged out, Pakistan still enjoys a substantial cost advantage on the production of heavy goods. This is a serious matter for the Indian industry and it is one which it is unable to deal with unaided. Unless India's costs can be brought down, notably by a more flexible import policy for raw jute, Pakistan will go on invading India's traditional markets as she has been doing in the past few years. The main objection to imports of raw jute—that they absorb much-needed foreign exchange—is scarcely convincing when it is recognised that high costs inevitably mean that the Indian mills are not able to sell as many gunnies and that thereby considerable goodwill is lost to the industry. In fact, a flexible import policy for raw jute, one designed to help the industry at the points where it needs it most—that is, in the supply of best quality jute and cuttings—would in the long run save the country foreign exchange and help keep Indian capacity and Indian labour more fully employed.

The seriousness of Pakistani competition has probably been disguised during the past year by the improvement in world demand for jute goods and the fall in mills' stocks. From a total of 109,700 tons at the beginning of January 1959, these had fallen to 72,500 tons at the end of October. This is an improvement of 37,200 tons and brings stocks down from well over one month's average production to little more than three weeks'. The most spectacular improvement has been in sacking, where the total has declined from 80,200 tons to 32,900 tons over the same period. Hessian stocks have increased, from 15,800 tons to 29,200 tons, although at this level they still represent just about the same number of weeks' production as sacking. The fall in sacking stocks is not due to any significant improvement in world demand for heavy goods. In fact, India's exports of sacking in the year ended July 1959 were only 331,100 tons, compared with 386,600 tons in the previous 12 months. The corresponding figures for hessian were 458,400 tons and 384,300 tons. Thus, although the statistical position of heavy goods has improved considerably, it is not because exports have been higher; the reason, of course, is that production has been lower. Sacking production in the ten months ended October 1959, totalled 410,100 tons, compared with 488,300 tons in the corresponding period of the previous year. Again, the corresponding figures for hessian were 382,600 tons and 331,200 tons. Total production, hessian, sacking and other varieties, was only slightly lower at 869,900 tons, against 878,300 tons. In the past month or two, however, there has been a marked changeover of looms from hessian to sacking production in response to more buoyant prices in the heavy goods markets. At the end of October, the percentage of sacking to total production was 52.3 percent, which represented an increase of nearly 10 percent in six months.

The Working Time Agreement

This achievement of better statistical balance between stocks of various goods, together with the overall improvement in the stocks position, is attributable chiefly to the flexibility the industry has been able to maintain in the output of the two main categories of goods and in total production. The latter is due entirely to the continued use of the Working Time Agreement. There have been three changes in the percentage of sealed looms in the past year. The first was on 2nd March when the 12½ percent sealed loomage with which the industry began the year was increased to 14 percent. The second was on 22nd June when the percentage was reduced to 12½ again and the third on 24th August when a further 2½ percent of looms were unsealed. This brought the sealed percentage down to 10 for the first time since 1956. The Working Time Agreement has continued to serve the industry well and to provide an element of flexibility which is badly needed in any industry serving a rapidly fluctuating export market. It was renewed this month for a further period of five years. The need to maintain a proportion of its capacity idle is not something the industry accepts without considerable reluctance. Idle looms do not earn profits; they do not even contribute towards their own upkeep. Yet it is difficult to see how otherwise the industry can adjust itself to the changes in export demand which could affect market conditions so badly as to ruin many mills altogether in bad years, whereas a temporary reduction of capacity could help them weather the crisis. The industry itself is essentially expansionist in its attitude; that is the way turnover is increased and profits are made. But an industry which still to the extent of 80 percent of its output relies on exports must preserve some flexibility in its production, and up to now no more satisfactory method has been devised than the Working Time Agreement.

One factor favourable to the industry's future stability is the growth of the internal market. In his speech at this year's annual general meeting of the Indian Central Jute Committee, the president, Dr. M. S. Randhawa, commented on the fact that annual internal consumption of gunnies has increased between 1953-54 and 1958-59 from 121,000 tons to 221,000 tons. This is a trend which the industry welcomes as a relief from its present overwhelming dependence on exports. The day when the mills will produce more for the home market than for markets abroad is certainly not within the foreseeable future, but the time may come when proper regulation of the home market will help insulate the industry from some of the more painful fluctuations in markets over which this country has no control at all.

Production Costs

Until that day arrives, the main concern of the mills must be to keep their costs of production to an absolute minimum so as to encourage the world-wide consumption of jute goods and discourage the rise of competition abroad. The growth of indigenous production of jute goods continues in

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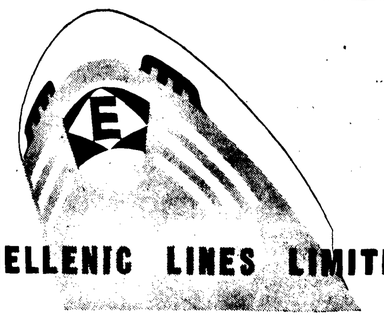

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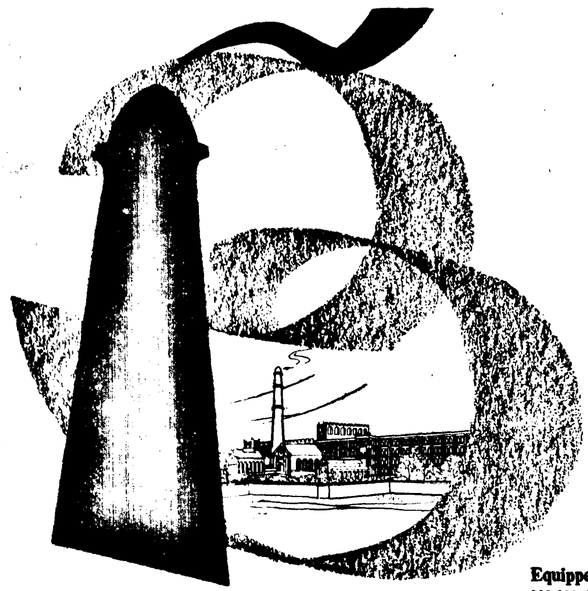

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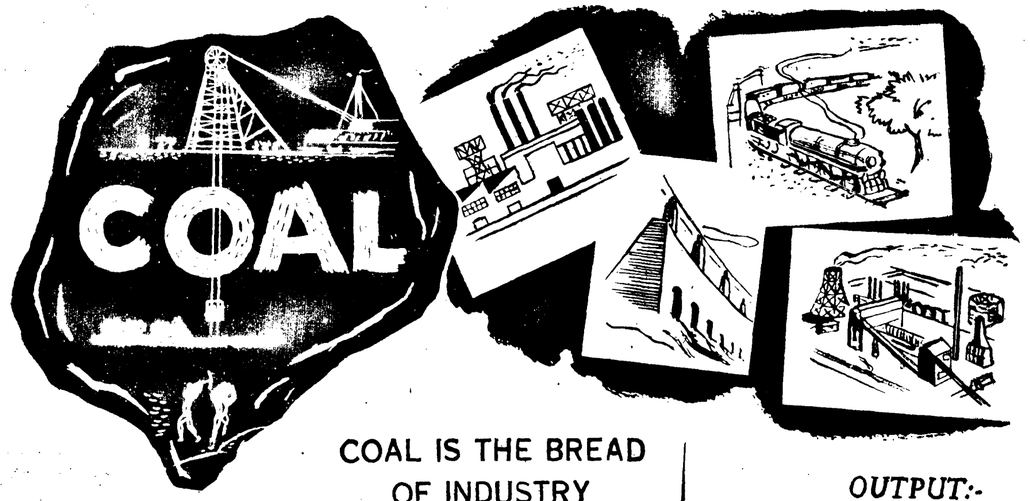

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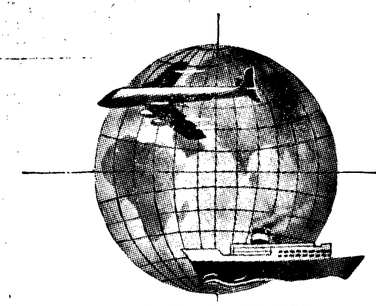

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most of India's traditional markets and is no doubt accelerated by every increase in the Calcutta mills' costs. That is why it is imperative that such cost-absorbing luxuries as strikes, redundant labour, go slow working, and claims for higher wages should be kept down to the bare minimum. The industry is once again facing a claim for higher wages which threatens to add another inflexible increment to its cost structure. Suggestions for a Wage Board are not particularly welcome for the mills because this will inevitably mean their being saddled with another increase which will probably be related only casually to their ability to pay. The industry's case for resisting a rise in wages is weakened in the eyes of many observers by the fact that most mills have recently been earning profits. But it has to be remembered what was stated early, that these profits are in many cases the first for several years, have not yet by any means compensated for the losses which were recently incurred by most mills, and have to be maintained at a level sufficient to meet the charges payable on the industry's modernisation schemes. These schemes have absorbed somewhere in the region of Rs. 16 crores of the industry's own financial resources and a further Rs. 4 crores of the funds of the National Industrial Development Corporation. This is a considerable sum of money for the mills to service, and any deterioration in their profits position now is bound to affect their ability to do so.

Demand Prospects

At present, the demand prospects facing the industry are reasonably favourable. Hessian offtake has been disappointing during the past month or two largely because the U. S. steel strike has reduced demand from that source considerably. But in spite of this, U.S. consumption of burlap up to the end of October was an all-time record. At 737 million yards, it was 41 million yards more than during the corresponding period of the previous year. Other markets, too, have tended to increase their offtake of hessian, but with the inevitable flattening-out of the growth curve of the world economy, it is doubtful if this rate of improvement will be continued into 1960. There may be some slight improvement in American buying now that the steel strike is over, but this is unlikely to be great coming so late in the season, while the increase in the Argentine demand, which was expected earlier in the year, has not materialised and probably will not do so now. The U.K. market has taken more hessian this year and demand there appears to be on the increase in line with the improvement in the economy. The future offtake of hessian, barring such incidents as the U.S. steel strike, depends on the continued improvement of the world economy, and it seems likely that this is now approaching its cyclical peak.

To a much greater extent than hessian, the future of sacking offtake depends on competition from Pakistan as well as on world demand. At present, sacking prices are reasonably favourable, although their strength is probably dependent to an uncomfortable degree on demand from communist China, which might at any time be cut off for political reasons. Current quotations are only just above the minimum prices fixed in March 1958 and abandoned in February this year. These minimum prices helped the industry over a difficult period when the market might otherwise have fallen so low as to render the working of many of the mills even less economic than in fact was the case. They were eventually undermined by the actions of some mill groups in accepting lower prices, but they survived long enough to help the industry through to better times.

New Contract

One other incident of note which has occurred during the past year was the replacement of the I.J.M.A.'s specific delivery contract for the purchase of raw jute by one administered by the East India Jute and Hessian Exchange Ltd, the official body set up by the Government to run the futures markets in jute goods and raw jute. After several postponements, the new contract, which came into effect on 1st June, contained one important point to which the industry objected. This was the provision that deliveries of raw jute could contain up to 4 percent excess moisture before the mills would be entitled to reject it. For about six weeks, the mills refused to accept delivery of jute under the new terms, but were eventually forced to give way, under protest, due to their own need to buy raw jute. The increase in the permissible moisture content from 3 percent to 4 percent may seem a small amount to the layman, but it is significant enough in the industry's efforts to improve the quality of its products. The essential factor in this problem of quality production —which was mentioned at the last annual general meeting of the Indian Jute Mills Association by the then chairman, Mr. J. I. Jamieson—is the quality of the raw material which the industry uses. Unless this is maintained at the highest possible level, it will simply not be possible for the industry to maintain the standards of its products.

TABLE I

1959	Production Hessian (000 tons)	Production Sacking (000 tons)	Stocks Hessian (000 tons)	Stocks Sacking (000 tons)
January	40.0	45.2	16.8	82.7
February	36.9	39.5	15.5	79.9
March	38.1	37.2	17.0	72.6
April	38.1	37.9	19.6	68.2
May	39.7	37.9	21.4	61.4
June	37.8	35.8	23.7	57.4
July	40.5	39.9	26.0	54.1
August	37.6	41.9	24.8	45.7
September	37.5	48.8	25.5	42.7
October	38.4	46.0	29.2	32.9

TABLE II

SHARE OF JUTE GOODS IN THE FOREIGN EXCHANGE EARNINGS OF INDIA

	Dollar Area			Total Exports		
	Jute goods (lakhs of rupees)	Total exports to dollar area	per-cent	Jute goods (lakhs of rupees)	per-cent	Total exports of all commodities
1956	4,559	40.5	11,251	1,10,95	18.5	60,130
1957	4,713	30.4	15,504	1,14,88	18.0	63,776
1958	4,362	38.4	11,417	1,03,81	18.0	57,656

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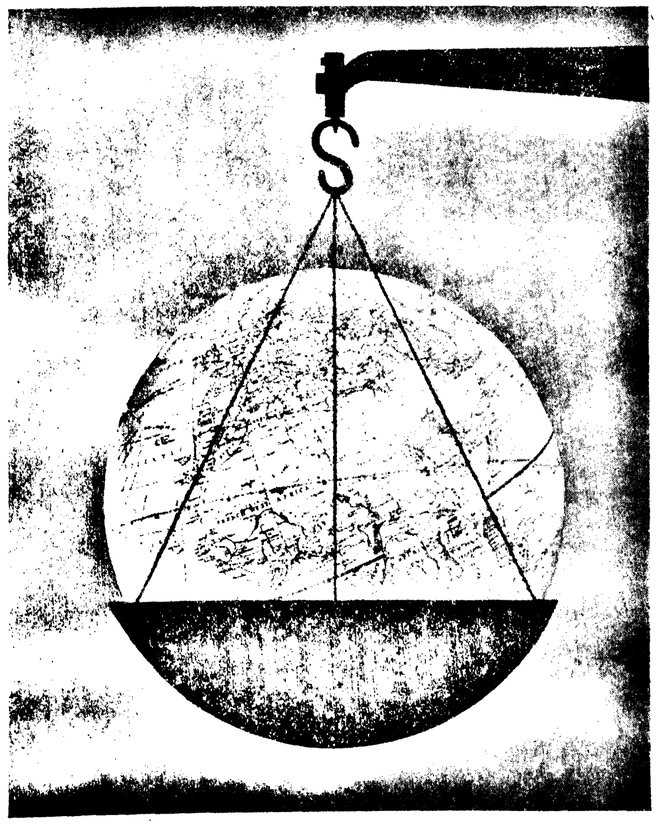

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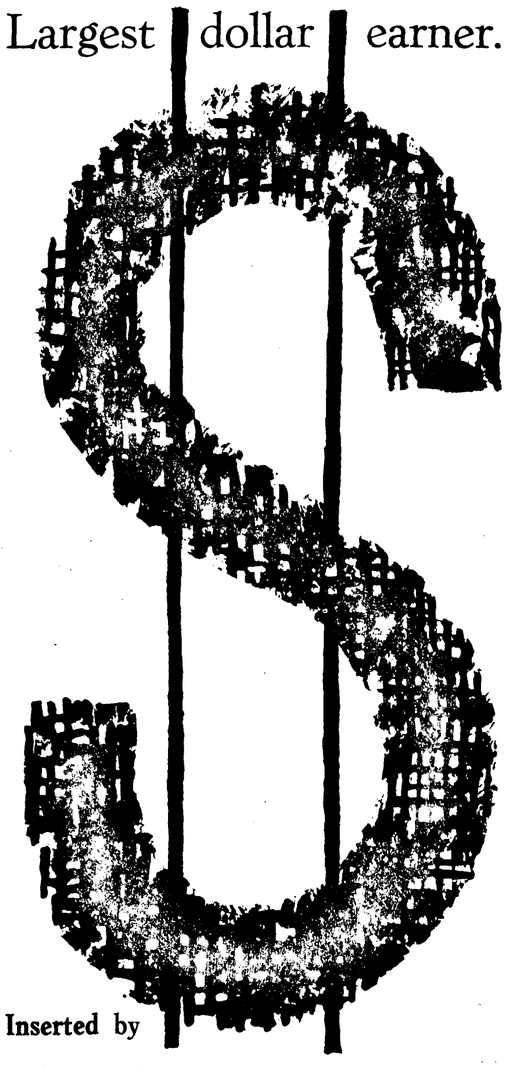

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The Indian Jute Mills Association

RAW JUTE SELF-SUFFICIENCY CREATES NEW PROBLEMS FOR INDIA

BUT CURRENT CROP MIGHT BE SMALLER

MUCH has been said in recent years about India's plans for self-sufficiency in jute, and the year 1959 opened on an anxious note as a result of these plans reaching fruition in 1958. The rapid fall in fibre prices during the last few months of 1958 brought them down to their lowest level for several years. Government circles did not hesitate to show that they were perturbed, and the possibility of official action to allay the crisis was freely discussed. Most people put the blame fairly and squarely on the Government for its short-sighted policy of indiscriminately increasing the jute acreage, thus creating a glut. No concrete proposals for alleviating the conditions were formulated, but it was understood that the question of allowing limited quantities of jute to be exported had been discussed at a high level. This did not meet with the approval of all sections of the trade, as it was argued that much of the excess output consisted of law quality jute, of which India had more than enough. It was most unlikely that overseas buyers would be interested in these qualities. What, then, would India export? Good quality fibre was required by the Indian mills, and was invariably in short supply. If it was exported, the whole aim of self-sufficiency would be defeated, as replacements of this type of fibre would have to be obtained from Pakistan.

Complex Situation

This was the complex situation existing at the turn of the year. Calcutta mills relieved the strain to a certain extent by following the recommendations of the Indian Jute Mills Association, under Government pressure, of accelerating purchases. Substantial purchases were made over several weeks, with the ultimate aim of securing and holding about four months' stocks of jute. Supplies were so large, however, that this hardly raised prices, although it did prevent them from falling lower. It was feared that the slump might affect sowings of the jute crop in 1959, although farmers were not badly hit as the bulk of the crop had already passed from their hands at higher prices. It was estimated that over the previous two years, the growers' average cost of production was Rs. 20 to Rs. 25 a maund. As marketing charges were normally about Rs. 4.50 or Rs. 5 a maund, a selling price of Rs. 22 a maund for Assam Bottoms gave the growers a return well below the estimated average production cost. Although at this stage the time for sowing the next crop was still far away, the fear that the output would be affected was real. So uncertain was the position, and so serious was it considered in influential circles, that frequent discussions were held between the Government and the mills. It also figured on the agenda of the Indian Central Jute Committee, which appeared to be in favour of fixing minimum and maximum prices for raw jute.

A sub-committee was, therefore, formed to evolve a formula for fixing the floor price of jute. The trade in general did not think that this would solve the problem, as the minimum price move had already failed in the case of hessian and sacking. Ultimately, the West Bengal Government announced that the State Government had given its sanction for the export of raw jute. The news had little effect on prices, but it did steady the general undertone. It was indicated that the authorities expected the price of raw jute to increase to about Rs. 30 a maund by March 1959, but most people considered this to be wishful thinking, which it proved to be later in the year.

Increase in Production

When the all-India final estimate of jute production for the 1958-59 season was published, it showed a record outturn of 5,178,000 bales. This represented an increase of nearly 28 percent over the previous season, and was only 320,000 bales short of the production target visualised for the end of the second plan period. The acreage under jute had increased by about 5 percent, the largest rise in production taking place in Bihar and West Bengal. Some places in Assam and Orissa recorded a slight drop in production, due to adverse weather conditions and floods in some places. The publication of the figures provoked more comment about the export of jute. It was understood that the State Trading Corporation would be the purchasing agent, and directed by the Government, it started buying in the Forbesganj and Bihar districts. The purchases seemed to be more in the nature of a price support scheme, as these particular agencies had large surpluses and the varieties taken up were not those required for export.

Slump in Gunnies

The anxiety about low prices was not confined to the fibre markets. Gunnies showed a similar trend, and the East India Jute and Hessian Exchange—the official body under whose auspices futures trading in raw jute and jute goods is conducted—recommended to the Central Government certain measures to stem the fall in goods. The Exchange announced that, in view of the emergency, additional margin deposits would be required from sellers on their outstanding sales, as well as on the outstanding sales made on account of, or on behalf of, their clients at the close of each working day. The deposits were increased from Rs. 1.50 to Rs. 2 a 100 yards for hessian cloth should transactions be conducted below Rs. 39.50

By

A SPECIAL CORRESPONDENT

a 100 yards. Sacking deposits were raised from Rs. 3 to Rs. 5 for sales below Rs. 95 a 100 bags. Margin deposits were originally instituted by the board on 29th September, 1958.

The move was not popular in the trade, and as a protest against the higher deposits, operators refused to enter into negotiations. The East India Jute and Hessian Exchange, however, pointed to the Government that for some time jute goods had been sold in overseas markets at rates lower than the minimum fixed by the I.J.M.A. It was suggested that proper price control should be exercised over such export prices by shippers' associations to ensure that business was not done below the minimum levels. It was also recommended that member mills themselves should exercise stricter control to see that minimum prices were not ignored. The worst hit section of the trade was sacking. Prices here had been below the minimum level for a period of five months continuously, and the inability of mills to sell heavy goods, except specialities, caused considerable concern. It was common knowledge that many mills were prepared to sell below the floor level, as most were long in jute, and even at the reduced rates of sacking they could make a profit on their unsold jute stocks. Hessians were not so badly hit, as their prices had remained slightly above the minimum level in the near positions while the forward section hovered just below.

Sealing of Looms

That the I.J.M.A. was worried about the state of the market was demonstrated by a series of meetings held during the last week of January. Although the deliberations were not made public, it was rumoured that the question of sealing a further 2½ percent of sacking looms was discussed. The idea was prompted by the large accumulation of sacking stocks in mills, which at this stage constituted 73 percent of the industry's total stocks, against a 50 percent production ratio. The decision to seal looms was taken at the end of the first week in February. From 2nd March, 1½ percent of the industry's loomage was sealed, and sanction was given for a further 1 percent to be sealed later should the initial 1½ percent prove inadequate. This brought the number of sealed looms under the I.J.M.A.'s jurisdiction to 14 percent, and was the first move in this direction since 17th September, 1956, when the proportion of sealed looms was increased to 12½ percent.

Withdrawal of Minimum Prices

The trade in general considered the loom sealing move to be not only inadequate but too late. It was argued that if the I.J.M.A. had taken action earlier in abandoning its minimum price policy, the sealing of looms might not have been necessary. The withdrawal of minimum prices at the time of sealing looms thus came as no surprise to the trade either at home or overseas, as it was known that mills had great difficulty in adhering to the former. The move depressed prices, and sacking slumped by Rs. 2.50 overnight.

Export of Raw Jute

The decision to export jute from India worried the Pakistani Jute Board. Until that time, Pakistan had the monopoly, so she felt that the move might threaten her markets. Rumours were heard that the Pakistani authorities might suspend the licences of shippers selling Indian fibre, but this did not happen. Many doubted whether India could become a serious competitor in overseas markets as the price of Indian jute for export was far too high. Allowing for the difference in quality and the export duty on Pakistani jute, Indian fibre should have been on offer well below the Pakistani rate, but in actual fact it was only £1 or £2 below. Jute sellers in India asked for the removal of the export duty of Rs. 3 a maund, which was not withdrawn when this country banned the export of raw jute in 1949 shortly after devaluation. The duty was of no practical significance during the ban, and even after the ban was lifted it only affected a small group of balers. But the agitation for its removal was general among sellers who seemed to think that it would benefit local markets.

The first shipments of Indian jute to the U.K. and the Continent were finally despatched in the first week of April after several difficulties had been overcome. Firm commitments had been made earlier in the year, but shipments had been delayed in the hope that the export duty would be abolished. When this did not happen, operators felt that they had to show a willingness to keep faith with foreign buyers, so token shipments were made. Subsequently, the State Trading Corporation called for further tenders for export and all the prominent local balers offered at a general price level. The balers, however, were advised that their offers were not acceptable as some minor regulations had not been complied with, and that a further reference would have to be made to New Delhi. Considerable resentment was caused when it was later learnt that the bulk of the order had been placed with a party hitherto unconnected with the jute trade. The folly of doing this was emphasised when the party concerned failed to meet its commitments, and the jute had to be covered at what was believed to be a considerable loss to the S.T.C. A fair quantity of jute has since been sold and shipped to such countries as Russia, China, Belgium, Poland and Yugoslavia.

Crop Reports

The initial new crop reports at the end of March were very encouraging. Widespread rain in Assam and northern Bengal helped fresh sowings and the germination of old ones. Compared with the previous year, rainfall in Assam was much heavier, which allowed early preparation of the land. By the middle of April, many lowland areas reported that sowings were complete, and work had started on the midlands. In Bihar, Murshidabad and Orissa, conditions were not very favourable and very little progress was made. Towards the end of April, the widespread rainfall in all districts, except Murshidabad, was very beneficial and prospects were considered good. Assam and northern Bengal reported that sowings were now proceeding on the highlands in advance of previous years. As May progressed, there was a deterioration in the crop reports. The drought persisted in western areas, but Assam and northern Bengal had too much rain and were hoping for a long spell of sunshine. Towards the end of May and in June, conditions again improved and weather conditions in all areas were reported as favourable. The outturn in most districts was expected to be similar to that in 1958-59.

Heavy rain caused many fields to be waterlogged in July, but little damage was reported to

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the standing crop as it was too far advanced. Many farmers thought the final result would prove beneficial as the plants would grow taller and the yield would be greater. Sowings in the Daissee and mesta districts were reported to be smaller than 1958-59, but the crop was said to be in a very healthy condition. Late July and early August brought a drought, and harvesting was held up in many places by the lack of steeping water. This state of affairs persisted until the end of August, when rain in all districts, except northern Bengal, allowed farmers to proceed with harvesting. The harvesting went on slowly as the rainfall was still well below normal. By the time the heavy floods came in September, the greater part of the crop had been harvested and the only damage expected was that the plants still standing would have heavier roots. Early arrivals of new crop jute were very disappointing in quality due to the inadequacy of steeping water in the initial stages, but matters improved later. The moisture content, as always, was high and caused considerable concern to mills, especially since they were not nearly as well protected against moisture under the new contract as they were under the old.

New T.S.D. Contract Introduced

During the first few months of the year, a series of meetings were held by the East India Jute and Hessian Exchange Ltd to discuss the formulation and ultimate introduction of a new transferable specific delivery contract for raw jute and jute goods. Sub-committees representing jute and gunny interests were formed to draw up the various clauses of the contract. After protracted negotiations, the new contract eventually came into force on 1st June, 1959. Following its introduction, a major dilemma arose when the Indian Jute Mills Association indicated that it would not accept the contract completely, and refused to do business unless certain modifications were made. Its main objection was to paragraph 15 (c) of the new contract, which allowed a moisture content of 4 percent before the option of rejection came into force under arbitration, against 3 percent in the old contract. When voting took place in the sub-committees on this point, the I.J.M.A.'s protest was defeated by the narrowest of majorities. A deadlock developed and business came to a standstill.

Various Proposals

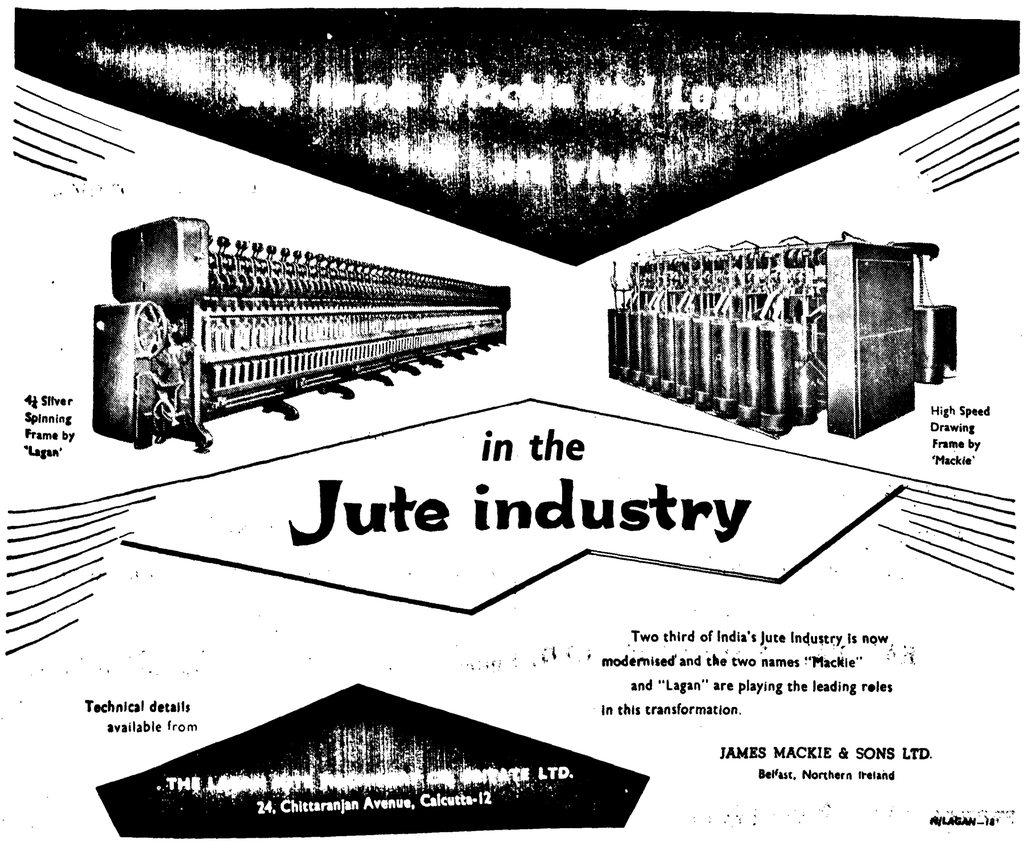
It was perhaps fortunate that the introduction of the new contract came in the off-season, as the attitude of both sides indicated that it might be some time before a solution was reached. Sellers' organisations held a meeting to discuss the mills' proposals, and put forward a counter-proposal that they would accept the moisture clause of 3 percent only if mills agreed to the introduction of "invoicing back" at the market price—a point which had been strongly rejected in the preliminary voting stages. This proposal was turned down by the mills.

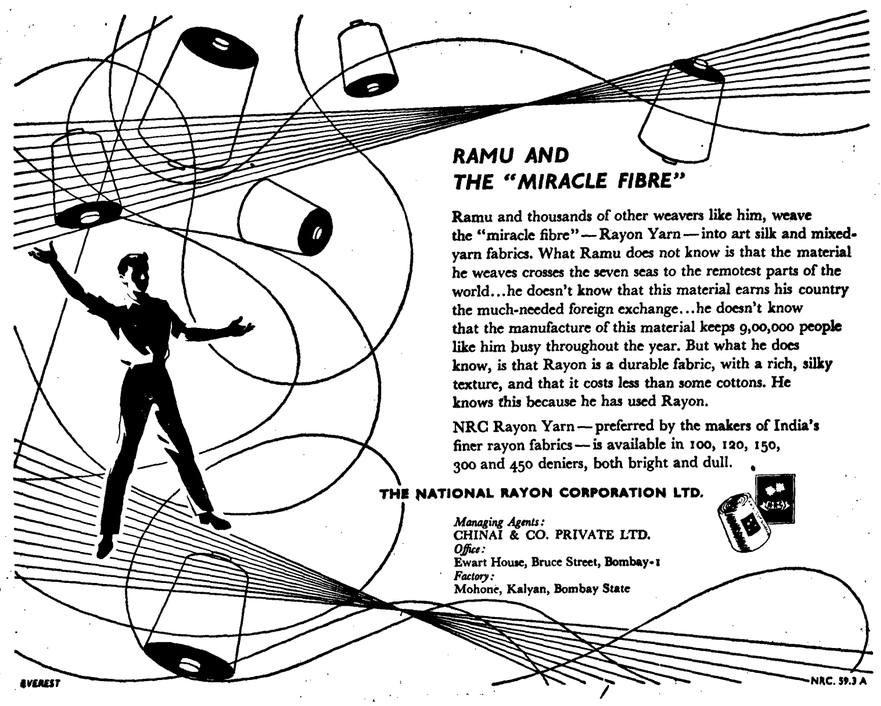
The grounds on which the I.J.M.A. based its objections were outlined in a Press release. It said that such an attempt to relax standards of quality and condition was contrary to the best interests of the jute industry, especially as it came at a time when both the Government and the Association were endeavouring to improve the quality of Indian jute and the manufactured article. Secondly, it was a fundamental requirement of the trade in jute that the goods be in a sound, dry and storable condition; the moisture allowance of 3 percent, which had been in force for many years, was the most the fibre could hold and still remain storable without losing its spinning properties. After long experience, it had been found that this was the limit up to which experts in the trade could judge a parcel of jute to be of acceptable moisture content; beyond that limit there began a margin of doubt. It was pointed out that the matter was of particular importance under the prevailing conditions, as mills were being compelled to carry large stocks of jute in order to maintain prices. The point also affected the growers' interests.

Business was at a standstill at this stage. Mills were only willing to buy jute under their own contract on C.O.D. terms under non-transferable documents which did not infringe the futures trading regulations. Others accepted the new contract along with a covering letter which indicated that any changes made would be deemed to have been incoporated in the contract. Only after the new contract had been in force for five weeks did the I.J.M.A. announce that it had decided to accept the new form in its entirety. This came after protracted negotiations between the two parties concerned—the raw jute sellers and the mills. The sudden change of attitude surprised many in the trade, as it was felt that the reasons for the objections to the new clauses were very sound. It was significant that the change of attitude came immediately after the I.J.M.A.'s representative returned from talks with the Government in New Delhi. It was rumoured that pressure had been brought to bear, in that the Government had hinted that no alterations would be allowed until the new contract had been accepted, as it stood, by all the parties concerned. This may explain the suddenness with which the ultimate decision was made.

S.T.C. Levy on Cuttings Licences

Some time ago, restrictions were placed on imports of cuttings from Pakistan, and they were allowed into the country only under licence. The move had been introduced in an attempt to popularise the lower grades of Indian jute. When the controversy over the new contract was at its height, the State Trading Corporation, the body through which applications for licences for the import of Pakistani cuttings had to be made, imposed a "tax" of Rs. 15 a bale which had to be paid before the Corporation would issue a letter of authority to import. There were unanimous protests and objections from mills, who questioned the S.T.C.'s authority to impose or collect such an arbitrary levy. Eventually, mills acquiesced and paid the tax, as even with this addition the price of Pakistani cuttings was about Rs. 25 a bale less than that of Indian cuttings, and it is generally acknowledged that the former are much superior to the latter. As the year progressed, the price difference between the two types of cuttings





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widened, until towards the end of the year it was Rs. 40 or Rs. 50 a bale.

I.J.M.A. Unseals Looms

The sealing of looms on 2nd March, it appeared, had the desired effect as the gunny stock figures thereafter became healthier. So the Indian Jute Mills Association increased the productive capacity of member mills by unsealing, with effect from 22nd June, the 1½ percent looms that had been sealed earlier in the year. As a result, only 12½ percent of the total loomage now remained sealed. The 1½ percent unsealing was expected to increase production by about 1,500 tons a month. Many thought the increase inadequate, considering that the demand for jute goods in the second half of the year is normally higher than during the first six months. The unsealed looms, it was expected, would be concentrated on hessian, but during July they were transferred mainly to sacking to meet the worldwide increase in the demand for heavy goods. The I.J.M.A. gunny stock statistics continued to show an improvement to such an extent that the mills decided to unseal more looms. From 24th August, a further 2½ percent looms were reopened, which reduced the sealed complement to 10 percent. This time the I.J.M.A. took a new step by announcing that the increased production was for a limited period only—until 2nd January, 1960. It was understood that this was done in an attempt to curb speculation in the new year. It was also felt that the move would prevent the over-production of goods at a time when world demand was slackening.

Pakistani Competition

Although India had become a competitor of Pakistan in the export of jute, it was evident early in the year that Pakistan was fast becoming a serious competitor of India in the export market for jute goods. The fact was forcibly brought home towards the end of March, when Burma called for tenders for sacking and accepted those from Pakistan in place of the Indian tenders. India eventually only received a very small portion of the order, which was thought to be the balance Pakistan could not take up. The loss of the contract, small though it was, showed that India faced increasing competition in jute goods, and showed up the fall of 80,000 tons in her total gunny exports in 1958. Many overseas buyers preferred Pakistani goods as they were not only cheaper but were often, especially in the case of hessians, superior to Indian goods. Some buyers, however, continued to support the Indian markets, and China in particular emerged as a prominent buyer. In the middle of the year, before the border incidents strained political relations, China took up larger quantities of heavy goods than in previous years.

Towards the end of the year, Pakistan's gunny potentialities again came into the news. An order placed on the Pakistani mills by the Pakistani Government for quick shipment found the former unable to comply, as their order-books were full. Clive Row thought that if Pakistan was unable to get extensions of shipment against some of the overseas orders, she may have to cover in the Indian market. Shortly after this, it was revealed that, under the Pakistani second five year plan, due to commence in July 1960, several new mills were planned in East Pakistan, which would raise her total loomage from 7,750 to 12,000. It is understood that, apart from the fact that Pakistan continually had to refuse overseas enquiries because of full order-books, one of the reasons for the decision was to find an outlet for some of Pakistan's surplus jute following India's entry into the export market for raw jute.

I.J.M.A. Delegation to U.S.A. and Canada

Towards the end of the year, a delegation of the Indian Jute Mills Association visited the United States, Canada and the United Kingdom. The party consisted of Mr. Kenneth Tosh, chairman, and Mr. D. P. Goenka, vice-chairman, of the I.J.M.A. The main purpose of the visit was to maintain close contacts with jute goods consumers and to study overseas markets in the light of current economic trends. New uses for jute goods were reviewed. Several important meetings and conventions were attended and addressed, in the U.S.A. and Canada. In the U.K., common problems were discussed with the U.K. Jute Controller and the Board of Trade, and the prospects of increasing trade between the two countries figured high on the list.

In early November, the Calcutta markets developed a bullish tendency on reports that the current crop would not be as large as had been anticipated. Estimates at this stage were considerably lower than the earlier ones, and one of the main reasons given was the fall in the size of the mesta crop. This was estimated for the 1959-60 season at 800,000 bales, as against 1,400,000 bales in the previous season. The shortage was reflected in market quotations for mesta from all agencies. In November, the rates were around Rs. 23 a maund basis Bottoms, and offers were few and far between. A year previously, mesta was being freely offered at about Rs. 3 a maund less.

Market Trends

The Calcutta markets were rather depressed early in January. Sellers' ideas were mixed, and many indulged in panic selling at almost any price, being forced into this by the need for ready cash. Prices were based on Assam jute at Rs. 20.75 a maund basis Bottoms, but when mills became active the price moved up rapidly to Rs. 21.25. Upcountry markets were firm, and it was reported that prices in the agencies were anything up to Rs. 2 a maund higher than in Calcutta. Imports in the agencies tended to fall, but arrivals in Calcutta were well up to average for the time of year, and there was keen competition among mill representatives. Sellers were keen to sell mesta, which was around Rs. 17 to Rs. 17.50, as this was one of the few varieties of fibre giving them a profit. Daissee at Rs. 22 was unprofitable, as were the various grades of Tossa. Towards the end of January, a steadier trend developed in the jute markets, and in this aspect the decision to export limited quantities of fibre as a price support scheme was effective.

The prospect of exporting jute caused many operators to hold back their better class fibre, and the effect was felt in Calcutta where ordinary mill standard Middles practically vanished from the market. For this reason, there was a temporary increase in the price difference between Middles and Bottoms from 50nP to Rs. 3. There was limited interest from Calcutta mills and small business was reported daily. Mill stocks were reported to be good and godowns were fuller than they had been for some time. Prices remained stable for most of February due to the firm upcountry markets, but eased later as mill interest fell away, and Assam quotations dropped to Rs. 20.25. Good business was still going on in mesta, which was plentiful, but most of it was from jungli agencies, although the majority of contracts were still being negotiated for the higher qualities. In early March, there was an improvement in gunny prices, and this benefited raw jute, which made up the losses of the previous month. Sellers once more became reserved. The lack of transport facilities caused the industry concern. Although the railway authorities produced figures to show that wagon allocations were not less than in previous years, and in some cases were better, they had lost sight of the fact that the jute available for shipment was probably twice as much as before. Lack of storage capacity made most mills withdraw from the market, but fibre prices advanced to Rs. 21.50 for Assam due to upcountry covering.

Widespread Rain

New crop prospects had been discussed for some time, and the most important factor affecting the market in early April was the widespread rain in the Assam and northern Bengal jute-growing areas. During the first half of the month, rates fell rapidly. They rose temporarily in the second half of April in sympathy with the steadier goods section, but by the beginning of May, Assam quotations had fallen to Rs. 20.50. At this stage, the raw jute markets were dull and depressed. Upcountry markets were quiet and were virtually closed as most sellers had finished their operations for the season. New crop reports remained favourable, which helped keep prices low. In June, a deterioration of crop conditions pushed up prices slightly, but the rise might have been larger if it had not been tempered by the controversy and deadlock that had developed over the new T.S.D. contract, which resulted in a complete stoppage of business. By the end of June, Assam rates were quoted at Rs. 22.50 and there was very little variation from this price for the next few weeks. New crop reports continued to be satisfactory, and new crop quotations opened at Rs. 23.50 for Assam Bottoms, which was a premium of about Rs. 1.50 a maund over old crop indications.

The effects of India becoming self-sufficient in jute began to be felt at this stage. It was normal in previous years for buyers to take up fairly large quantities early in the season so as to ensure a regular supply. This year, however, with the knowledge of full godowns at their disposal, there was no rush to purchase new crop jute, especially since it was forecast that the output would be large. The lack of interest from mills caused fibre rates to fall still further. There was a marked change in mills' attitude in August. In the first few weeks, large quantities were purchased, and by the middle of August new crop Assam stood at Rs. 24. Sellers were reserved at this price, as a survey of Indian upcountry markets showed that in all cases rates in the agencies were above the parity of Calcutta quotations. In Dhubri, for instance, general quotations were about Rs. 20 a maund, which came to about Rs. 24.50 landed in Calcutta. Other agencies showed similar disparities, which gave the sellers no incentive to do near delivery business.

Steeping Water

In September, a shortage of steeping water upcountry caused a temporary hardening of jute prices, but later Assam new crop fibre fell to Rs. 23.25. Initial imports were disappointing in quality and the moisture content was very heavy. Prices moved through narrow margins in September and early October, the volume of business transacted being much smaller than in former years. Prices upcountry still tended to lead Calcutta rates, and in November this was most pronounced. Reports that the new season's crop may not be as large as was originally thought, made sellers reserved for most of November, and towards the end of that month prices advanced rapidly. Mill agencies supported the rise, and towards the end of the year the jute markets were very steady.

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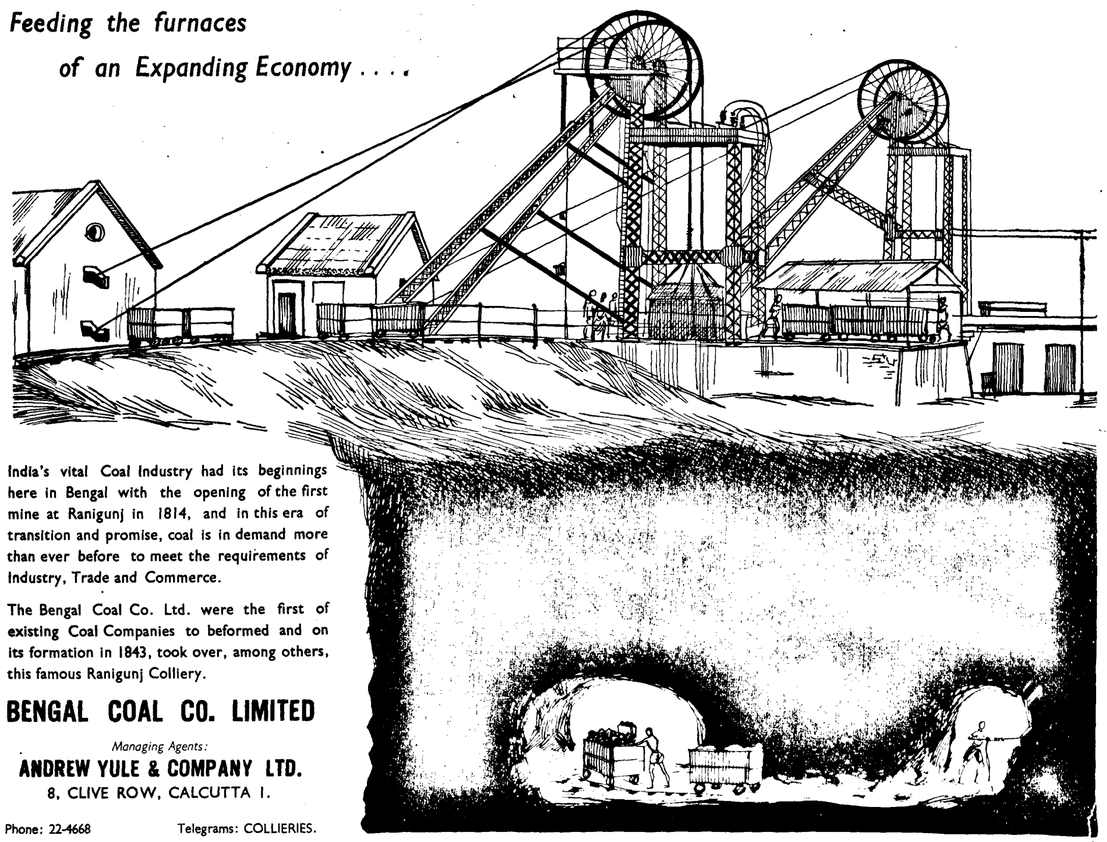

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URGENT NEED TO RAISE COAL OUTPUT

GOVERNMENT POLICIES HAMPERING EXPANSION

By
A SPECIAL CORRESPONDENT

IT has become increasingly obvious during the past year that the tempo of coal production in India requires to be stepped up with the least possible delay if a very serious shortage during the course of the next 12 months is to be averted. The output during 1955 and the first four years of the second five year plan has been as follows (in million tons):

	Private sector	Public sector (Including Singareni)	Total
1955	33.8	4.4	38.2
1956	34.7	4.7	39.4
1957	36.2	5.3	43.5
1958	39.5	5.8	45.3
1959 (the estimate based on actual raisings for eight months)	40.6	6.5	47.1

While the output of 1957 increased by 4.1 million tons over the 1956 figure or by 10.4 percent, the increase in 1958 was only 1.8 million tons or 41 percent above the 1957 figure. The estimate of the increase in production in 1959 of 1.8 million tons over that of 1958, while being the same as for the previous year, shows a percentage increase over 1958 of 3.9 percent. The comparative percentage increases in production in the private and public sectors for 1959 over 1958 are 2.68 percent and 10.9 percent, respectively.

The target for the second plan was an annual production of 60 million tons of coal by 1961, made up of 45 million and 15 million tons from the private and public sectors, respectively. Even if the increased production in 1959 is maintained next year, and the increased output is, say, in the region of 2 million tons, made up of 1.5 million tons from the private and half a million tons from the public sector, the private sector's production will amount to just over 42 million tons, a shortfall of 3 million tons and that of the public sector will be 7 million tons, a shortfall of 8 million tons. The target may, therefore, not be met by as much as 11 million tons. As production in the base year 1955 was 38 million tons and the additional output aimed at was 22 million tons, the target will only have been met to the extent of one-half. It is little wonder, therefore, that there is a shortage of coal.

Steel Plans

Having dealt with the overall picture, it is necessary now to become more specific and examine separately the problem as it relates to coking and non-coking coal. In this iron age, steel production plays a dominant rôle in the industrialisation of every country. In fact, it is frequently claimed that the industrial wealth of a country can be accurately gauged by the amount of steel produced. Quite correctly, therefore, the Government has set a high target for steel production and this, in turn, means that progressively over the years more and more coking coal has to be produced. The consumption of coal by the iron and steel industry was 3.3 million tons in 1956, 3.7 million tons in 1957 and 4.2 million tons in 1958. Consumption during January to March 1959 has increased to half a million tons a month or 6 million tons a year, and it is, in fact, assessed that the requirements of the steel industry for 1959 will exceed 7 million tons, almost 3 million tons more than in 1958, while consumption during 1960 is expected to increase to 10 million tons. These figures illustrate the tremendous increase in the demand for coking coal which has resulted from the expansion of India's steel industry. Unfortunately, the country's production of coking coal is not keeping pace with the demand. This problem is now engaging the active attention of the Ministry of Steel, Mines and Fuel, the Coal Board and the private sector of the coal industry and, by the end of this year, various schemes will have been finalised to bring about an increase in the production of coking coal on a short-term basis. Subsequently, in the near future, it is proposed to examine ways and means of achieving the same objective over a long-term period.

Output Reserved

As a first step towards safeguarding the future of the steel industry, the Government has, during 1959, reserved the output of high-grade coking coal for steel plants. This was a necessary precaution, but it has provided only a temporary and not entirely efficient solution to the problem.

The steel plants require mainly Selected A and B grade coking coals, but these high-grade coals are not available in sufficient quantity. It has been necessary, therefore, for the steel plants to accept fairly large quantities of certain types of Grade I coal. Unfortunately, this coal is not ideally suitable, on account of its high ash content, and it is with considerable reluctance and because no alternative coal of the requisite quality has been available that the steel plants are using Grade I coal. The crux of the matter is that the steel plants' coke ovens have a limited capacity and if this capacity is used to produce coke with a high ash content, which is less efficient than superior quality coke, the stage will be reached when it will be found to be impossible to maintain steel production at its present level, far less increase the output in accordance with the expansion programme. The concern of the steel producers over the current shortage of high-grade coking coal is something which cannot be ignored in view of the strength of their arguments.

The necessity of supplying high-grade coking coal to the steel industry was appreciated several years ago, and the Government prepared plans for the setting up of four new beneficiation plants for the washing and blending of inferior grades of coal to render them suitable for consumption by steel plants. According to the second plan target, all the coking coal requirements of the country were to be washed by the end of 1961. But of the four new washeries proposed to be built by the State, Kargali washing plant has only just been completed, the preliminary work has started on the washery in Dugda, tenders for the Bhojudih washery are being examined while, as for the Patherdih washery, the invitation to tender has only recently been issued. Accordingly, at the best two of the four washeries cannot be ready before 1962. It was expected that when these four new washeries went into production, they, with the three existing washeries in the private sector, would be able to wash about 13 million tons of raw coal to produce about 9 million tons of clean coal a year. Now it appears that not more than 4 million tons of washed coal will be available by the end of 1960. The sense of urgency which at one time attached to the setting up of these new coal washeries, appears to have been lost during the second plan period, and it can only be hoped that the efforts of the private sector of the coal industry to produce more high-grade coking coal will be sufficiently successful to ensure continued supplies of coal of the requisite quality to steel plants; this alone can avert the coal shortage which will result from the failure on the part of the Government to set up the coal washeries as expeditiously as circumstances demand.

Demand Diverted

As a result of the entire production of the top-grade coking coals being diverted to steel plants, a large number of consumers, particularly the railways, which previously obtained part of their requirements from coking coal collieries, have been obliged to turn to collieries producing high volatile, namely, non-coking coal to meet their entire requirements. As in the case of coking coal, it has become evident that the production of the Selected grades of non-coking coal is now inadequate to satisfy the existing demand. Certain quarters hold the view that the shortage of non-coking coal will be even more acute than that of coking coal and will affect a much wider range of industries. The Government is aware of this view and a detailed assessment of the position is being made, the only doubt being as to whether any remedial action taken now will be sufficiently expeditious to save the situation which could develop over the next 12 months. Admittedly, the position can be prevented from becoming worse by a re-allocation of different grades of coal to different priority classes of consumers, but such action is bound to prove detrimental to industrial efficiency and the only real and lasting solution to the problem is to raise the production of Selected grades of coking and non-coking coal. The private sector of the coal industry can attain this objective, provided the Government gives it the opportunity. Over 95 percent of the Selected grades of coal are mined by private enterprise, and more coal can be raised if some of the restrictions on it are removed. An examination of the following statistics of the gradewise production of coal in the Bengal and Bihar fields will give an indication of the extent of the problem.

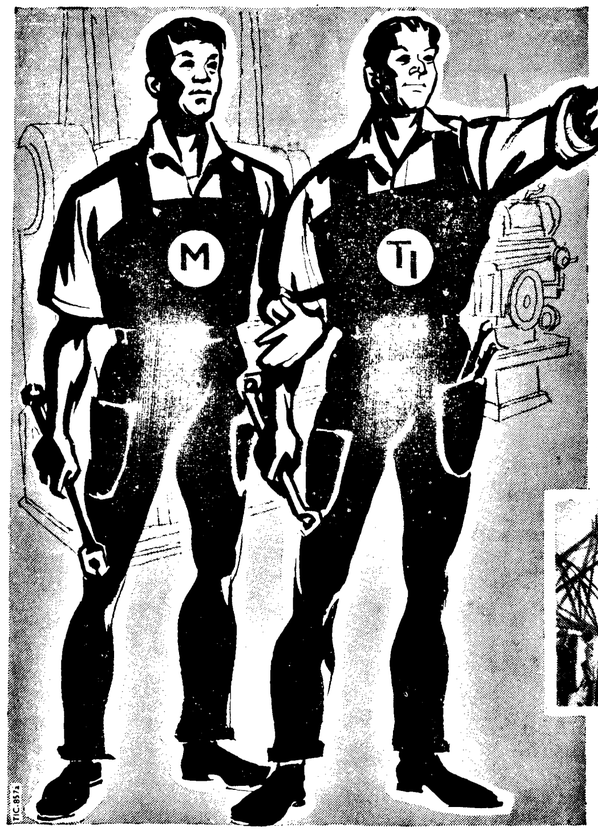
	Selected A	Selected B
	(In million tons)	
Output in 1957	7.60	10.97
Output in 1958	7.44	11.18
The estimated output in 1959 (based on actual figures for the first eight months)	7.45	11.15

It will be seen that the output of Selected A grade coal has declined and has become steady while the raisings of Selected B grade have slightly increased and are now showing a tendency to fall. The indications given by the monthly production figures suggest a more serious fall since June, although this is partly explained by the usual seasonal disturbances in production during the monsoon period, which were more marked this year on account of the unusually heavy rainfall.

A coal crisis exists and, unless remedial action is taken, it will become more acute. The obvious method of resolving the crisis is for coal production, particularly of Selected Grades and Grade I, to be increased, with the least possible delay. It is necessary, therefore, to ascertain what factors have hindered production, to consider how these can be removed, and finally, to ascertain what new conditions must obtain before the coal industry as a whole, and the private sector in particular, can achieve the aim which all agree to be so urgently necessary, namely, increased coal production.

Capital Investment

The coal industry, unlike most others, continually requires additional expenditure on plant and equipment to maintain the same output, as well as the expenditure on normal replacement. A coal mine is quite different from a factory in that, as development proceeds, the working face becomes more distant from the mine shaft and, progressively, greater quantities of rolling stock, plant and equipment are required to maintain and transport the output. Quite often, as work progresses, it has to be carried out at greater depths which immediately introduces the further problems of increased ventilation and pumping and adds to costs. Finally, when a pit is exhausted, it is difficult to employ plant and equipment elsewhere unless permission is granted to sink new mines. Operational costs are, therefore, very heavy and, in addition, there is also the burden of the steady increase in the cost of stores and capital equipment, rehabilitation and depreciation. The coal industry is, therefore, in greater need of a continual influx of capital than any other. This can come either from new capital or from profits. At present, new capital is well-nigh unobtainable as far as coal companies are concerned. The property of most companies is largely hypothecated to banks in return for overdraft facilities granted, with the result that no new advances are obtainable from them or from the Industrial Finance Corporation. Investors have little faith in the coal industry, as the return on capital is lower than in any other industry. Only recently a statement was published in this paper showing the financial results of 45 companies representing a fair cross-section of the coal industry, and whose shares are normally quoted in the Calcutta Stock Exchange. The analysis showed that of the 45 companies, which raised approximately 14 million tons in the year, only 15 declared



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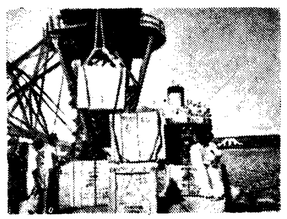

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dividends, 25 carried on without substantial profits and ten worked at a loss, while the average dividend on the capital employed was a mere 2.59 percent, and that on paid-up capital was 6.29 percent.

This explains why new capital is unobtainable and in part why the ploughing back of profits is restricted to a minimum. The industry is, therefore, consuming its reserves to pay for whatever expansion can be reasonably afforded, but there is a limit to these reserves. These must now be built up again, instead of allowing them to be progressively depleted as has been the case in recent years.

Coal Prices

The solution is obviously to fix an economic price for coal which will allow for the cost of expansion and the restoration of reserve funds. Price control was introduced during the war as a stabilising measure. This was not removed after the war but the industry accepted and even welcomed the measure because it was seen as an excellent means of avoiding uneconomic prices and thus preventing undue competition which can have undesirable effects on the industry. As the report of the Coal Prices Revision Committee says, the cycles of production declines as a result of previous overproduction have been eliminated.

This apart, the tragedy of the industry today is that instead of price control being used to maintain the coal industry in a sound and healthy condition, the Government's policy of keeping the price uneconomically low, is having quite the opposite effect. The result is that due to the lack of funds, the tempo of increased production has fallen, and unnecessary shortages are occurring. The Government passed the responsibility for fixing prices to the Coal Prices Revision Committee. It was asked in May 1957, to examine the question of coal prices and to submit a report. The Government's announcement of its acceptance of the Committee's recommendations was not made until 24th August, 1959. The private sector was not represented on the Committee and while the industry submitted memoranda to it, the Government did not invite the producers' comments on the report before announcing its acceptance. Furthermore, in accepting the recommendations of the Committee, the Government did not take into consideration the fact that the Committee's findings were based on the cost of production two years previously and that the general rise in prices and the higher price of imported equipment, make the Committee's estimates unrealistic. The result is that the Committee's approach to the investigation of collieries' costs was based on numerous assumptions which are not in accordance with current conditions.

An increase of only 50nP a ton for the higher grades of coal, Grade II and upwards, was allowed but it was stipulated that the prices of the lower grades were to be treated as ceiling prices. The industry protested immediately in the strongest terms against the contents of the report and the Government's acceptance of it, but as yet there is no indication that it will agree to re-examine the question although this is urgently necessary.

Average Cost

The Committee admitted that it was impossible for it to consider the average cost of all collieries investigated and that it was unable to arrive at a general cost structure by any known method of assessment. Nevertheless, it proceeded to make certain assumptions which the industry knows to be entirely incorrect in assessing a "normal" cost of raising at Rs. 17.90 a ton. For instance, it has detailed that the "normal" wage cost should be Rs. 9.55 a ton although, in Paragraph 61 of the report, it is admitted that increases of Rs. 8.25 a ton have been allowed to the industry since 1947 to cover the cost of implementation of labour awards. The Committee does not deny that the effect on prices of these awards has been correctly assessed and it must, therefore, be assumed that it considers that the cost of the labour element a ton of coal prior to 1947 was only Rs. 1.30. None can deny that this latter figure is simply absurd.

Again, in arriving at a correct figure for depreciation, the Committee has stated that the additional capital for expanding production in the private sector would be only Rs. 20 a ton. Recent indications have shown that public sector coal concerns are incurring capital cost at a rate of at least Rs. 60 a ton, even though their new workings are confined to quarries where the capital expenditure involved is very much less than in the case of deep mining. The industry's estimate of the cost of a fully equipped new mine is between Rs. 40 and Rs. 60 a ton of the average annual output, which means that for depreciation alone approximately Rs. 2 a ton is required in the selling price. The depreciation and development allowance has, therefore, been underassessed by the Committee by at least Re. 1 a ton. There are other glaring instances of incorrect assumptions which could easily have been avoided if the industry had had a voice in the preparation of the report.

Another anomaly in the report concerns the introduction of a ceiling price for Grade III coal. In Chapter V, the Committee has given in detail the very cogent reasons for not applying ceiling prices to the higher grades of coal, while, on the other hand, in Paragraph 48 it recommends that the present prices of Grade III coal for the Bengal and Bihar fields should become ceiling prices. The Government accepted this suggestion with the result that the collieries producing Grade III coal are now confronted with the very problems which have been so correctly foreseen by the Committee concerning higher grades of coal. More and more Grade III coal is required for low priority consumers to replace the higher grades now being allocated to high priority consumers, yet the Government has removed the encouragement for Grade III collieries to maintain or increase their output. It is important that this retrograde step of imposing ceiling prices should be abandoned.

As for coke prices, it should be remembered that soft coke was denied the facility of the increase in coal prices given in 1957. The new increase is only 11 annas a ton in spite of the extreme shortage of this vital fuel. The Government should realise the necessity to provide an incentive for collieries to produce soft coke to meet the shortage.

Major Variations

It is, therefore, easy to see why the industry is seriously concerned over the effect of this report, particularly in view of the recommendations that the price structure should remain in force for a period of five years. The Committee adds that "major variations requiring radical changes in the price structure are unlikely to occur." This example of wishful thinking ignores the fact that additional directives from the Mines Department and from the Ministry of Labour are being issued to mine owners almost weekly and the cost of implemention of these directions results in steadily increasing operational costs.

Full credit, however, must be granted to the Committee for its appreciation of the need for increased assistance for sand-stowing operations and for its recommendation that a subsidy for deep, gassy and difficult mines should be introduced. The details of the latter subsidy are presently being worked out between the industry and the Coal Board, and it is pleasing to note that the discussions have been very satisfactory. It is confidently expected that agreement will soon be reached on the criteria for the subsidies, although it is not yet certain what the amount of assistance will be.

As for the assistance for sand stowing, the position is not yet satisfactory. The Committee rightly recommended that collieries should receive 100 percent assistance for stowing operations, but on the other hand a maximum limit has been fixed at an unduly low rate with the effect that collieries carrying out very expensive sand-stowing operations do not get the full benefit of the subsidy. The industry appreciates the need for a limit to the amount of subsidy payable but it considers that the ceiling is unnecessarily low, particularly in view of the fact that the income derived from the sand-stowing cess greatly exceeds the subsidies paid to collieries. It is surely quite wrong that the consumer should be compelled to pay a cess when the proceeds are not passed on to the collieries for the purposes for which the cess was levied.

Before the report was published, the industry pointed out that whereas the cost of production had gone up by Rs. 8.50, it has been allowed an increase of only Rs. 5 a ton to cover increases for labour costs. It has now been estimated that the increase in the stowing subsidy and the introduction of assistance for difficult mines will assist collieries to the extent of Re. 1 a ton. It is, therefore, necessary for a further increase of Rs. 2 a ton. If this were granted, the industry could assure the Government that, apart from any unforeseen substantial rises in costs, no further price increase would be necessary during the second plan period. Considering that an increase of Rs. 2 a ton of coal will only affect the railways to the extent of a 0.8-percent rise in their total working expenses, while the steel industry will be affected to an even less extent, namely, 0.7 percent, this does not seem to be an unreasonable demand. The report rightly remarks that an assurance of supplies and right conditions for the expansion of production are even more important to the consumers than the price of coal itself. The conclusion is irresistible, therefore, that the Government has been seriously misinformed in some matters by the Coal Prices Revision Committee, so a re-examination of certain aspects of the Committee's report is an urgent necessity.

Another grave limitation on the private sector's ability to expand production is to be found in the Government's policy which bars the private sector from developing any areas other than those immediately contiguous to existing workings. It will be recalled that the Industrial Policy Resolution of 1956 provided that the future development of the coal industry would be the exclusive responsibility of the State. In explanation, it went on to say that new units would be set up only by the State but that this did not preclude the expansion of existing privately-owned units. In implementing this policy, the Government passed the Coal Bearing Areas (Acquisition and Development) Act, 1957, which gave the Central Government power to acquire any coal-bearing land. When the industry made representations that immediately contiguous areas should be exempted from the provisions of the Act, the Ministry of Steel, Mines and Fuel stated that in the private sector existing units could expand production from their existing areas or from immediately contiguous areas and that it was not the intention of the Government to hinder the legitimate development of the private sector. Permission, however, has to be obtained from the Coal Board by companies in the private sector before developing any new areas even before reopening a mine which has been closed down, and such permission is frequently withheld.

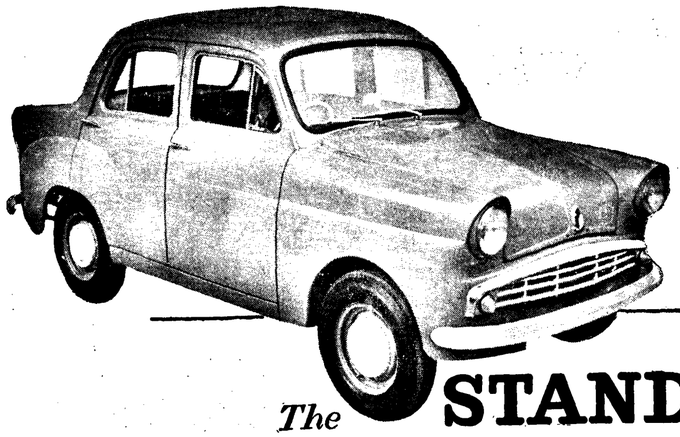
Railway Transport

The coal industry and the railways are closely linked, in that the railways consume approximately one-third of the total coal raised, while the coal industry is almost entirely dependent on the railways to move its production. It is, therefore, essential that there should be an assured supply of railway wagons, yet it is certain that had the coal industry increased its production to the extent proposed under the second five year plan, there would have been a serious shortage of wagons. It is imperative that, when plans are made for an increase in coal production, plans must similarly be made for an increase in the availability of wagons, particularly open wagons, for coal movement.

During the first nine months of this year, 30.55 million tons of coal were despatched, as against 29.98 million tons during the corresponding period of 1958, an increase of 1.9 percent. The percentage increase of wagon availability in 1958 over 1957 was 6.8 percent. The average daily wagon supply for West Bengal and Bihar for the first ten months of 1959 amounted to approximately 4,025 wagons, as against 3,902 wagons in 1958, an increase of 3.1 percent. The corresponding percentage for the previous year was 6.3 percent. This increase in wagon availability helped reduce stocks at pitheads from 2,569,547 tons at the end of 1958 to 2,445,673 tons at the end of September 1959, a reduction of 4.8 percent, as against a reduction of 12 percent in the previous year. Stocks of the lower grades of coal are, however, still extremely big and represent a large amount of capital tied up. It should also be noted that the tempo of increase of wagon availabiliy has dropped considerably and this must improve again next year. During their slack season, when the demand for general movement of goods decreases, the railways have a surplus of unused wagons. But this coincides with the monsoon months when coal production is at its lowest. For this reason, it is impossible for the coal industry to take full advantage of the very generous wagon offerings, although during the busy period collieries face a virtual starvation period as far as wagon supplies are concerned. Nevertheless, there is always a shortage of open wagons which are needed by the collieries with mechanical loading plants. These plants have been installed at great cost and, if the railways cannot supply the right type of wagons, closed wagons have to be loaded by hand, involving a waste of time and money.

Third Five Year Plan

The Planning Commission has tentatively suggested that coal production should, by 1965, reach a total of 110 million tons a year. The fieldwise figures for this target have been given. It is important that the industry should be told whether these figures are firm requirements or not. This is certainly a very ambitious target, particularly in view of the fact that the target for the second five year plan might not be reached and production in 1960 might well be not much more than 49 million tons. The private sector, it is suggested, should increase its production by 15 million tons, while the public sector's share is 35 million tons. If this large increase is to be attained, both sectors will have to be given every facility. The vital factors have been enumerated above, but perhaps the principal need is for closer co-operation between the Government and the representatives of the industry, directed towards planning increased production to meet the vital needs of the country.



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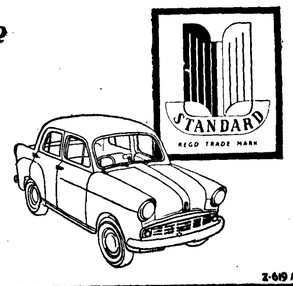

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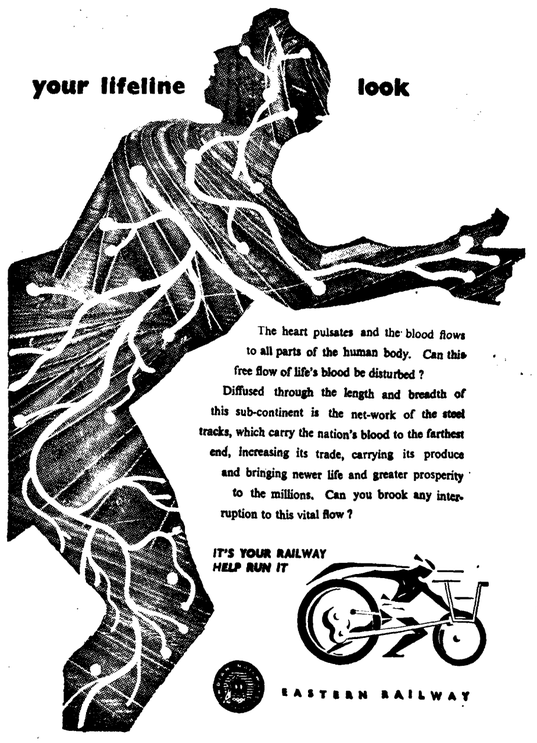

TEA: BY A SPECIAL REPORTER

This year's report on the Indian tea industry has much the same to say as last year's; such are the industry's problems and their persistence. The writer of this article, therefore, being unable to say anything particularly new, has decided to say the old things in a new way. Those readers who decide from this that the industry's difficulties are of a light and frivolous nature, however, are making a grave mistake

"So it would be correct, sir," I asked the vice-president of Tea, "to say that tea is the greatest employer of organised labour in the whole of India ?"

"It would be correct", replied the vice-president, "for tea employs nearly 1 million people, and accommodates more than twice that number".

"And that tea is now our greatest earner of foreign exchange ?"

"You are well-informed", said the vice-president, "for tea has earned India no less than Rs. 243.34 crores of foreign exchange in 1957 and 1958, compared with the Rs. 236.82 crores of jute goods and the Rs. 153.56 crores of cotton".

"And that the relationship between employer and employed is better in the tea industry than in any other ?"

"If statistics of days lost through strikes are any guide, you are correct in this matter also. A matter of pride, both for the employer and the unions".

Industrial Strife

"To what do you attribute this relative absence of industrial strife ?" I enquired.

"To the efforts which we have made and are making to do for our labour the most that our resources and our other obligations permit. Our wages may not seem high to those who compare them with the wages which protected industries like steel can pay, but there is no retention price for tea, nor can we offset each rise in wages or each increase in the cost of production by seeking, like coal, an equivalent increase in our selling price. We sell our teas by auction, and—save when demand exceeds supply—we must accept, although we may not agree with, the price which the auction-purchaser is pleased to pay. But please remember that wages are not the only reward of labour : there is accommodation, humble perhaps, but better than that enjoyed by perhaps 350 million of this country's inhabitants. There is medical attention, of a standard still a quarter of a century ahead of that granted by any other comparable industry or even by the Government itself. There is annual leave with pay, on a scale not generally imagined even in the British Welfare State. There is provident fund and there is bonus. There is the guaranteed week, the *droit qu travail* so dearly beloved of the French revolutionaries but practised in the tea industry to an extent unequalled elsewhere. There is ....."

The telephone rang.

"Of course", said the vice-president, "Next Thursday fortnight ... but I should tell you that we have no vacancies nor do I know of any in any other organisation. Goodbye".

"You haven't gone in for coloured telephones yet ?" I asked.

"They are on order", said the vice-president defensively.

Employment on Estates

"Speaking of vacancies", I observed hurriedly, "is it true that employment on tea estates is decreasing ?"

"In the old days," said the vice-president, "brides on marriage and their babies at birth qualified almost automatically for eventual enrolment on an estate's books. Like putting one's son down for his public school. Wages were so small, casualties so many, that a large labour force was deemed an advantage. Indeed 20,000 or 30,000 workers were annually imported to make good retirements. Now all that has changed. The live birth rate is nearer 50 than 40: the death rate is about 11, and even if wages had remained unchanged, there would not have been enough jobs to go round, unless of course the acreage under tea had gradually increased. But the high cost of production—in which of course I include taxation on production—makes an increase in acreage out of the question for most companies, while high wages make managers loath to fill any but the most essential vacancies. An agricultural or manufacturing process, which might have been economically worth while when wages are low, can become uneconomic when wages get higher, and, in course of time, the process may have to be abandoned. But even so, at the present I would say that the bulk of the unemployed on tea estates are those who have never worked. High wages and the high cost of production must eventually lead either to a curtailment of employment or to the transference of industry elsewhere".

Foreign Competition

"We hear a lot", I remarked, "about new areas in Africa and elsewhere. What is your assessment of their significance ?"

"I view them with some alarm", said the vice-president. "When we have many companies hovering dangerously on the margin of bankruptcy, any competitor, especially a newcomer, is a danger. Fifty million lbs of tea one way or the other can affect the fortunes of the industry as a whole, and

By

A SPECIAL CORRESPONDENT

last year the African territories produced 85 million lbs. Luckily for us, Indonesia continues to be unable for reasons which I should perhaps not mention to produce more than half her prewar output. Had that extra 100 million lbs been available at the present time, our state would have been a sorry one indeed".

"But do you think, sir, that the new companies in Africa will have it all plain-sailing ? When they are established, won't the tax-gatherers be after them too, and will not labour recognise its rights as well as its obligations ?"

"You are very intelligent," said the vice-president. "You did say that you were a reporter, did you not ? And from *Capital* ?"

I inclined my head.

"I believe", went on the vice-president, "that no prosperous industry in any new country can expect permanent immunity either from taxation or from the demands of labour. Certainly sooner or later those burdens by which we are now afflicted will fall upon the tea companies now being wooed and encouraged in other places. Certainly in time the young and pretty new wife will be expected to bear the burden which more aged and more ample wives are habituated to bearing elsewhere. It is the honeymoon period of which I am afraid : what will happen to us while gifts and favours are being showered upon our rivals? Can our *experience* safeguard us until their *novelty* has worn off? Will *our* Governments help us while *theirs* are so generous? If not, it is goodbye not merely to Cachar and to most of Darjeeling, but to many stretches of the Dooars as well".

"What sort of help had you in mind," I enquired.

"We want to be spared from a multiplicity of tax-gatherers—each company must now deal with seven taxes : excise, carriage tax, octroi, export duty, export cess, agricultural and company income taxes, as well as a host of local taxes like land revenue, district board and union board charges. We want a reduction in overall taxation, so that we can face our competitors and knock them over the pavilion. And we want—as I think in some quarters we are already receiving—a recognition of the fact that few companies are able to pay high wages and high bonuses and to build new factories and new houses all at the same time. If this fact isn't recognised, Governments will soon find themselves paying out money which they no longer get from us on people whom we no longer employ".

"And what else," I prompted.

"We want a reversion to the salutary principle of taxation upon profits, not upon production. Governments won't like it, but it is neither fair nor good sense to tax a losing concern merely because it has kept up production. And, of

A group of pickers on a tea estate in Coonoor

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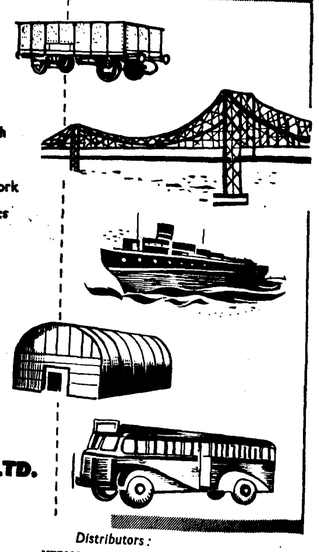

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course, we shall need a fair day's work from the worker, throughout the year".

"What would be your views, sir, on the recent wage increases in West Bengal?"

The vice-president gave me his views.

"You will understand, sir, that my Editor couldn't possibly print what you have just said. ...Nor that either, sir".

"Say, then, simply this: that the industry must deplore an increase for which there is no economic justification at the present time. Say further, that what happens in one district must ultimately affect other districts. And conclude by the observation that the whole outlook for north-east India must be coloured... no, discoloured... by this most unhappy decision".

There was a pause, as the old man nibbled half a biscuit.

Progress of Indianisation

"How is Indianisation of the managerial cadres proceeding?" I asked, in my best Press conference manner. "Some say not so fast as was hoped".

"If some say that," said the vice-president, "they speak without the book. Time's finger writes slowly in the dust, and some planters live even until the day comes for their retirement. And until the man at the top of the ladder has plunged into the shallow pool of pensions, those below him cannot move up, and the bottom rung cannot be vacated. But they are moving on, these older ones, in whom lies so much planting wisdom, and the younger folk, one by one, are getting their chance. And of these younger ones, more than half are the men of your country—although not perhaps of your State".

"They say, sir, that the newcomers are not so well paid as are the veterans, and that if averages are taken, my countrymen's salaries are lower".

"As well say", said the vice-president, "that most deputy secretaries get more than most under-secretaries, and that the average secretary earns more than his deputy. Salaries go by length of service, not by nationality, and if your people are still mostly on the lower rungs of the ladder, it is because they are mostly newcomers. Remember, it is the same ladder for all, and that all get on at the bottom, and all get up at the top—if they are lucky to last so long. So as the years pass, the figures will change, and in this aspect you and your people cannot but be gainers. We said that we'd reach 28 percent by this Christmas: in fact, we reached 33 percent in July."

I changed the subject.

"Why have bonus negotiations taken so long this time?" I asked. "They started in November last year, and now, a year later, only partial settlements have been reached".

"It is a strange thing", said the vice-president, "but the reason is that the unions have been asking for bonus in years of loss as well as in years of prosperity. This, really, is the point which has held up a general settlement. We urge that we should only pay bonus when we make a profit; labour says: 'Pay a bonus, profit or loss.' Labour's attitude is very understandable. Everyone likes a bonus, and everyone knows that the high cost of production and high taxes mean that the numbers of companies won't make any profit. Hence labour's pressure. But we do not propose to accept the reversal of every court decision, and we believe that Governments recognise the futility of pushing a drowning man further under the water, unless of course you want to drown him. After all, bonus is something additional to wages: something to be paid in good times when funds are available, not in bad times when a company's continued existence is at stake."

There was a pause.

Export Promotion

"How are we doing in foreign markets?" I asked.

"As well as can be expected when you think that we still have a formidable export duty, that we are only in certain places engaged in active propaganda, that we have virtually abandoned propaganda in Britain to the producers of Ceylon, and that foreign buyers know precisely just how much tea we are allowed to send to the London auctions, and can plan their compaign accordingly, I believe that we are making some progress in the Middle East, but in recent months we haven't had the direct benefit of Russian buying, which was so helpful last year to Darjeeling. Tea is not attracting the younger generation in Britain as much as we should like, but the old faithfuls seem to be as thirsty as ever".

"Quiet confidence in the future?" I asked.

"Quiet confidence for tea as a whole, yes", he replied.

"And the International Tea Agreemen..?"

"On its death-bed so long that it may recover—but producers are either fearful of something or suspicious of each other, and don't seem to realise that even this old moth-ball cruiser may have its uses. I'd like to see it renewed myself, but each year makes the newcomers more confident of their ability to go it alone, and each year our own production and export figures grow further away from the old base. But it would be a pity if the agreement lapsed for good, and if tea threw away something which, with G.A.T.T. around, few other industries enjoy".

"Speaking of things international', I asked, "I hope I'm not taking up too much of your time...."

"Yes, but go on".

Chinese Menace

"What do you think, sir, of the Chinese menace to tea?"

"If you mean, what do I think of the return of China tea in a big way to the polite drawing-rooms of Europe, I would say that there are so few polite drawing-rooms that it wouldn't matter. But in Russia and behind the Curtain generally, China tea could find a big place, to our disadvantage. If what we hear is true, China is ready to dump its stuff regardless of loss, and none of us could stand up to that sort of attack. America might also be interested, even if the Americans can't stand Chinese politics. And, of course, the teas would be sold through all sorts of respectable ports, so their original sin could be forgiven.

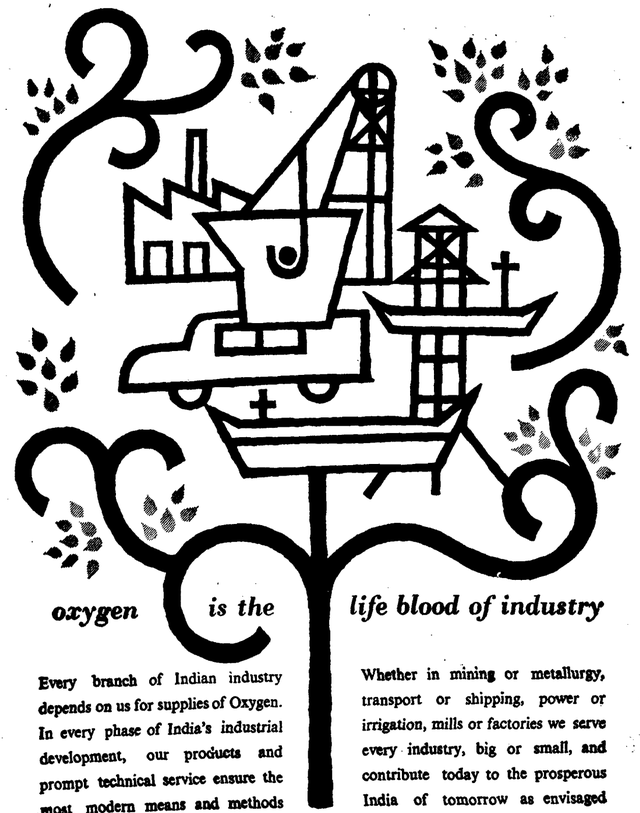
"But if you mean, as you may well do .... yes, I thought so .... China's claim to those excellent tea gardens on the north bank of the Brahmaputra, well, I for one am not afraid. I believe that China's present activities are aimed at emphasising her claim that her frontier is south and west of Tibet, not north and east. If some luckless folk must die in this emphasising, the Chinese will kill them—millions of Chinese have died in lesser causes. Of course, they will go on producing their maps—the 'rain checks' on their claims—because not to produce such maps would be loss of face, but I do not think that in my time, or in yours, or perhaps ever, will the gracefully represented constituencies on the north bank send their members, to a Parliament in Peking—whatever constituencies elsewhere may do.

Defensive Measures

"No my fears are of another kind: that essential defensive measures will cost money and retard progress, and that prices will rise along the border, from the Bihar Terai to northernmost Assam. China has given progress a scurvy blow."

"I am grateful, sir, for what you have told me. But one thing I would ask before I beg my leave of you ...." .. "Granted," he said .... "and it is that you should, like the presidents of all the tea associations, give me some forecast of the future."

"There are more associations now than when I started in tea," mused the vice-president, "probably in response to the Government's wish that existing associations should amalgamate: but I will not follow the practice of their leaders. Save in this, to tell you that our industry is still entertaining the tax-gatherer, the politician and the labour leader on a scale based on 1954's prosperity. This lavish hospitality cannot continue: the floor of many companies' treasuries is already visible, and their cupboards are emptied of good things. Unless someone calls a halt to this senseless competition between States and Ministries and labour unions to see which can get most out of tea, north-east India as a whole will soon be in a pretty bad way."



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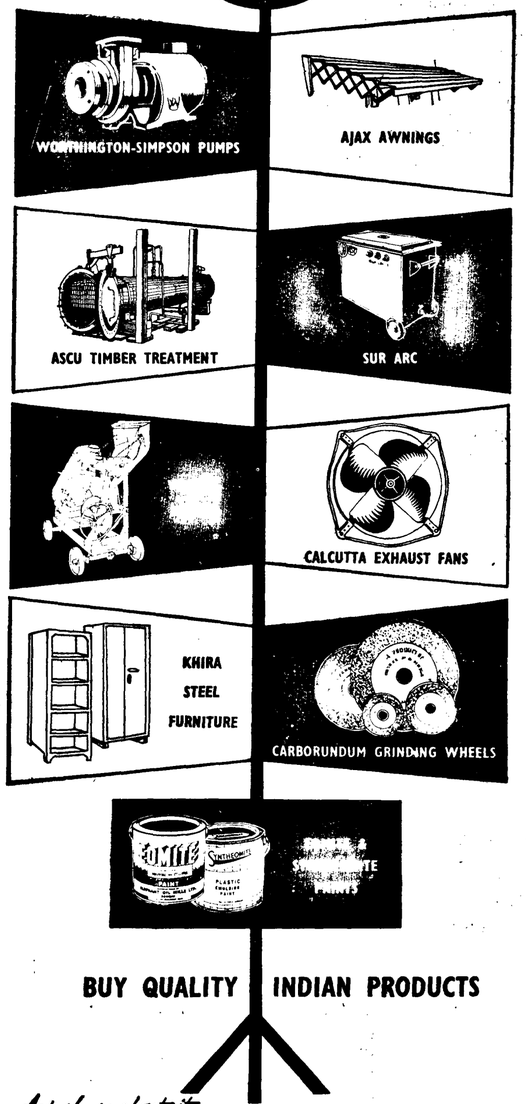

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RAISING CLOTH OUTPUT DURING THE THIRD PLAN

MORE RAW COTTON REQUIRED

AFTER passing through nearly three years of stress and strain, the cotton mill industry has now begun to face the future with some degree of confidence. The crisis which overtook it during the later part of 1956 was due to a combination of many adverse circumstances. The rise in food prices and the sharp increase in excise duty on mill cloth from 1st September of that year, in accordance with the two-fold policy of enabling the Government to take a share in the so-called abounding prosperity of the industry and of discouraging consumption as a safeguard against a possible shortage of cloth, seriously affected its stability and progress. The heavy increase in excise duty, estimated to yield a revenue of Rs. 72 crores, against Rs. 45 crores a year, proved an intolerable burden on the marginal and uneconomic units. This is because the hard-pressed consumer, who had to spend the bulk of his income on dearer food, could not be expected to bear it. Due to cost inflation, the weaker units in the industry found an escape from their growing financial embarrassments by going out of production. According to an official statement, issued on 3rd August, 1959, as many as 39 units had ceased to operate as on 30th June, 1959. The clock was thus put back in an important sector of the economy: the output of mill cloth declined to 4,927 million yards in 1958, against 5,306 million yards in 1956—the last year of the first five year plan.

Export Prospects

The industry is no longer faced with a large accumulation of unsold cloth. While the volume

By

RAMNATH A. PODAR

of output has remained more or less the same as that of last year, the export prospects are much brighter. The following two tables, relating to production and stocks, indicate the state of the industry during the current year:

PRODUCTION OF MILL CLOTH

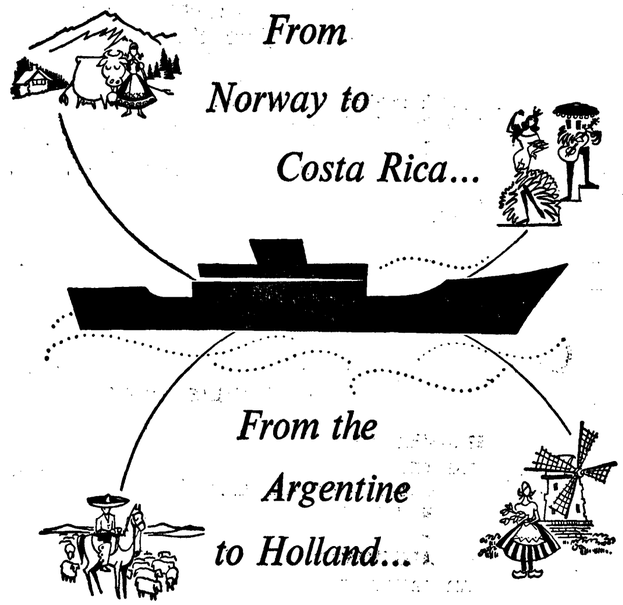
	(In thousand yards) 1958	1959
January	436,526	430,092
February	391,448	391,753
March	405,562	405,775
April	407,766	406,864
May	421,281	405,290
June	388,322	405,092
July	419,443	425,553
August	407,943	403,665
September	411,304	413,000
Total for nine months	3,689,565	3,687,084

STOCKS OF CLOTH HELD BY MILLS

	(In bales of 1,500 yards) 1958	1959
January	583,000	535,000
February	557,900	494,900
March	543,400	489,000
April	505,300	439,200
May	504,800	378,200
June	565,200	399,000
July	580,900	412,000
August	576,200	383,000
September	592,800	372,600

Due to the various incentives offered by the Government of India, exports of mill cloth during the current year appear to be quite promising. At the present rate of shipments, total exports in 1959 are likely to reach 750 million yards, against 581 million yards last year. These are welcome developments, but should the industry be satisfied if it succeeds in merely overcoming its difficulties? The planners are presently busy drawing up ambitious schemes for the third five-year plan, which will undoubtedly be much bigger than the two previous ones. Experience during the past few years suggests that a good deal of caution will be necessary when formulating the production target for the cotton textile industry. A *per capita* consumption of 20 yards by the end of the third plan, namely, 1965-66, is not over-ambitious, but in order to achieve this objective, it is necessary to consider what rôle should be assigned to the mill sector in the coming years.

In a memorandum, recently submitted to the Planning Commission, the Indian Cotton Mills Federation has estimated that India will have to produce 9,600 million yards of cloth by the end of the third plan in order to meet domestic needs at the rate of 20.3 yards a head, besides 800 million yards a year for exports. It has also suggested that the responsibility for manufacturing the required output should be shared by the three branches of the industry, namely, mills 6,300 million yards; handlooms 2,500 million yards; *Ambar* cloth 300 million yards; and decentralised power-looms 500 million yards. The annual output of the mill sector at present is around 5,000 million yards and, if the target envisaged for it by the Federation is conceded, it will have to increase its output by 1,300 million yards a year by the end of the third plan period. But for this the industry should have an assured supply of 6.6 million bales



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of cotton to secure an output of 9,600 million yards of cloth.

The task before the mill sector is two-fold, namely, to achieve an increased output to meet a possible increase in demand and to offer good quality products at reasonable prices as a means of stimulating consumption, both at home and abroad. The bulk of the productive equipment of the mills is worn out and out-of-date and its bad condition is responsible, in no small measure, for increasing the manufacturing costs, besides affecting the quality of goods manufactured on it. The arrears of machinery modernisation and rehabilitation have assumed enormous proportions, entailing a capital expenditure of some Rs. 300 crores to Rs. 400 crores. In view of this, the recent plea of the Central Minister for Industries, Mr. Manubhai Shah, that the programme of renovation should be completed by the end of the third plan appears to be over-optimistic. The Government has sanctioned the installation of 3,000 automatic looms in order to stimulate cloth exports and has, in addition, permitted mills to replace the existing plain looms by automatic ones at the rate of 2,500 a year for a period of three years. Judging the magnitude of the rehabilitation problem, the progress envisaged is by no means impressive, although it certainly represents a step in the right direction. But the mills should be assisted in every possible way to acquire the sanctioned machinery as soon as possible so that bigger strides towards modernisation might be made by them.

Cost Structure

Besides modernising their machinery, the mills should be allowed a certain measure of freedom to attain resilience in their cost structure. It has been widely recognised that production costs in India are some 20 percent to 30 percent higher than in many other countries. cotton accounting for well over 50 percent of the cost of production. While there has been a world-wide tendency for cotton prices to fall, their trend in India has entirely been in the reverse direction.

Apart from the fact that the prices of Indian cotton are above world parity, it is feared that there might be a serious shortage of the commodity in the coming months due to the failure to grow it in quantities laid down by the planners. The Planning Commission envisaged an output of 6.5 million bales a year by the end of the second plan, but the disparity between the target and the actual output threatens to be wide. The crop estimate for the current season varies from 4.6 million bales to 4.8 million bales and even assuming that the actual production will be 4.7 million bales, there will be a shortfall of 100,000 bales, compared with the estimated crop of the last season. The problem of supplies is further aggravated by the extensive damage which longer staple cottons have suffered due to floods and excessive rain, although those that are not much in demand by mills have escaped rather lightly. But to prevent a shortage of the basic raw material, especially at a time when the demand for cotton cloth is likely to grow, early steps must be taken by the Government to import foreign cotton on a bigger scale than in previous years. It has been suggested on behalf of the industry that cotton imports during 1959-60, should be about 1 million bales, instead of the normal 600,000 bales. Inadequate supplies of cotton will inevitably retard production and may lead to a shortage of cloth and the consequent increase in prices. The Government should, therefore, take steps early to prevent this undesirable development. The prices of home-grown cotton should be kept at a reasonable level and they should not be allowed to pierce the ceiling.

Rising Wage Bill

The next major item in the cost of production is the wage bill which accounts for as much as 25 percent of the total manufacturing costs. The rise in the cost of labour is responsible, in no small measure, for the growing rigidity in the cost structure. The following table shows the amount of dearness allowance paid to cotton mill workers of Bombay and Ahmedabad, the two major textile centres in the country, during the previous and the current year:

FOR A STANDARD MONTH OF 26 DAYS

	Bombay		Ahmedabad	
	1958	1959	1958	1959
	Rs. nP	Rs. nP	Rs. nP	Rs. nP
January	78.70	82.95	73.84	84.22
February	78.40	82.35	70.77	83.45
March	77.85	83.20	69.61	87.69
April	78.10	83.75	67.30	83.30
May	80.40	83.50	69.22	83.45
June	79.80	85.20	72.30	85.76
July	82.10	87.15	73.07	89.99
August	85.45	88.60	76.92	90.76
September	84.60	89.15	81.53	93.07
October	84.60	89.70	82.68	91.53

The average basic wage of workers in these centres is just over Rs. 50 a month. In spite of a large burden on the industry, it is willing to pay higher wages to workers provided they agree to a suitable upward revision of their workloads. At present, the productivity in the Indian cotton mills is probably the lowest, compared with that obtaining in most of the advanced textile producing countries. It will be extremely difficult to achieve economies in production costs as long as this state of affairs is allowed to persist.

Modernisation of Machinery

The picture presented by the mill industry is none too alluring. It is true that some mills have come to grief due to inefficient management, but the ills of the industry, as a whole, cannot be attributed to this fact. It is important that the problem of modernisation of machinery should be faced boldly, for only with the aid of up-to-date equipment will the mills be able to achieve efficiency and economy in production and thus acquire sufficient competitive strength in the overseas markets. Besides, the relations between the mill and the non-mill sectors should be so regulated as to enable them to function as complementary to one another, instead of coming into mutual conflict as they do at present.

A definite period should be envisaged for stopping the enormous sacrifice which the organised sector is called upon to make both by means of financial contribution and by restricting its output in certain lines in order to sustain the decentralised sectors. The Planning Commission has itself recognised the short-sightedness in creating a permanent vested interest in inefficiency in the name of employment. The mills cannot, in fairness, be expected to shoulder the burden of their infirmities for an indefinite period and risk their own stability by doing so. Given a more realistic textile policy, there is no reason why all the three branches of the industry should not prosper, especially when the demand for cloth is likely to increase with the expansion of the economy.

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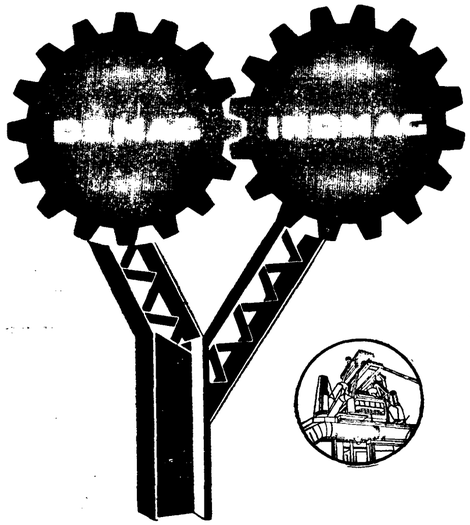

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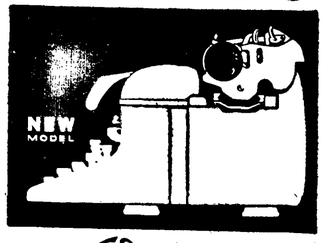

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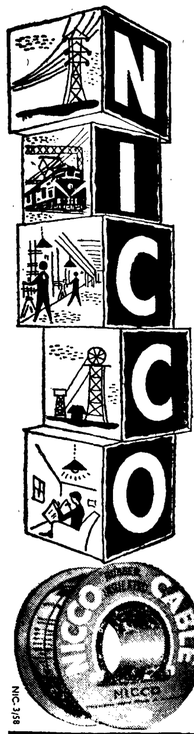

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SUGAR PRODUCTION DECLINES

CONSUMPTION RISING : PRICE CONTROL AGGRAVATES SHORTAGE

By
J. S. MEHTA

IT is heartening to find that the new Central Food Minister, Mr. S. K. Patil, has initiated a new sugar policy which provides for incentives both to growers and the industry to increase sugar output, and a target of 2.2 million tons has been set for the current season, 1959-60. This represents an increase of 16 percent over last year's output of 1,916,000 tons. The next season's target has been fixed at 2.5 million tons. This shift in emphasis from mere control on distribution to an increase in production marks a welcome change in the Government's policy. The incentive scheme aims essentially at preventing the diversion of sugarcane in the reserved areas of factories to power crushers and *khandsaris*. While the statutory minimum sugarcane price has been raised by 3 annas from Rs. 1-7 to Rs. 1-10 a maund to induce the grower to supply his produce to the factories, a subsidy of 31nP a maund has been allowed to factories which start crushing early by certain fixed dates; the subsidy is intended to cover the additional cost which factories will incur due to the lower recovery of sugar during the earlier part of the season. Furthermore, a rebate of 50 percent in the basic excise duty has been allowed on excess production over the average of the last two years. This concession is intended to enable the factories to draw larger quantities of sugarcane by either paying higher prices in competition with *khandsaris* and power crushers or by drawing sugarcane from longer distances at considerably higher costs or by continuing late crushing when the recovery of sugar falls to an uneconomic level. As a result of this policy, as many as 24 sugar factories out of the [redacted] in west U.P. and 23 in east U.P. and north Bihar, where the subsidy on an early start is available, began crushing earlier according to the dates specified by the Government. This, no doubt, should augur well for the success of the new policy.

Decline in Production

Since 1953-54, when the production of sugar was only 1 million tons, there has been a continuous rise in the output. During the season 1956-57, it reached the record figure of 2,029,000 tons. Thereafter, it started declining and in the following season, 1957-58, it came down to 1,978,000 tons. During the last season, 1958-59, it further declined to 1,916,000 tons, although initially it was estimated by the Government at 2.1 million tons. This fall of 113,000 tons from the peak level reached in [redacted]7 by itself may not appear to be serious, but [redacted]to be considered in the context of an addi-[redacted]300,000 tons to the installed capacity of the [redacted]y. The actual decline is, therefore, of the [redacted]f 413,000 tons.

In May 1957, the excise duty on sugar was increased from Rs. 4-2 to Rs. 8-4 a maund and, in December 1957, an additional excise duty was levied for replacing sales tax. As there was no excise duty on *khandsari*, these increases in the duty on sugar created a very wide margin of concession to *gur* and *khandsari* and, consequently, the production of sugar was affected adversely. Factories in west U.P., central U.P. and Punjab, which were mainly affected by competition from power crushers, have suffered, and the drop in their production from the 1956-57 peak level at 34 percent has been quite severe in spite of the substantial expansion effected by them. In certain individual cases, the decline has been as high as 50 percent. It was only on 28th February, 1959, after about two "crushing seasons" that the Government imposed a token excise duty on *khandsari*. But by then the season 1958-59 was almost at a close, and this belated action could not possibly restore production.

Price Control

The decline was further accentuated by another major factor, namely, the continuation of injudicious control on the ex-factory price of sugar. In U.P., north Bihar and Punjab, control rates were quite unremunerative. Instead of giving an incentive to the industry to produce more, they did not even cover the cost of production fully. The result, as could be expected, was an adverse effect on production. It might be of interest to note here that it is only in the controlled area that production declined, while in other areas there was actually some improvement. But for this improvement, the overall output would have shown a steeper decline. The comparative figures of production are as follows:

	All India	Controlled area	Rest of India
	(In terms of 00,000 tons)		
1956-57	20.29	14.20	6.09
1958-59	19.16	12.38	6.78

The deterioration in crop conditions due to the prolonged drought and heavy rains later also affected production. So the yield of sugarcane was lower and the quality inferior. The all-India recovery percentage of sugar was, for instance, lower at 9.86 percent, against 10.01 percent during the previous season. Contrary to the production trend, sugar consumption in India has been rising steadily. In 1956-57, it was 1,986,000 tons while in 1957-58, it went up to 2,044,000 tons. In the last season, it was estimated at about 2.1 million tons to 2.15 million tons. In view of the shortfall in production, the Government had to restrict releases from mills and the actual consumption amounted to 2,056,000 tons only.

Rise in Prices

With a widening gap between production and consumption, reserve stocks in the country declined from 428,000 tons at the close of 1956-57 to 310,000 tons in 1957-58 and to 160,000 tons at the close of the last season, that is, 1958-59. But for restricted releases from the mills, reserve stocks would have declined further. This, apparently, created a bullish psychology in the markets and prices started rising, causing serious concern

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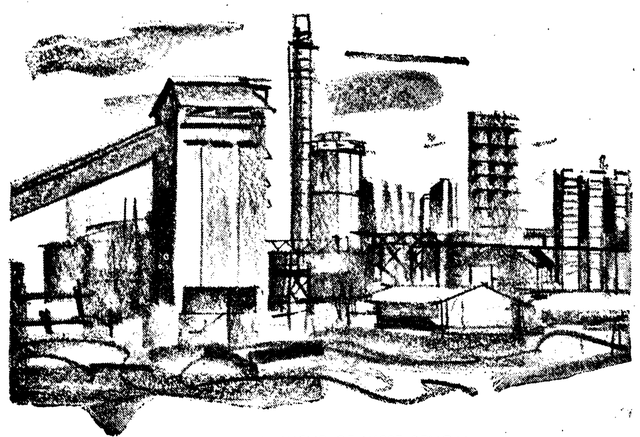

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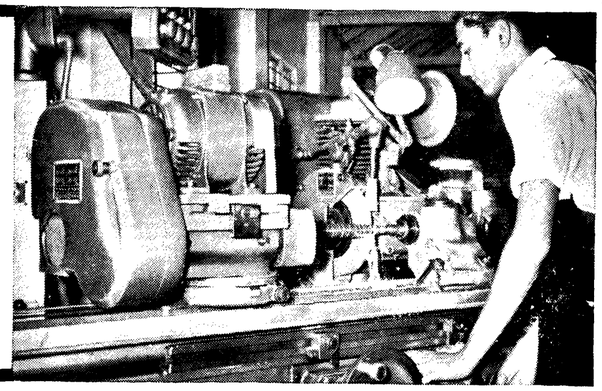

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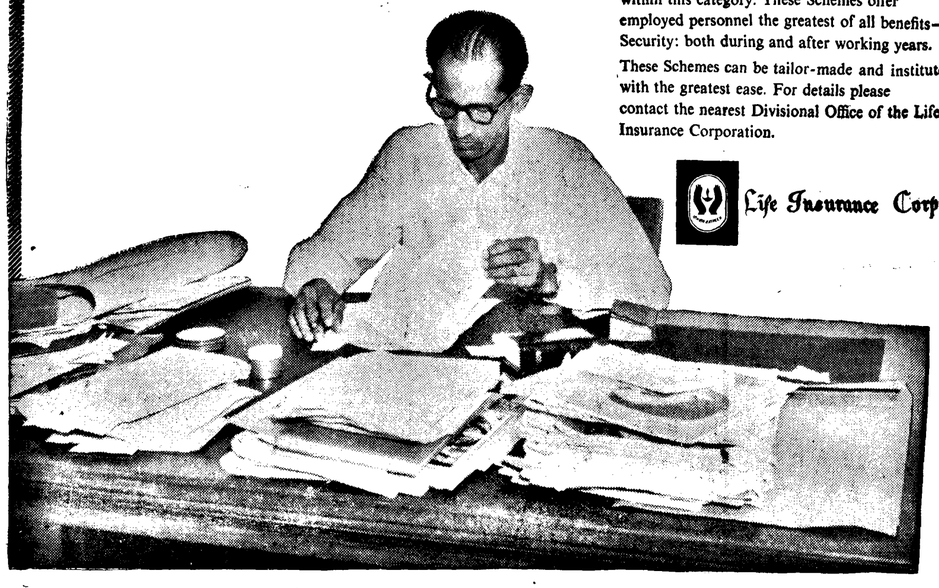

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among consumers. There was a furore in the Lok Sabha about the rise in sugar prices last August. But the debate, instead of helping a proper assessment of the situation, resulted in much uninformed criticism against the industry. The facts given by the then Central Food Minister himself showed that the industry had not exploited the situation. On his own admission, prices continued to be at a reasonable level until the beginning of May and the controlled rates were generally effective. In July, the Government took over the entire stocks with the mills in the controlled area. Profiteering by the mills, if any, could therefore have taken place only during May and June. During these two months, the total quantity of sugar released by the Government was 375,000 tons. Out of this, 131,000 tons was allotted directly by the Government to its nominees, 124,000 tons was given for sale to factories situated in non-controlled areas and the balance of 120,000 tons was released to mills in the controlled area. The allegation about profiteering, therefore, relates only to 120,000 tons which was sold by mills in the controlled area. Their quota of 120,000 tons forms only 32 percent of the total release. It is hardly convincing to suggest that the factories, which contributed only 32 percent of the supply, could manipulate the prices with a view to exploiting the situation.

Distribution Arrangements

The imposition of control itself inevitably led to a feeling of scarcity. The fall in the output and the subsequent interference of the Government with the normal channels of distribution further aggravated the situation. Along with the imposition of price control in July 1958, the Government also introduced the system of direct allotment of sugar for sale to its nominees. In the beginning, the quantity thus allotted directly by the Government was not large. But from March 1959, it was progressively increased, and the quota of sugar allowed to the mills was correspondingly decreased. In June this year, the quota of U.P. and north Bihar mills was cut down to 30 percent while that of Punjab was suspended altogether. In July, there was complete suspension of releases to mills and the entire quantity was taken over by the Government for sale by its allottees. This reduction and subsequent suspension of mill quotas naturally dislocated the normal distribution of sugar. A large number of the direct allottees of the Government were new to the trade and had no distribution organisation, so pockets of shortage were created here and there. Even the complete suspension of free rate quotas of releases from mills from July onwards did not bring down the sugar prices.

New Capacity

As for the installation of new capacity, progress has been quite satisfactory. During 1958-59, eight new units went into production. Besides, a few more factories were able to complete their expansion programmes. The combined new capacity thus brought into production was of the order of 130,000 tons. During the current season, six new factories will begin production and another four units are expected to be ready by 1960-61, the last year of the second plan. The total number of new units thus expected by the end of the second plan is 36. Initially, 52 new units were sanctioned, but this number had to be revised in view of the foreign exchange shortage. But with the development of the sugar machinery manufacturing industry in India, the foreign exchange requirement for a plant has been considerably reduced to about Rs. 20 lakhs. The four plants scheduled to go into production in 1960-61, will be fabricated in India. It is further expected that seven new plants will be supplied by sugar machinery manufacturers during 1961-62. This quick development of the sugar machinery industry should satisfy both the Government and the industry. The Statewise progress in the establishment of new units is shown in the table below :

NUMBER OF NEW UNITS GOING INTO PRODUCTION

	Up to 1957-58	1958-59	1959-60	1960-61	Total up to 1960-61
Bombay	8	6	1	1	16
Madras	2	—	3	—	5
Punjab	4	—	—	—	4
Mysore	2	—	1	1	4
Andhra Pradesh	2	—	—	2	4
U.P.	—	1	—	—	1
West Bengal	—	—	1	—	1
Assam	—	1	—	—	1
	18	8	6	4	36

It should be realised that the prices which the consumer has to pay are higher because of the heavy burden of taxes. The way in which the burden has increased over the last few years shows that the Central and State Governments treat the sugar industry as a milch-cow. State Governments collect about Rs. 10 crores annually as cane cess and spend a very meagre portion of it on sugarcane development for which the cess is imposed. The Central Government raises about Rs. 58 crores a year through excise duty. Sugar factories also pay annually Rs. 1 crore as co-operative societies' commission. The following table gives the extent of the increase in various taxes since 1946-47 :

	1946-47 Rate	1946-47 Incidence a maund of sugar Rs.	1958-59 Rate	1958-59 Incidence a maund of sugar Rs.
Sugar excise	...	2.20	...	10.69
Cane cess	0-1-0 a maund of sugarcane	0.62	0-3-0 a maund of sugarcane	2.00
Co-operative societies' commission	0-0-3	0.15	0-0-9	0.47
Total		2.97		13.16

Financial Position

It will not be out of place to refer here to the results of the study conducted by the Association of Indian Trade and Industry, Bombay, on the finances of the Indian sugar industry for the seasons 1954-55 to 1957-58. It covered the factories producing 88 percent to 92 percent of the country's output of sugar and would, therefore, be considered as fully representative of the industry. The study has shown an alarmingly poor financial position of the industry. Many units are actually incurring losses, so returns on capital and also reserves are declining. The industry in the north, particularly,

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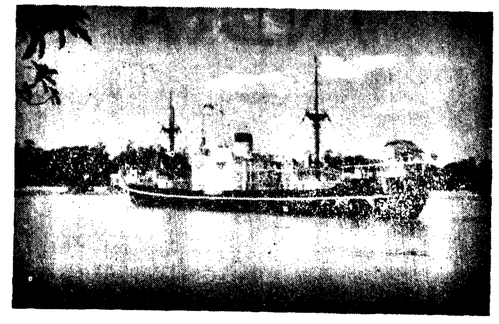

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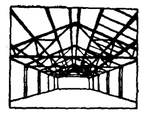

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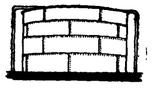

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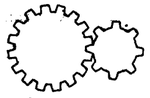

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is faced with near-crisis conditions. The results of the study are summarised below:

Year	Number of companies incurring loss	Net profits as percentage of net worth	Dividend as percentage of net worth
		All India	
1955	27	7.33	4.87
1956	35	7.30	5.07
1957	41	7.56	5.11
1958	35	7.19	4.90
		North India	
1955	22	5.88	4.23
1956	25	5.46	4.00
1957	27	4.58	3.71
1958	24	3.52	3.55

The table above indicates the need for a re-orientation in the Government's present price policy for the industry. Manufacturers, therefore, approached the Government asking it to refer the question of fair sugar prices to the Tariff Commission. The latter has already concluded its enquiry and the report is now being considered by the Government. It is hoped that on the basis of the recommendations of the Commission, it would be possible for the Government to formulate a realistic price policy, which besides meeting the cost of production fully would also provide for the industry's growth and development. Most of the existing plants were put up over 25 years ago, and are due for large-scale replacement and modernisation for which large funds are required. But unless this is done, their productive efficiency will suffer. [illegible]e cost structure to be allowed to the industry [illegible]d provide for this adequately.

Third Plan Target

[illegible]ndia is in the fourth year of the second five [illegible] plan and, naturally, the third plan, which is to be launched in 1961-62, is engaging the attention of the planners. As for sugar, various agencies are considering the third plan target. Although the Development Council for Sugar, which is the body whose recommendation for the target forms the basis of the Planning Commission's calculations, has not yet finalised its recommendations, there is a general consensus of opinion that the target of sugar production should be at least 3 million tons, against 2,250,000 tons for the second plan. This is necessary as, considering the expected increase in population over the five-year period and the expected improvement in the *per capita* consumption as a result of improved living standards, etcetera, the demand for sugar is bound to increase appreciably.

To achieve a production target of 3 million tons, the industry's installed capacity will have to be raised to about 3,250,000 tons. The industry is not likely to face much difficulty in expanding the present capacity to the target figure. The present capacity with an improved working duration of 140 days, against 120 days, which was the basis of the previous calculation, together with the capacity of the 12 new units sanctioned in the second plan but to be completed early in the third plan, will create about 2.8 million tons of capacity. This will leave a gap of 450,000 tons to be filled in during the third plan. With the arrangements for the local manufacture of most of the machinery, through the two consortiums of sugar machinery manufacturers, there should be no difficulty in effecting the increase in capacity. This will be further facilitated if preference is given to the expansion of the present units rather than to new installations, as this will reduce the cost of expansion in capacity by 50 percent and will also yield quicker results.

Cane Development

The increase in the sugar mill capacity will result in a rise in production only if sufficient sugarcane is available for the full utilisation of the increased capacity. Here, much remains to be done, for both in the yield an acre and in quality of cane, much leeway has to be made up. With the present stress on food production, the scope for increasing the acreage under sugarcane is limited. The increased production of sugarcane will, therefore, have to come from an improvement in the yield an acre. Although sugarcane development schemes were started in 1948-49 and much effort and money has been spent in effecting some improvement in the development zones, the overall results have not been encouraging: the yield an acre continues to be low at less than 13 tons, against 56 tons in many countries. The Indian Central Sugarcane Committee, while recently discussing the sugarcane target for the third five year plan, kept this unsatisfactory feature of India's sugarcane growing in view, and it is expected that necessary efforts will be made to increase the yield to at least 20 tons an acre. The effort required to effect such an increase will be tremendous. But unless something really substantial is done and concerted and co-ordinated steps are taken, the position cannot improve.

Apart from increasing the overall cane production in the country, it is also necessary to see that the quantity of sugarcane produced is properly used. The trend during the last two years of increased *khandsari* production and that too at the expense of sugar, has given rise to misgivings that this matter may not receive adequate consideration. In fact, it was the rapid growth of *khandsari* at the expense of sugar that led to the sugar shortage in the country. It is common knowledge that the *khandsari* process is a wasteful one as the sugar recovered is only 6 maunds to 7 maunds a 100 maunds of sugarcane, against 10 maunds in a sugar factory. The extra three maunds of sugar a 100 maunds of sugarcane which we get while producing white sugar, is simply lost in the *khandsari* process. Last year, 5.4 million tons of sugarcane were used for producing 350,000 tons of *khandsari*. If this cane had been used for the production of white sugar, sugar production would have been 540,000 tons resulting in a net gain of 190,000 tons of extra sugar. With this quantity, the recent shortage of sugar and the rise in prices could have been easily mitigated. While greater attention has, therefore, to be given to removing the various handicaps which stifle the growth and expansion of the sugar industry, it is also of paramount importance to attend to the basic malaise of backward sugarcane culture and to ensure proper utilisation of the available supplies.

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DEPRESSION CONTINUES IN FREIGHT MARKETS

INEFFICIENCY GROWS AT CALCUTTA PORT

THE worldwide depression in the freight markets continued in 1959. Although there was a large increase in the number of ships sold for breaking up, deliveries of new tonnage compensated amply for the reduction. As this article is written, a sharp increase in grain rates from the United States to the U.K.-Continent, and a wider demand for vessels generally, give hope that the worst of the depression may be over. The table below shows market movements in the trades which are of local interest.

The major ports in India have worked satisfactorily, with the exception of Calcutta. Delays, general uncertainty, labour problems and natural disadvantages have made it one of the most difficult ports in the world to work in. The two problems mentioned last year—the introduction of the piece-rate scheme and the deterioration of the river—remain unsolved. In spite of considerable talk, little action has been taken to deal with either.

Less Work Done

In *Capital's* 1955 annual supplement, it was pointed out that the three-shift system introduced in that year yielded the same output as the former two-shift system. The average work done then was 25 tons a gang-shift on general imports and 27 tons on general exports. The latest figures published by the Dock Labour Board are 19 tons and 23 tons, respectively, and they compare very unfavourably with those for Bombay and Madras. Unless the piece-rate scheme is introduced, Calcutta will remain one of the slowest working ports in the East.

As far as river conditions are concerned, the position has become worse. In December 1958, vessels over 10 knots could enter Calcutta port drawing 22 feet or more on 13 days in the month, but in December 1959 the number of such days has been reduced to seven. The obvious result will be a diversion of cargo to other ports, but experience shows that the nearest ones, Visakhapatnam and Madras, become congested very rapidly. Furthermore, in many cases it will not be feasible to discharge Calcutta cargo at ports on the way. Colombo, which in the past served as a transhipment port, cannot be used for this purpose nowadays. On-carriage from Indian ports can be done only by Indian flag tonnage. The Indian coastal fleet, however, is not suitable for the purpose and will have draft problems of its own. The consequence is likely to be lengthy delays at Sandheads while vessels wait for a suitable draft, the bunching of ships in port will follow.

Haldia Anchorage

For grain ships, the Haldia anchorage was opened in November. But, as this is an experimental measure, most grain carriers will probably continue to lighten at Madras and Visakhapatnam until it becomes clear what can be accomplished at Haldia. It is safe to say that no commercial shipper will load general cargo at Haldia unless it proves quite impossible to do so in Calcutta. As the port is vastly overtonnaged in almost all directions for the cargo offering, it would need a major disaster to cause this.

During the past year, an accident in the river brought considerable dislocation of movement

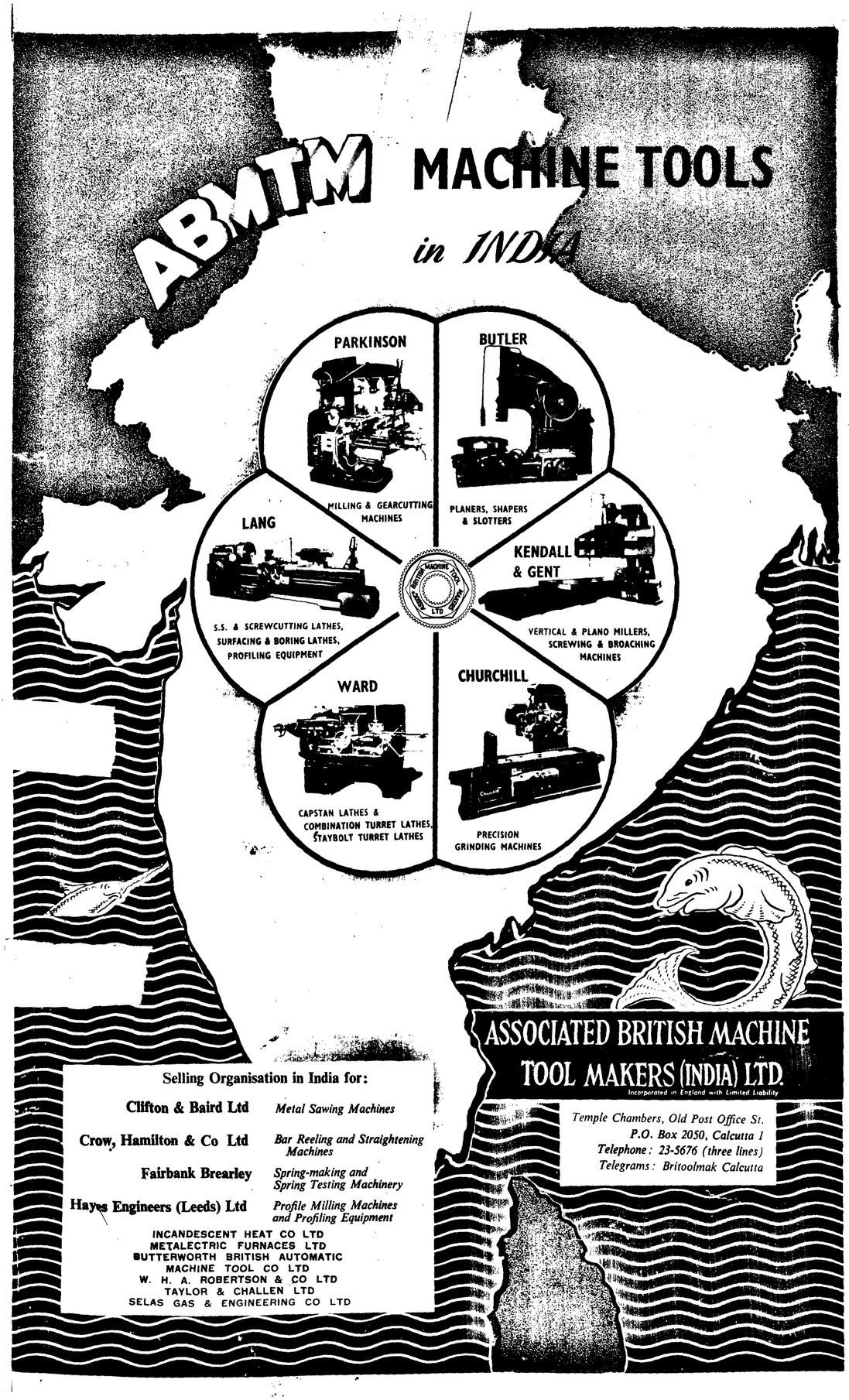
By

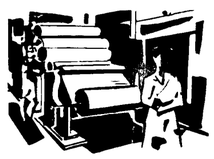
A SPECIAL CORRESPONDENT

and emphasised once again how short of salvage equipment the port is. It is to be hoped that the port authorities have already taken some action to remedy this shortcoming. The lack of dredging equipment has been obvious for a number of years, but the action taken has invariably been too little and too late. What might help slightly, and would not involve spending foreign exchange, is an overhaul of the Port Commissioners' repair organisation. The length of time taken at present to repair dredging craft would not be tolerated in a commercial organisation. Assistance and appeals from the shipping community about acquiring dredging plant have been ignored. At the time of writing, there is barely seven feet of water on the Balari bar, and ships drawing more than 18 feet cannot be moored in the river above Kidderpore dock.

The new chairman of the Port Commission brings to the job a wealth of experience and enjoys general confidence. It is hoped that he will be given a sufficiently free hand by the Central Government to make improvements which are long overdue, and that decisions on the major problems will be reached by the Centre promptly.

Trade	Last Year	This Year
	Rs.	Rs.
Coal:		
Calcutta-Colombo	26	25.75
Rangoon	48	25.75
Singapore	nil	nil
Hampton Roads-Japan	33.25	38
Continent	15.50	13
Ore:		
Calcutta-Japan	24.50	28.25
East Coast India-Japan	28	29.75
Mormugao-Japan	28	27.25
East Coast India-Continent	25	37
Visakhapatnam-U.S.N.H.	32	38
Grain:		
North Pacific-India	43.50	40
U.S. Gulf-India	40.50	40





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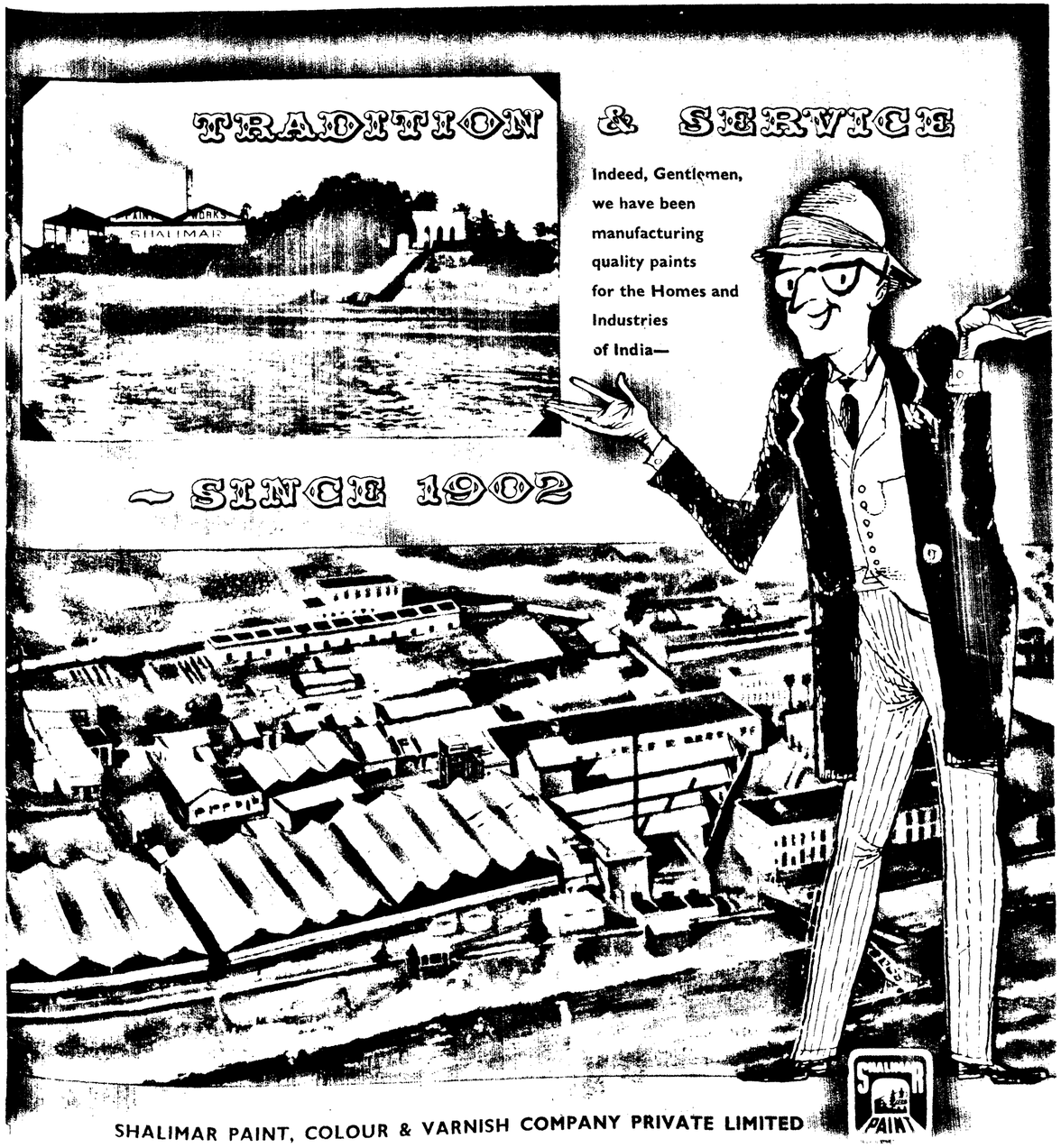
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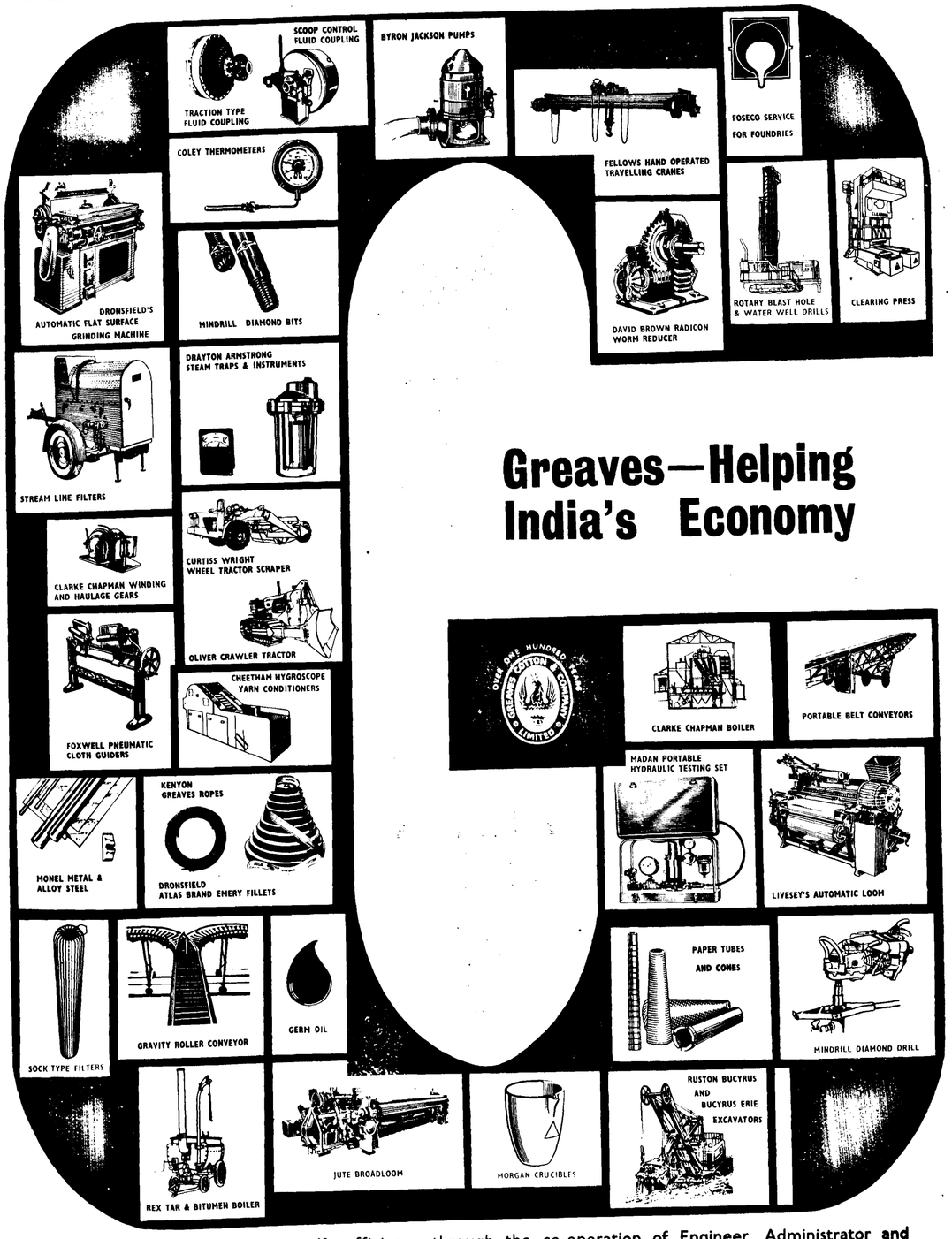

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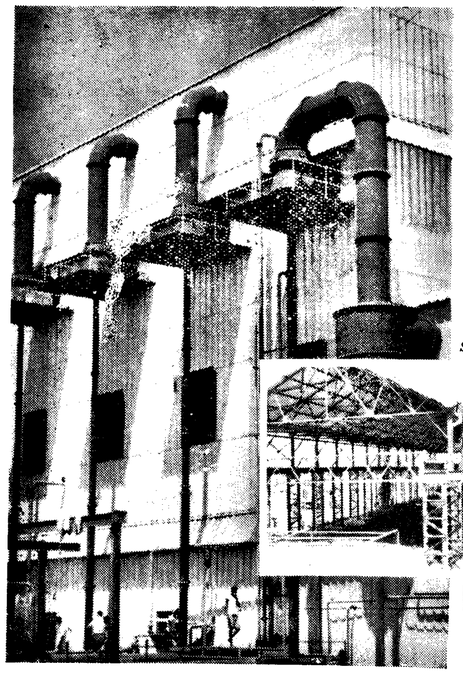

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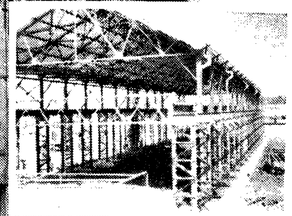

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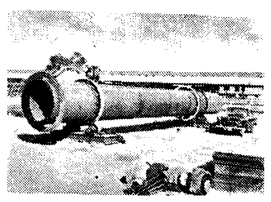

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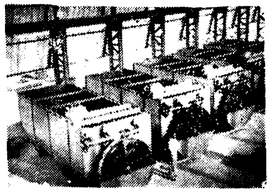

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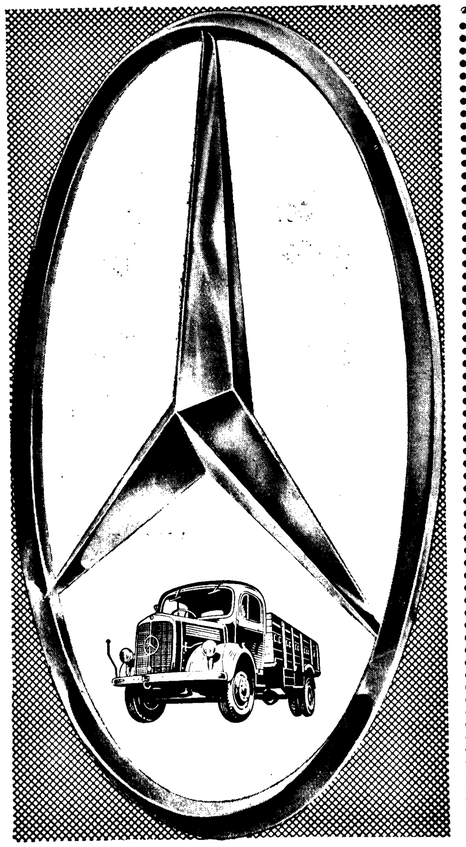

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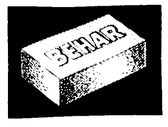

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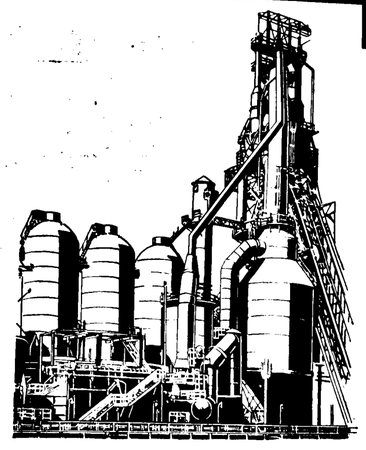

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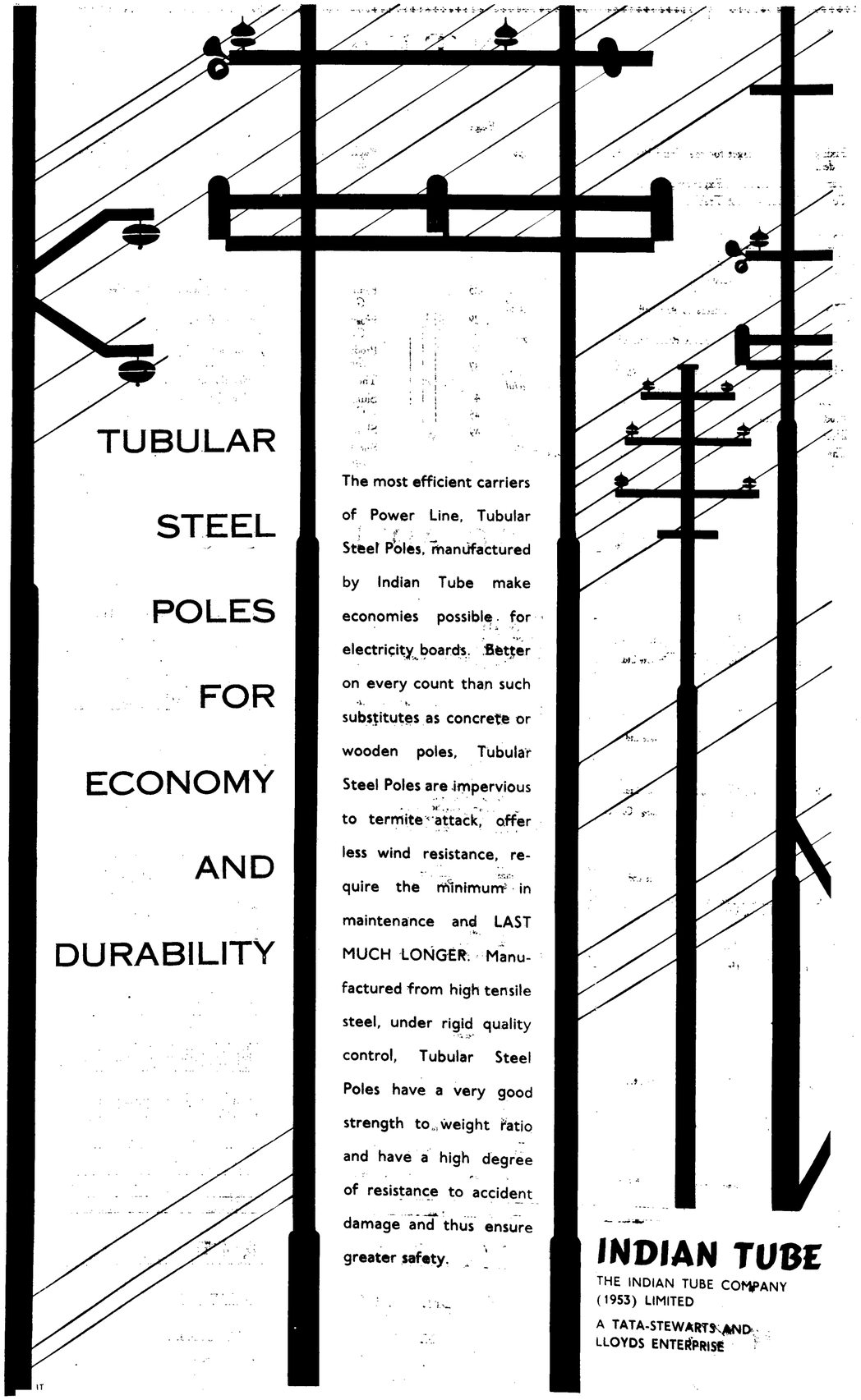

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Fixing the Steel Target for the Third Plan

Demand Estimates Prescribe Rapid Expansion

By

A SPECIAL CORRESPONDENT

AFTER many months of debate, the controversy over the steel target for the third plan has been settled with the Planning Commission deciding on a figure of 9.8 million tons, closely corresponding to that suggested by some in the private sector. It is, however, unlikely that the private sector will derive much satisfaction from the target now fixed because the addition of 3.8 million tons (over the second plan level of 6 million tons) is to be achieved wholly in the public sector. Fixing targets for a basic commodity like steel in a developing economy is a hazardous business, subject, on the one hand, to the risk of under-estimating the rising demand, and of over-optimism on the other. In spite of the refinements of technique now employed in making long-term forecasts, a great deal depends on the basic assumptions about the future of the economy, a matter in which ideological predilections play a part. It is instructive in this context to examine how widely the estimates of demand have varied since the mid-forties, and draw the appropriate lessons from past mistakes.

Earlier Targets

Even before planning commenced, an attempt to formulate a long-term policy for steel began with the appointment in 1945 of the Iron and Steel (Major) Panel, one of the several constituted by the Planning and Development Department. The Panel in its report, issued in 1948, recommended a target of 2.5 million to 3 million tons to be achieved by 1955, while immediate requirements were estimated at just over 2 million tons. Its view, the report said, had the unanimous support of "all the principal chambers of commerce, both Indian and European". Allowing for an increase of 500,000 tons through the expansion of existing units, it recommended the establishment immediately of a new unit with an initial capacity of 500,000 tons, going up eventually to a million tons. A second steel works of similar capacity was recommended, if demand kept pace with the Panel's estimates. The top planning body, the Advisory Planning Board as it was called, did not accept the Panel's recommendations because, in its view, the current demand was only 1.5 million tons. Shortly afterwards, an E.C.A.F.E. subcommittee on iron and steel made a separate investigation, and its report (issued in 1950) confirmed that demand would reach 2.9 million tons by 1954.

Another survey of steel demand was made in 1952 by a technical mission appointed at the instance of the World Bank. The mission, assisted by the Government of India's Iron and Steel Controller, thought that the deficit in steel supply would be only 400,000 tons or 500,000 tons by 1958.

Bessemer converters

As a result, the Government concluded an agreement in 1953 with the Krupp-Demag combine for the construction of a steel plant with an initial production capacity of 500,000 tons. Shortly afterwards, Mr. T. T. Krishnamachari entered the scene as Central Minister for Commerce and Industry, and yet another survey of steel demand was carried out on his initiative in 1954. Its conclusion was that the country would need 6 million tons by 1960-61, which implied a gap of 4 million tons to be covered through expansion or addition. This was the basis on which the second plan target was formulated, but there was no lack of critics (although not so well-organised or vocal as this time) to protest against such extravagance.

Fanciful Statements

Soon after the expansion under the second plan was decided on, and even before the three plant sites had been chosen finally, speculation commenced about the third plan targets, encouraged by the fanciful statements of Mr. Krishnamachari. Relying perhaps on projections of future economic growth implicit in the second plan itself, he advocated a target of 15 million tons of steel by the end of the third plan, plus another 2 million tons of pig iron. When these "off-the-cuff" projections found place in the Budget papers of 1958-59, the private sector led by Mr. J. R. D. Tata was the first to express its alarm. Speaking at the Tata Iron and Steel Company's 1958 annual general meeting, he said: "Over-emphasis on steel production in our plans would prove a costly mistake, and I wish to sound a note of warning against allowing the steel industry to run away with too great a proportion of... total resources. No one would be more pleased than I to see India one of the great producers of steel in the world, but a little practical thinking makes it clear that we would be better off, if for a while, we had less steel plants but more secondary and finishing industries."

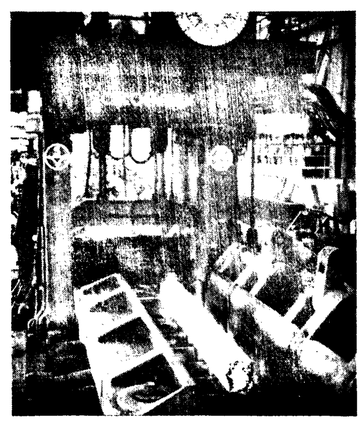
Serious consideration of the third plan target commenced later. The forward planning was done mainly in the Perspective Planning Division of the Planning Commission which presented a paper entitled "Certain Dimensional Hypothesis concerning the Third Plan" in November 1958, in which it put forward certain provisional targets within the framework of a total investment of Rs. 10,000 crores. These included a figure of 11 million tons of steel by 1965, 20 million tons by 1970 and 30 million tons by 1975. Subsequently, the Division refined these formulations and incorporated them in its "Rationale of Output Targets for the Third Plan", a paper issued in March 1959, which worked out in detail the steel demand for the 1960-65 period, sector by sector and industry by industry. The paper confirmed that an installed capacity of 11 million tons was needed by 1965 to meet the economy's entire requirements from internal production. These formulations for the third plan were the basis on which a working group (set up with representatives of the Central Ministries of Iron and Steel and Commerce and Industry, and the Planning Commission in February 1959) estimated the overall requirements at 10 million tons of ingots, 1.5 million tons of pig iron for sale and 80,000 tons of alloy and tool steel. By the time the working group formulated its ideas, the Steel Ministry held a meeting with the major steel producers in August 1959, and discussed with them the feasibility of a 10-million-ton target.

At the meeting, conflicting views were expressed by private sector interests, the clash being mainly between the major steel producers who thought the Ministry's target too high, and representatives of the Engineering Association of India and other consumer interests who favoured an even higher target. Subsequently, the Tata Iron and Steel Company submitted a memorandum in which it recorded its preference for a target of 9 million tons and expressed its readiness to expand its capacity by 500,000 tons or 750,000 tons. A separate memorandum from the Engineering Association of India attempted a detailed examination of demand from various categories of consumers and arrived at a total of nearly 11 million tons. Broadly speaking, the divergence between the two memoranda represented the somewhat different attitudes of manufacturing and consuming interests, one presumably fearing a surplus of supply which would affect its profit margins and the other equally apprehensive of shortages leading to high prices.

Viewpoint of Producers

The case of steel producers was publicly voiced by Sir Jehangir Ghandy of T.I.S.C.O. who underlined the grave shortage of coking coal by pointing out that total allotments of 8 million tons for 1960 to the five steel plants included 750,000 tons of grade I coal with an ash content of 17 percent or 20 percent. This would mean a further increase of ash in the coke, which was already 1 percent to 2 percent above past levels because of the gradual deterioration in the quality of supplies. An increase of 1 percent in ash raised the cost of steel by Rs. 3 a ton, curtailed pig iron production by 5 percent and increased the use of fluxing materials by 3 percent to 4 percent. He doubted, therefore, whether the existing private and public sector plants could attain their rated second plan output with the existing raw material supply. He complained against the delay in putting up washeries which formed an integral part of the second plan steel programme, and referred to the fact that of the five washeries, the two earmarked for supplying washed coal to the private sector had been subject to serious delays.

Sir Biren Mookerjee, chairman of the Indian Iron and Steel Company, expressed similar sentiments in his annual statement to shareholders. He thought that the country is fast reaching the critical point where the rising ash content of the coke will make blast furnace operation impossible. When all the plants in both sectors come into production, "there will be so much iron and steel produced that it will be difficult for the producers to dispose of their output". Both he and Sir Jehangir Ghandy were anxious to see the selling price of steel reduced as a fillip to greater consumption. Amplifying this point, Sir Biren said that the price of steel to fabricators on the Continent was "anything between Rs. 175 and Rs. 220 a ton cheaper" than the price which fabricators in India have to pay at the controlled rates fixed by the



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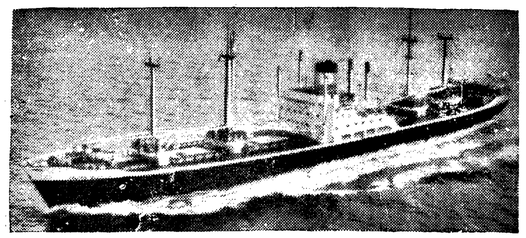

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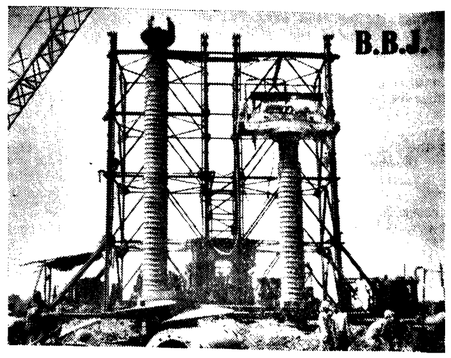

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Government. Both the steel magnates discounted the possibility of exports to achieve better balance between internal demand and supply, and warned against any optimistic assumptions on that account.

Conflict within the Commission

The resulting confusion was further aggravated at a meeting held by the Planning Commission with the major steel producers in December 1959, at which the two wings of the Commission itself—the Perspective Planning Division and the Industry Division—publicly advanced strongly-opposed viewpoints, one favouring 10 million tons and the other 8 million tons. The lower estimate of the latter was based on (a) its own projection of demand calculated by the end-use method, and a comparison of the volume of actual development outlays in 1958 with that assumed for 1965, (b) a shortage of raw materials, particularly coking coal, which was already hampering production, (c) a shortage of technical personnel and (d) its preference for lower capital-output and higher capital-employment ratios which made it favour investment in industries other than steel. The P.P.D.'s note was equally well argued, and it enunciated the following general principles :

(a) In view of India's cost advantage in steel-making, it would be a sound policy for India to become not only self-sufficient, but also a significant exporter.

(b) In planning for industrialisation, the steel industry should play an active, rather than a passive, rôle. The development of machine-building industries must play the central rôle in achieving a self-reliant economy. Experience elsewhere suggests that these industries grow most vigorously when the steel industry is one step ahead of them.

(c) Steel plants have a long gestation period. Consequently, planning for the third plan should keep in view the requirements of the fourth plan. In each plan period, new plants should be initiated to serve as nuclei for future expansion.

(d) Installed capacity should be somewhat in excess of the required production, for it takes a new plant two or more years to reach the rated capacity.

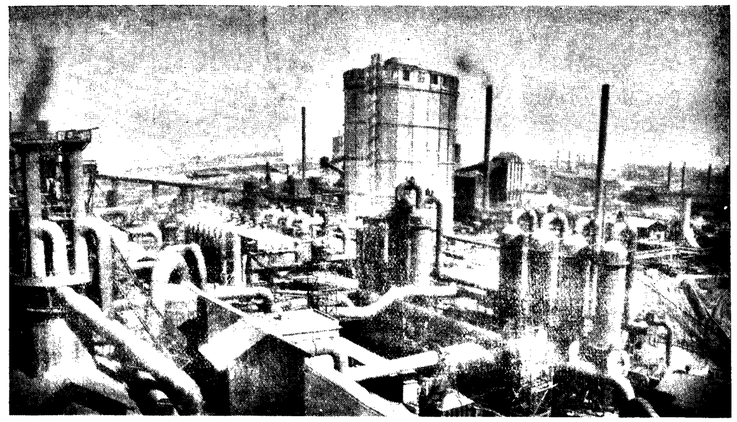
Long-term View

The most interesting part of the P.P.D.'s note was the projection it attempted of steel requirements up to the end of the fifth plan based on the long-term economic goals embodied in the second plan itself. The projection would have the steel capacity go up to 18 million tons by 1970, and 28 million tons by 1975. The P.P.D. argued, therefore, that if this order of expansion was to be achieved in the next 15 years, a bold approach was necessary because in an industry with such a long time-lag between the "decision in principle" and actual production, the third plan commitments "must be mainly related to output in the fourth plan". A refreshing feature of both the P.P.D. and the I.D. notes was that they suffered from no ideological inhibition and emphasised that plants in both the public and the private sectors should be developed to their maximum feasible capacity. The P.P.D. favoured both T.I.S.C.O. and I.I.S.C.O. adding a million tons to their capacity by the end of the fourth plan in five-year instalments of 500,000 tons ; the I.D. note expressly recognised the economic advantage of expanding the existing units and specifically mentioned the possibility of using spare rolling and other capacity at the Burnpur and Jamshedpur steel works.

After the producers' meeting with the Planning Commission, no more was heard of the steel target until reports appeared in the leading newspapers early in March stating that the Planning Commission had settled on a target of 8.9 million tons. This proposed increasing the capacity of State steel plants from 3 million to 5.5 million tons, and of the Bhadravati works to 100,000 tons, but maintaining the *status quo* elsewhere. A few days later, in spite of the specific recommendations of the Planning Commission, the Prime Minister told his monthly Press conference that the old target of 10 million tons still held good. In other words, Mr. Nehru preferred to back the P.P.D.'s view, which did not surprise knowledgeable observers considering that the P.P.D. was closely associated with Professor P. C. Mahalanobis, on whom the Prime Minister has relied heavily for counsel in economic matters.

Policy Announcements

The Press conference was noteworthy for other important policy announcements the Prime Minister made, notably his statement that the Government would not object to the expansion of the steel plants in the private sector. He added that while the whole basis of the Industrial Policy Resolution is to reserve for the public sector certain strategic industries ("strategic" being used here presumably in its economic rather than in the military sense), "we do not wish to interfere or come in the way of the private sector where it has been carrying on, and we shall allow it to do more". More significant was his answer



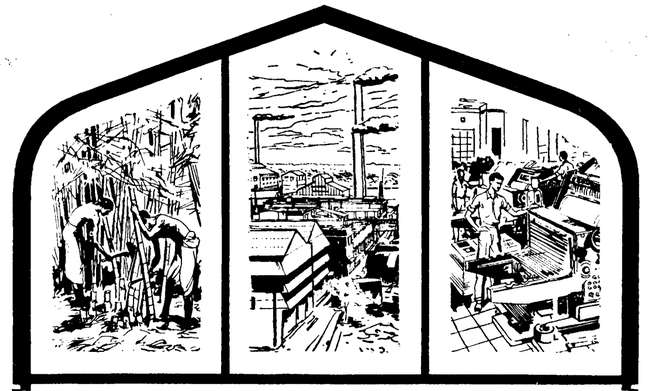
A steel plant, with the gas holder in the centre background

to the question whether the private sector would be allowed to expand after the maximum capacity of the existing plants had been reached. Mr. Nehru's reply is interesting: "Our approach is always a pragmatic approach—how to get things done. If we see that there is a way of doing things effectively and quickly, we may relax other things." A correspondent asked him whether this implied a modification of the Industrial Policy Resolution, to which Mr. Nehru answered: "No, there is room for some slight variation within the ambit of that Resolution".

American Interest

At the Press conference, Mr. Nehru defined the official attitude towards foreign collaboration as far as new plants are concerned. He made it clear that "in the broad approach", the Government does not rule out the possibility of private foreign capital collaborating in the setting up of new units, but he presumed that no new plant would be "completely private". The reference at the Prime Minister's Press conference was to a reported U.S. offer to assist in setting up the fourth steel plant to be located in Bokaro. The Prime Minister disclaimed knowledge of U.S. intentions, a position also adopted by Sardar Swaran Singh in answering a question in the Lok Sabha. These disclaimers notwithstanding, it is known in knowledgeable circles that influential groups in the U.S. Government favour participation in a spectacular project like a steel plant to counter the propaganda advantages obtained by Russia through its connection with the Bhilai steel plant.

The advantages of such participation have been canvassed by prominent U.S. journalists and heads of various official and non-official American agencies in India. It is also known that a tentative approach was made to the Central Finance Minister, Mr. Morarji Desai, during his U.S. visit in 1959, subsequent to which representatives of American business groups interested in participating in the steel project have been in Delhi to discuss the matter with members of the



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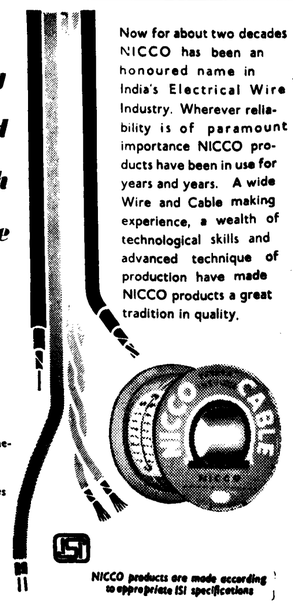

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Planning Commission and the Government. One recent Washington report mentioned that among those interested are Kaiser Engineers, Blaw-Knox and Coppee. The interest of Kaisers is understandable because since their participation in the T.I.S.C.O.'s expansion, they seem to have acquired a particular interest in India and have already completed arrangements with Birlas for an aluminium plant in Uttar Pradesh. Presumably, the form of participation visualised by these American interests is a tie-up with local Indian capital, but it is not known whether the possibility of joining hands with the Government in a tripartite arrangement is definitely excluded. Some think the latter unlikely because of understandable American reservations about State enterprises. At the time of writing, there are no clear indications whether the American offer will at all materialise, and what organisational shape it will take if it did.

Caution or the Big Push

The controversy over the steel target has become significant because it symbolises a conflict between those who counsel prudence in planning, and others who favour the "big push". It is not valid to deduce that it is necessarily a tussle between the champions of socialism and those of private enterprise, because no such clear-cut ideological line is discernible. As mentioned above, the Engineering Association of India is in favour of an even higher target; so is the Federation of Indian Chambers of Commerce and Industry, which in an official memorandum, suggested 12 million tons, although the target was subsequently modified in its "Tentative Outline for the Third Plan." Foreign observers have similarly expressed conflicting views: the team of the three wise men, while recognising India's advantage in steel on grounds of comparative international cost, thought it necessary to warn against a large increase in capacity before the expansion under the second plan had been consolidated.

The plans for further expansion in steel-making capacity do not seem to be ambitious when they are set against the present level of imports and the probable growth in the demand for steel. But it will probably be some time before the steel plants which are nearing completion start working at optimum rates, and the desirability of achieving the most efficient use of existing capacity needs to be considered when deciding the desirability of expanding production capacity further. Again, the expansion of coking coal output needs to keep pace with the growth of steel-making capacity; efforts should be made to see that difficulties in expanding the coal output do not prove a bottleneck. Others like Professor Max Millikan of the Massachusetts Institute of Technology are in favour of maximum momentum to "catapult" the country into a satisfactory "take-off", because they believe India has greater chances of success if she "tried to do too much rather than too little".

Fundamental Difficulties

The controversy over the steel target underlines one of the fundamental difficulties of planning for rapid economic advance because any assumptions about the future demand on the basis of past trends are obviously invalid. To take a simple example, the country has at present hardly any capacity for heavy machine building, or heavy electrical equipment, both of which are, however, to be taken up in a big way in the third plan. A possible way of estimating the future demand is the historical analogy method, which attempts to relate the next phase of Indian development with a similar period in the history of an already industrialised nation, thereby seeking to draw some inferences about likely requirements of the economy. This method, although recognised as a useful check on projections made by other means, is hardly acceptable because of the vast differences in the present circumstances of India and the early industrialising countries like Germany, Britain and the United States.

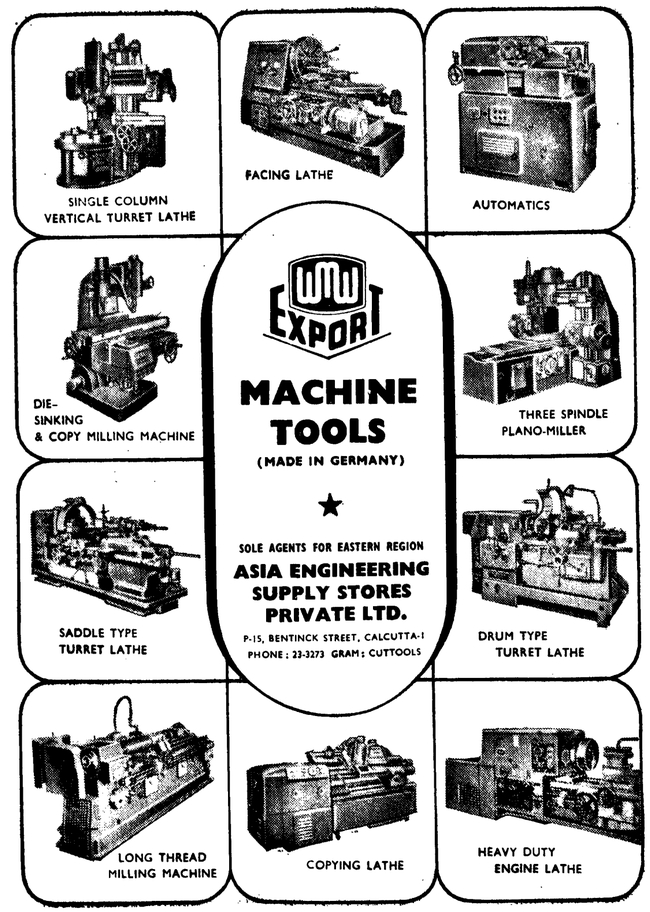
Another method is to correlate steel consumption with the national income, and project demand by assuming a pre-determined increase in national income over the five-year period. In a stabilised economy like that of Britain today, such a projection will be valid, but where the components of the national income are rapidly changing it is unlikely to yield a reasonable approximation. One has, therefore, to consider the end-use method, which first of all works out the steel component of various industrial and construction targets laid down by planners, thus arriving at an aggregate of demand from various sources. The extent to which the assumed targets materialise will determine the accuracy of the projection of demand arrived at by this method. The second plan has shown, however, that framing targets is one thing, their actual realisation quite another. In steel itself, the country has set a production target of 4.5 million tons by 1961 which will not perhaps be realised until 1963. Thus, the end-use method is successful if the overall plan is accomplished in terms of its various components and sub-components. On a longer view, the delay in the execution of a planned output target merely implies the postponement of demand under that particular category, but the particular shortfall may quite likely be compensated by increases in other directions which were not anticipated. In any case, the shortfall is bound to be made up in a rising economy within a brief space of time. It is, therefore, argued quite convincingly that the only possible way of fixing any specific figure in the context of so many variables is the end-use method.

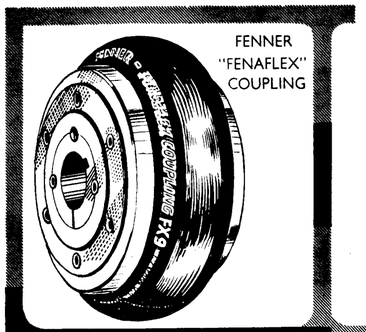
Excess Rather than Scarcity

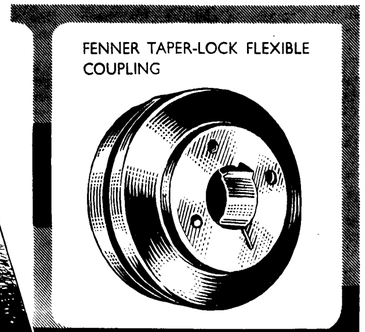
Finally, the issue was a relatively simple one of deciding between 8 million tons proposed by the Industry Division of the Planning Commission, 9 million tons advocated by Tatas and 10 million tons favoured by the Perspective Planning Division, the Central Steel Ministry and the Ministry of Commerce and Industry. Perhaps the National Council of Applied Economic Research should be added to the last three. But its estimate of 10 million tons was qualified by the assumption that Rs. 10,000 crores would be invested in the third plan at 1952-53 prices, meaning in effect an outlay of some 10 percent more than Rs. 10,000 crores at current prices. So the differences of opinion were confined to a fairly narrow range. Here one may quote Sir Jehangir Ghandy, who told the Rotary Club of Delhi in October 1959: "In laying down a target, we need not necessarily be guided by immediate consumption possibilities but can reasonably take a longer view to anticipate the future demand. In any case, the actual production in initial years is likely to be nowhere near the target capacity since it takes two to three years to reach the rated output, as is confirmed by the experience of steel plants all over the world." The first part of the statement implied an acceptance of the P.P.D. formulation that the steel industry should keep one step ahead of consumption. This view was endorsed in a report prepared by the Department of Economic Affairs to the United Nations which said:

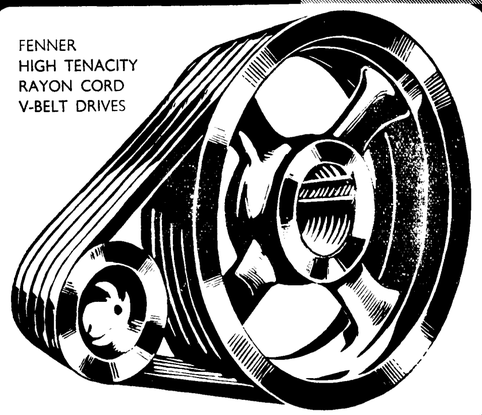
> "The sustained growth of steel consuming industries (*i.e.*, industrialisation) is, in any event, generally associated with the steel capacity greater than the existing steel demand... The history of presently industrialised countries in their period of rapid growth reveals that the steel capacity was usually considerably in excess of the steel demand. In the United States, for example, in the two decades from 1896 to 1915, steel plants were operated, on the average, at only about two-thirds of capacity. Investment in industries consuming steel was free from the risks of undependable and insufficient steel supplies.
>
> "...The stimulating character of an ever-present steel supply towards the expansion of steel consumption must be recognised. This factor has been stressed even in developed countries such as the United States by steel consumers in regions remote from sources of steel. The great increase in steel consumption in western United States after the war was made possible by the operation of war-built steel plants in Utah and California."

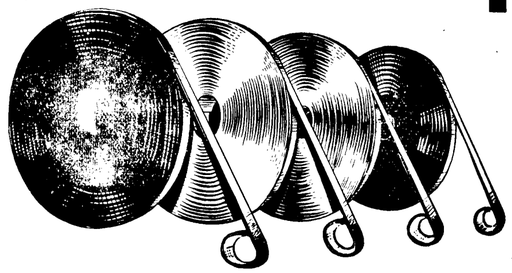
To this powerful and well-argued plea, all that need be added in conclusion is to ask the doubters to take a look at statistics of steel consumption and national income, which show that in 1952-54 India was using 6 kilograms of steel a head, compared with 8 kilograms in Thailand, 10 kilograms in Egypt, 11 kilograms in the Philippines, 21 kilograms in Turkey and 75 kilograms in Japan. The *per capita* national income closely corresponded to the amount of steel consumption—a significant pointer to be remembered in all discussions of economic policy. The *U.N. Statistical Year Book* for 1957 similarly shows that the apparent steel consumption in China more than doubled between 1952 and 1954, and doubled again between 1954 and 1957. Thoughts of national security, if nothing else, should incline one towards producing more steel rather than less.











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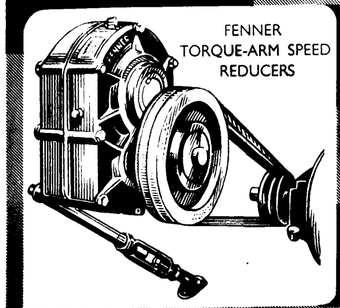

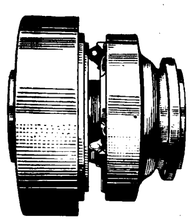

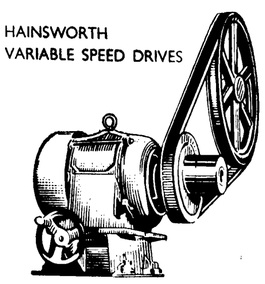

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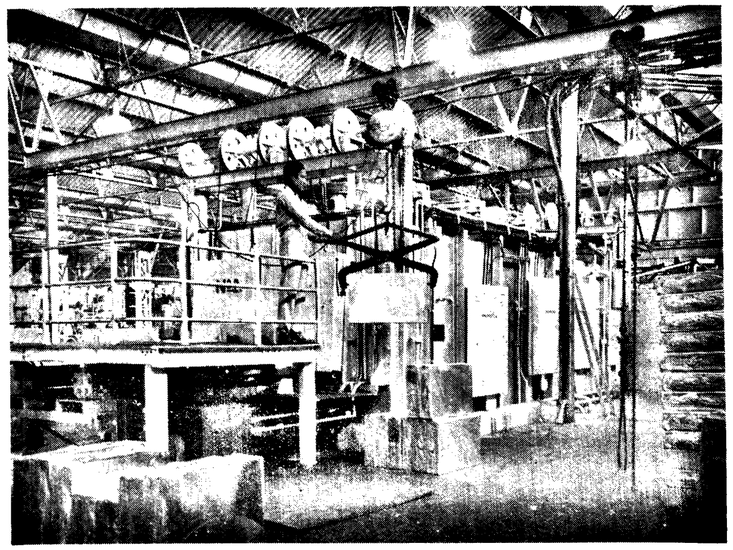
DEMAND FOR ALUMINIUM EXPANDING RAPIDLY

CHEAP POWER SUPPLY NECESSARY



Aluminium rolling mills

By
H. V. ECHOLS
Managing Director, Indian Aluminium Co. Ltd.

THE determined efforts to develop sales which the aluminium industry has made during the last decade have now brought an era of consolidation and careful planning for new production facilities which are necessary to cope with the steadily growing demand for the metal. Against a mere 10,000 tons* 20 years ago, the demand now is over 40,000 tons and promises to exceed 80,000 tons by the end of the third plan. Production of virgin aluminium, which commenced with 1,275 tons in 1943, rose to 17,100 tons in 1959. A number of new plants are to be set up within the next five years, while the present producers are planning to expand their capacities. The expansion of semi-fabricating capacity is also envisaged, so India will witness an all-round expansion of aluminium production and fabricating facilities. Aluminium has indeed come of age.

The production and consumption statistics, as shown in Tables I, II and III on page 15, indicate not only the spectacular development of virgin and semi-fabricating capacities, but also the gradual expansion of the metal's industrial uses. Two decades ago, aluminium was essentially a kitchen metal in India, almost the entire supply—imported—having gone into *degchies, handies* and other types of domestic utensils. The exceptional weight-saving and corrosion-resisting properties of aluminium (backed by an intensive and well-planned development programme) have now been appreciated by various industries. Its availability in various forms, such as sheet, coil, slugs, extrusions, paste and powder, has ensured a growing industrial demand for it.

Ambitious Target

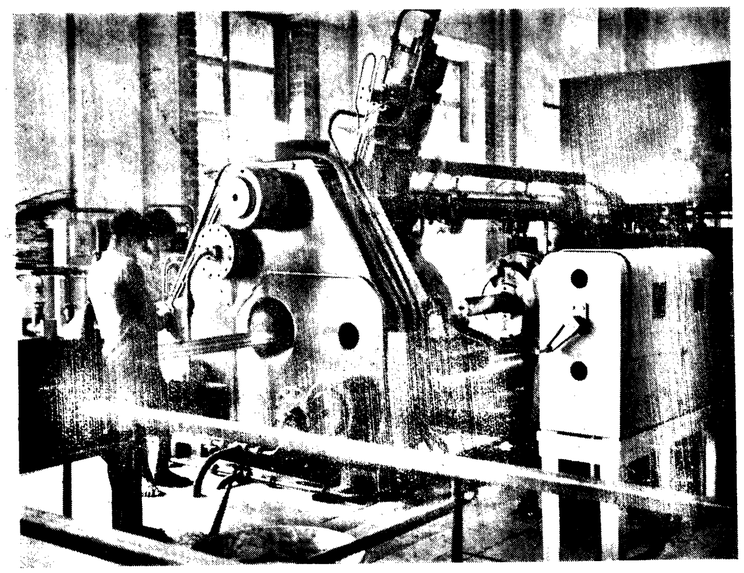
India's planners have, therefore, set an ambitious target of 42,000 tons for aluminium in the third plan, along with 11.8 million kW of power. Since in many cases aluminium can economically replace other imported non-ferrous metals whose indigenous supply is inadequate, it is pertinent to compare the demand for it with the estimated demand for copper, lead and zinc. In 1959, the country had to import 49,000 tons of copper, 24,000 tons of lead and 48,000 tons of zinc, valued at Rs. 16 crores, Rs. 2.4 crores and Rs. 5.2 crores, respectively. Twelve thousand tons of aluminium also had to be imported, valued at Rs. 3.5 crores. The estimated demand for copper by 1965-66 is 170,000 tons, for lead 55,000 tons and for zinc 150,000 tons. In terms of 1959 prices, the foreign exchange involved will be Rs. 55.5 crores, Rs. 5.5 crores and Rs. 16.3 crores.

The Government is aware of the need to intensify prospecting for non-ferrous metals and to encourage indigenous production, wherever feasible. It is extremely important to put aluminium on a sound economic footing. This can only be done by planning smelters and fabricating plants of economic size—approximately 50,000 tons to 100,000 tons for virgin aluminium and 10,000 tons to 20,000 tons for rolling plants. Unfortunately, expansion as now proposed (indicated in Tables I and II) will bring small plants into the scene and make the production costs high. Aluminium costs 30 percent or 40 percent more in India than in foreign countries and its consumption is retarded by high prices. Another disturbing development is the recent excise duty on aluminium—Rs. 300 a metric ton on ingots and Rs. 500 a metric ton on semi-fabricated products—which has introduced a further inflationary element in prices.

Cheap Power Supply

One of the essential pre-requisites for producing cheap aluminium is the availability of low-cost power, the importance of which is equalled only by that of aluminium ore itself. This can be better judged by the fact that over 22,000 kWH of electricity are required for smelting each ton of aluminium. There are instances where bauxite (aluminium ore) is shipped thousands of miles to enable the smelting to be done at a site where cheap power is available; the shipment of bauxite from British Guiana to Arvida in eastern Canada is a case in point. It is interesting to note that, in Canada alone, Aluminium Ltd owns hydro-electric power plants with a total capacity of about 3,470,000 kW, in addition to which some 225,000 kW are purchased. Compared with this, India's total installed power capacity today, both thermal and hydro-electric, amounts to about 3,223,000 kW.

In addition to low cost, there should be a steady supply of power. Unlike most other industrial processes, aluminium smelting, once interrupted, involves high costs in resuming operations. For various reasons, power production in India is not cheap enough to meet the expanding demand of the aluminium industry. Thermal power can be produced from a power-station constructed perhaps at half the capital cost of a hydro-power plant, but operating, maintenance and fuel costs can make the former



The extrusion plant in an aluminium factory

* "Tons" in this article means long tons of 2,240 lbs each.

Now—a 55% increase in India's aluminium production

INDALUCO'S Hirakud Smelter—it's capacity is being doubled to 20,000 tons

Indian Aluminium announces fully integrated expansion plans

	Today	1962
Ingot	15,600 tons	25,600 tons
Alumina	18,000 tons	54,000 tons
Rolling Mill	9,000 tons	16,500 tons
Extrusions	1,200 tons	3,700 tons

In early 1960, Indian Aluminium Company proposes to launch the biggest integrated expansion scheme it has yet undertaken. A comprehensive programme to increase production of aluminium ingots by 10,000 tons a year will be initiated... within a year of the opening in February 1959 of the Company's Hirakud Smelter which, at one stroke, more than doubled India's production of aluminium. The 1960 Expansion will increase the country's ingot production by another 55% and make substantial increases in semi-fabricating capacity.

This rapid expansion in a vital sector of the aluminium industry is based on the mounting importance of this metal in modern everyday life. Barely 16 years ago India produced no aluminium, and its consumption was restricted to diffident users of domestic utensils. Ever since Indian Aluminium installed their first aluminium smelter in 1943 at Alwaye, the rise in demand has been little short of phenomenal... today it is estimated at over 50,000 tons a year, or nearly three times the country's present production of 17,500 tons.

NEW EXPANSION IS IN GOOD HANDS

Appropriately enough, the present effort to catch up with demand is being made by India's pioneer in the aluminium industry—Indian Aluminium Company—which has done the most to give the country a reliable and vigorous aluminium industry. Indian Aluminium has extended its facilities almost continuously since it began operations and today produces over 90% of the country's ingot output. It is by far the largest manufacturer of sheets, circles and extrusions.

INDIA MUST PRODUCE MORE ALUMINIUM

India's developing economy warrants a substantial expansion of the aluminium industry—and the country's large bauxite and water power resources makes this a practical proposition. The sanction for Indian Aluminium's 1960 Expansion Scheme is as much an evidence of Government's recognition of the country's needs as it is an expression of faith in the Company's resources and know-how. Indian Aluminium is fully geared to meet the challenge of the years ahead when India will find a position on the world map of major aluminium producers.

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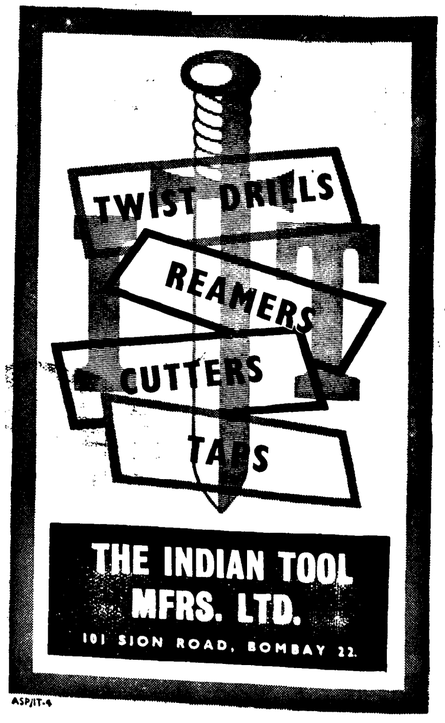

ASP/IT-9

An interior view of an aluminium smelter

more expensive. Although thermal power is being increasingly used in the United States, this is not due to any cost advantage, but rather to the fact that local hydro-power resources have been exhausted. Atomic power is already a practical reality in more than one country in the world, but it will be some time before either this or the recently developed "fuel cell" in the United Kingdom can be used to produce aluminium at the usual costs.

Undeveloped Potential

India still has a large undeveloped hydro-electric potential. Unfortunately, the development of hydro-power resources in India has to face climatic and other problems. In few other countries do the rivers dry up so completely in the summer season, thereby making a continuous power supply dependent on costly dams and large reservoirs which store water during the monsoons and release it continuously over the dry months through the power-house turbines. These large reservoirs have their attendant problems relating to resettlement of population from the flooded areas, loss of water by evaporation, maintenance of dams, etcetera. Irrigation for agricultural land and the possibility of floods are important considerations in planning large hydro-power schemes. Indian engineers have, in the recent past, undertaken some of the largest power projects in Asia, but few of these have been uninfluenced in planning and financing by the needs of irrigation and flood control. The fluctuations in general power demand require the installation of an increased number of expensive turbines and generators; there may build up, temporarily, peak power loads 65 percent greater than the average demand. The power requirements for aluminium smelting are, on the other hand, more uniform and peaks are restricted to about 5 percent over the average demand. Obviously, hydro-power installations planned on the above considerations are not conducive to the production of low-cost power for aluminium smelting.

Unenviable Position

Last, but by no means least, is the principle commonly adhered to in India of charging rates for power on the basis of what it is considered the market will bear, without any correlation to actual production costs. This policy places the aluminium industry in the unenviable position of having to bargain for power supplies in competition with other consumers to whom the question of the power rate is not so critical and who can afford to pay considerably more without upsetting the basic economics of their operations. From the point of view of comparison, one can quote rates of over Rs. 150 a kW year which the aluminium industry in India has had to accept in the recent past. In contrast, recently published figures for the Norwegian aluminium industry for 1955 give an average of less than Rs. 50 a kW year. The solution to the problem appears to be to develop low-cost hydro-power sites exclusively for the production of cheap power for the aluminium industry. The power plants should preferably be located in regions where there is no incentive for other industries to move in solely to take advantage of cheap power supply. This long-term policy will ensure the development of an industry which is destined to play an important rôle in the future.

Table I

ANNUAL PRIMARY ALUMINIUM CAPACITY

(In terms of long tons)

	Present capacity	Additional capacity proposed to be installed during the third plan	Total by the end of the third plan
1. Aluminium Corporation, Asansol	2,500	5,000	7,500
2. Indian Aluminium Company :			
Alwaye	5,600	—	5,600
Hirakud	10,000	10,000	20,000
3. Hindustan Aluminium Corporation, Rihand	—	20,000	20,000
4. Bombay State, Koyna	—	20,000	20,000
5. Madras State, Salem	—	10,000	10,000
	18,100	65,000	83,100

Table II

ANNUAL FABRICATED ALUMINIUM CAPACITY*

(In terms of long tons)

	Present capacity	Additional capacity proposed to be installed during the third plan	Total by the end of the third plan
1. Aluminium Corporation, Asansol	2,500	2,860	5,360
2. Indian Aluminium Company :			
Belur (Calcutta)	9,000	7,500	16,500
Alwaye	1,200	2,500	3,700
3. Venesta Limited, Kamarhati	3,200	—	3,200
	15,900	12,860	28,760

*In the above table are listed only expansion plans which have already been sanctioned by the Government of India. It is to be expected that if and when the smelters in Rihand, Koyna and Salem are set up, they will also have fabricating units attached to them.

Table III

ANNUAL CONSUMPTION OF VIRGIN ALUMINIUM

(In long tons)

	Present capacity	Three estimates of demand at the end of the third plan		
1. Building and construction	2,000	3,000	3,000	6,000
2. Transport	6,000	12,500	12,500	15,000
3. Household and commercial supplies	10,500	13,000	13,000	25,000
4. Electrical industry	18,600	22,500	40,000	40,000
5. Food and farming	900	1,500	1,500	2,500
6. Canning and packaging	3,500	7,500	7,500	7,500
7. Miscellaneous	2,500	4,000	4,000	4,000
	44,000	64,000	81,500	100,000

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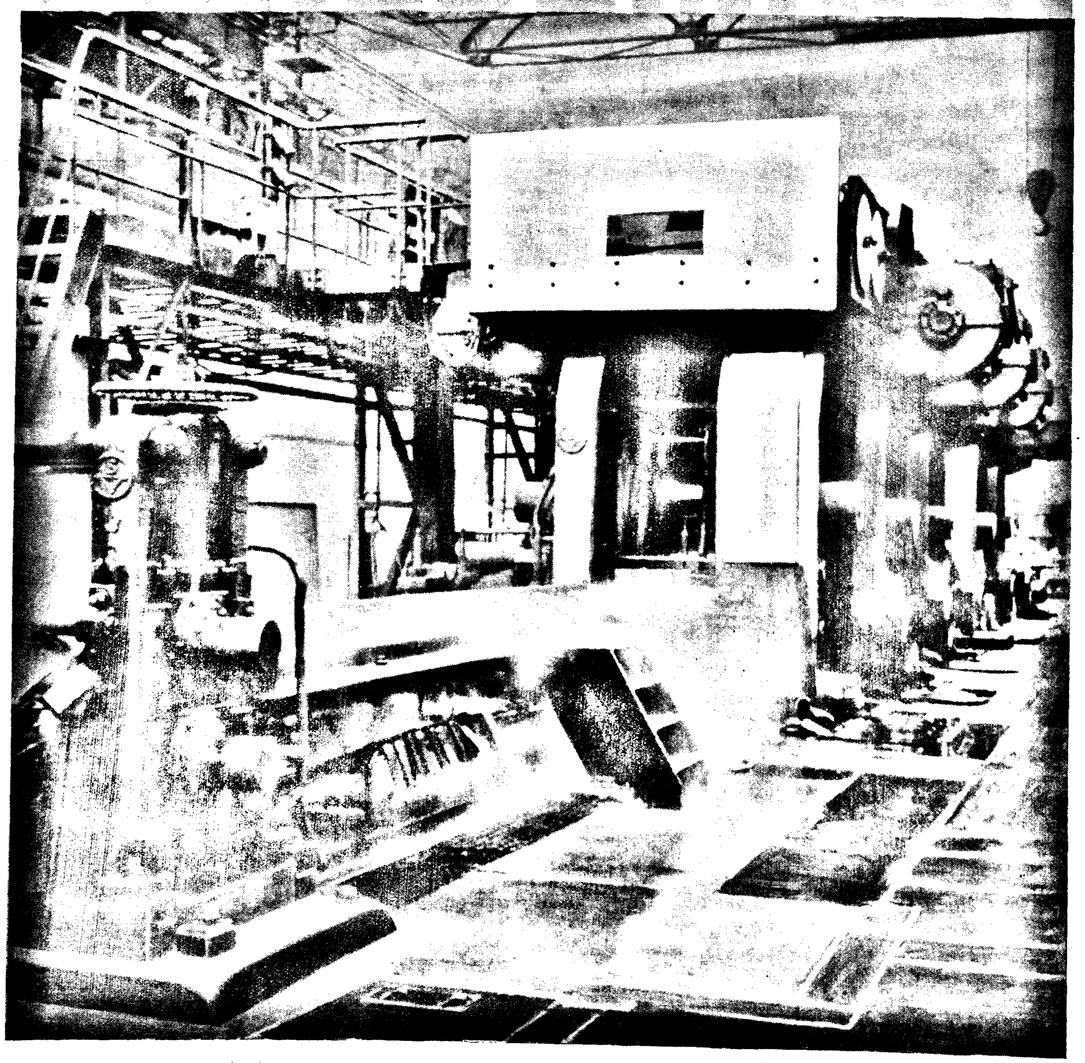

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Cement Output Almost Trebled in a Decade

Pricing and Raw Material Worries

THE cement industry is one of India's major industries and has an impressive record of progress. Over the last ten years, it has practically trebled its production capacity. In 1950-51, the output was 2.7 million tons, while in 1959-60, it is estimated at about 7.2 million tons. The industry is now recovering from a severe and unexpected jolt it received in the past 18 months. Until then, it was thought that it could expand confidently without any fear of overproduction. In 1957, fears were being expressed that the industry's rate of growth was considerably lower than that visualised in the second five year plan. Yet, in 1958 and 1959, there was almost a crisis of overproduction in cement. It is hoped that the unbalance between the production capacity and demand, which is now showing signs of being removed, will not continue much longer.

The Planning Commission has noted the industry's plight in the past and has recently consulted its representatives in arriving at a target of about 15 million tons for the third plan. The target can be achieved both financially and technically. It is also a realistic assessment of the probable demand by 1965-66. The industrial progress of a country may be judged from its consumption of Portland cement. The *per capita* consumption of cement in India today is only about 40 lbs, against 600 lbs in the United States, 650 lbs in Germany and 850 lbs in Switzerland. The *per capita* consumption of some countries is shown in the following table:

Countries	Approximate consumption of cement in lbs a head
Switzerland	850
Sweden	660
Germany	650
Norway	610
U.S.A.	600
Denmark	490
Ireland	450
France	450
U.K.	450
Netherlands	440
Italy	420
India	40

It is hoped that the five year plans, with their emphasis on improving national income and standards of living, will bring about an increase in consumption a head.

Capital Cost

The capital cost of setting up a cement factory in India is estimated at Rs. 120 a ton to Rs. 140 a ton of annual capacity for new units, and at Rs. 80 a ton to Rs. 100 a ton for the expansion of existing ones. About 60 percent to 65 percent of the expenditure is on machinery and capital equipment. Since the industry is primarily in the private sector, and under the Government of India's industrial policy will continue to be so, the question arises whether private enterprise will be willing to attain the target of 15 million tons by the end of the third plan, even if it is able to find the enormous resources required. It is difficult to gauge what the effect will be on capital formation in the private sector as a result of fresh taxation proposals in the intervening period, especially in this heavily controlled industry where prices, distribution, wages, etcetera, are determined by Government policy. It is safe to say, however, that the industry will require help from the Government in fixing prices properly—by including all elements of cost in the periodical assessments made by the Tariff Commission. Items such as commission to stockists (especially necessary in a period when production exceeds demand), bonus payable to employees, managing agents' remuneration, new levies and increases in duties and revision of electricity tariff, have to be included. This assumes production at 95 percent of the installed capacity (and not 100 percent, which is difficult to maintain for any length of time). In order to double production in the next six years from the present level of 7.2 million tons, it may be necessary to allow a special element in the ex-works retention prices of cement for the expansion of capacity.

The man-hours a ton employed in the manufacture of cement in India is nearly 12 times to 15 times the corresponding figure in Europe or the U.S.A. In spite of the lower total emoluments a man in India, the cost a ton of the labour employed is higher than in many other countries. The need to increase productivity is, therefore, vital, not only in order to export cement and earn foreign exchange, but also to raise the wages and living standards of the average worker in the industry. To increase productivity, concerted efforts will have to be made by all concerned—management, labour and the Government. Heavy capital investment on the part of the management can bring about greater mechanisation and, therefore, greater productivity. But the benefits should not all be mopped up by increases in workers' wages, allowances and fringe benefits, or by the Central and State Governments through additional indirect taxes and duties, or by the higher cost of items which the industry must buy for manufacturing cement.

Raw Material Deposits

The raw material deposits where a plant is to be located have to be thoroughly investigated. The investigation of any deposits is governed by Mineral Concession Rules of the Central Government. In spite of the excellent procedural rules, considerable delays occur between obtaining certificates of approval, prospecting licences and thereafter mining licences, acquisition of land, etcetera. If the expected pace of production is to be maintained and the targets achieved, the governmental machinery will have to move faster.

The distribution of raw material deposits for the manufacture of cement will play a vital rôle

By

A SPECIAL CORRESPONDENT

in deciding whether the growth of the industry will be a healthy one in the next decade. In India, good limestone deposits occur only in a few concentrated places and are neither as massive nor as easy to work as those in the U.S.A., the United Kingdom or Japan. The present cement factories, barring one or two, have been located in such a way as to afford a fairly reasonable distribution of the commodity from the point of view of transport and consumer markets. The sources of limestone for these factories are not, however, inexhaustible. If bigger targets are to be planned and achieved in the future, it may be necessary to revise ideas about the planned dispersal of factories in order to go to places where suitable raw materials exist in plenty, even disregarding the convenience of sites.

Good limestone, the principal raw material for Portland cement, is available in plenty in the Saurashtra division of Gujarat, in some parts of Madhya Pradesh, in Uttar Pradesh and in the coastal regions in the southern-most tip of the country where coral reefs and other calcium-containing materials of marine biological origin abound. With the exception of Madhya Pradesh, these areas are far from the coal-bearing regions. Coal, an essential element in cement manufacture, will, therefore, have to be transported with difficulty and expense to the cement factories. Furthermore, the strain on the railways will be increased by the movement of the finished product.

Strain on Transport System

This strain could perhaps be relieved by shortening leads both for raw materials and for finished products—by using inferior limestone where it occurs in strategic areas. The inferior deposits may be used after beneficiation. This process, however, raises capital and working costs, and few manufacturers will have the incentive to use it unless they are properly compensated. This is one of the problems which will have to be resolved in the near future.

Coal, which is a principal commodity in the manufacture of cement, is concentrated in certain areas requiring, in some cases, long and difficult hauls to the manufacturing centres. The fuel is used for heating mixtures of limestone, clay and water in the kiln to a temperature of about 1,400°C, to form a series of chemical compounds. Although the supply of heat is the main function of coal in transforming the chemical constituents of the raw materials, the ash in the coal, which is absorbed in the reaction, also has an appreciable influence on the quality of the final product. It may, therefore, be looked upon as an essential ingredient in the manufacture of cement. High quality coal is essential where raw materials of marginal quality are involved. Unfortunately, good coal will now become scarcer in India due to the prior needs of the steel plants and the railways. The upgrading of poor coals by washing may, therefore, have to be resorted to in larger quantities in order to meet the needs of the cement industry. The Associated Cement Companies have installed a washery at their colliery in Madhya Pradesh in order to upgrade coals for supply to their cement plants.

The use of inferior raw materials, such as limestone and coal, brings in its wake the problem of disposing of rejects. In some countries, the rejects are processed and made into useful materials for other industries. It is likely that in the next decade, the pattern of growth of the Indian economy will create conditions allowing for the economic processing of rejects into useful materials.

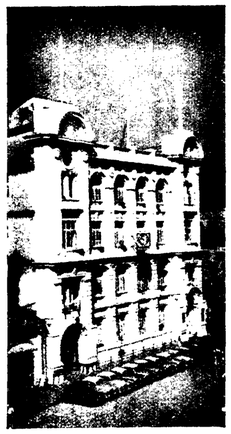
Third Plan Target

If the production target of 15 million tons is to be reached in 1965-66 without undue strain on the country's meagre foreign exchange resources, it is essential that cement plant and machinery be made in India. The Associated Cement Companies, which have been manufacturing cement plants for many years, have set up a new company under the name of A.C.C.-Vickers-Babcock Ltd to manufacture boilers, pressure vessels and ancillary equipment, cement-making machinery, general mining machinery and certain items of coal-mining machinery. The project, however, will supply only a part of the huge number of items required for a cement plant and its quarry. Projects to manufacture the equipment for a mechanised quarry such as shovels, drills and dumpers, are still required. Large capacity gear-boxes and motors are being imported at present. The manufacture of instruments, which are being increasingly used in western Europe and the United States to reduce man-power requirements, is woefully lacking in India. Steel foundries to make the large castings imported today will also be necessary to reach self-sufficiency.

It is predictable that in the next decade other cementing materials, which can be broadly classified as "blended cements", will be made in India. These are generally manufactured by the inter-grinding of artificial puzzolanas, such as burny clay and blast furnace slag, with controlled quantities of Portland clinker. Such cements will be manufactured not only to meet the growing demand for building materials but also on account of certain specific properties which they have, from the point of view of construction engineering. The Associated Cement Companies' slag cement plant in Chaibasa in Bihar is likely to go into production early in 1961. Low heat and rapid hardening cements are already available when specially required. The white cement manufacturing capacity has developed to such an extent as to obviate the necessity for imports. If the oil industry expands sufficiently, the manufacture of oil-well cements will be within the technical and financial competence of the Indian cement industry.

Need for Research

But research should be intensified soon. Today most manufacturers have their own operations research or applied research sections. The development of fundamental research will be the next step forward. The aims will be two-fold: (i) continuous improvement in the technique of concrete mixes in order that the excellent inherent properties of cement are specifically used to the fullest extent; the fields of this development may be pre-stressed concrete, shock concrete, soil cement, low-cost canal lining, etcetera; (ii) new cements more suited to Indian conditions may be developed.



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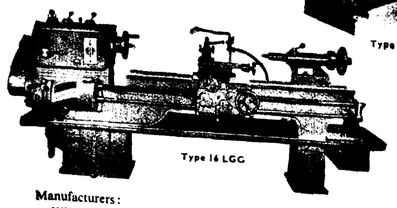

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EQUIPMENT AND MANPOWER NEEDS OF THE CHEMICAL INDUSTRY

LICENSING DELAYS HAMPER EXPANSION

By

A SPECIAL CORRESPONDENT

THE end of the second five year plan is approaching, and this is a good time to assess the progress of the chemical industry. The last few years have seen the start of modern chemical manufacture on new sites and the substantial expansion of existing units. They may well have been decisive years in setting the pattern for the future.

The *per capita* consumption of basic chemicals such as sulphuric acid, caustic soda and soda ash, which are commonly regarded as trustworthy indicators of the industry, is still low by the standards of the industrially advanced countries. An encouraging feature, however, is the continued growth of production at a rate of around 10 per cent a year, and a steady closing of the gap between production and demand which has been filled by imports. There have been notable developments in the other basic industries for explosives and fertilisers, and in the plastics, dyestuffs and pharmaceutical industries, making technically and commercially more diversified products. Schemes have also been drawn up which will enable the growth of the organic industry to continue and make it less dependent on imported raw materials. One can expect to see working before the end of the third plan a comprehensive project in the public sector for the manufacture of dyestuffs intermediates. A small organic industry is growing up around alcohol from molasses, which is a good way to use the country's raw material wealth at this stage of development.

Third Plan Targets

The targets proposed for the third plan have recently been announced. As at the beginning of the second plan, there will be some who will quickly criticise them as being "too ambitious". But it is hoped that the measure of success achieved in the last few years will encourage a constructive study of the new proposals. Certainly, they appear formidable, and they call for a careful reassessment of the resources on which the industry depends.

Progress continues to be made with the discovery and development of mineral wealth. The most publicised efforts are those to find oil which have met with some success around Cambay. So far, the chemical industry has not used oil as a major raw material. But the urgent need for fertilisers suggests that it will not be very long before oil is used as a fuel for nitrogen fixation, especially in those parts of India, such as Cambay, which are distant from the coalfields. The consumption of plastics, rubber and solvents is increasing and may well become large enough in the mid-sixties to make possible their economic manufacture from oil.

Geological Survey

The Geological Survey of India has done much of the field exploration for other minerals. A recent report of interest to the chemical industry was that free sulphur has been found in the Andaman Islands. It has been announced that the Survey will augment its staff to speed up its work, the quality of which is internationally recognised. There is scope at the same time for research into the characteristics of Indian raw materials, and into ways of using them effectively in processes often designed abroad with rather different raw materials available. Some useful work of this kind has already been done in the National Chemical Laboratory on limestone, and further work along these lines could be of direct and immediate value. Industry has intensified its own efforts to deal with similar problems; in the case of pigments and solvents, investigation by the paints industry into the properties and uses of materials from indigenous sources is keeping up the quality of manufacture during the change-over from imported raw materials as supplies become available.

The fortunes of the chemical industry in the next few years will depend to a large extent on the ability of the engineering and fabricating industry to supply its needs. The second plan has seen progress in the engineering industries, and equipment especially of the simpler kind is becoming more readily available. Simple mild steel vessels for operation at atmospheric pressure can now be obtained at prices which compare favourably with similar equipment made in the United Kingdom. Some equipment that is more complex in construction, for example floating head shell and tube condensers, is being made, but the price is often two or three times that of the imported article. Pressure vessels in mild steel can also be obtained, although not usually in sizes exceeding six feet in diameter, as very few firms are able to make larger single-piece dished and flanged ends. Pressure vessels made in India tend to be more expensive than imported ones; and the delivery period is also invariably longer.

Construction Materials

Many other construction materials are required by the industry, such as stainless steel, enamelled cast iron, silicon iron and rubber linings. All the stainless steel at present comes from abroad but fabrication work of good quality is done within the country, although the output is low and by world standards the price is high. Enamelled cast iron and silicon iron are not yet available. Some facilities exist for rubber lining; the absence of large vulcanising autoclaves is a limiting factor and there is as yet little experience in compounding rubber mixes suitable for service in a wide range of conditions. Ceramic ware has become more freely available; refractory bricks of good quality are being made, as also are acid-resisting bricks and tiles that are satisfactory in many applications although not quite suitable for severe conditions. A start has been made with the fabrication of some of the simpler specialised equipment, such as cast iron plate and frame presses, mild steel horizontal basket centrifuges, worm reduction gearboxes, centrifugal pumps, and fans suitable for temperatures up to 400 degrees Centigrade.

An early extension of this list would be welcomed if it included a range of chemical pumps, industrial refrigeration compressors, large-size air compressors and dry vacuum pumps. Among the important accessories are valves; good quality cast iron and non-ferrous metal valves and cocks are available, but as yet no cast steel valves, cast iron plug valves, or specials such as let-down and safety valves are being made. The manufacture of electrical equipment has developed rapidly during the last few years. Motors, motor starters, transformers and switchgear can be

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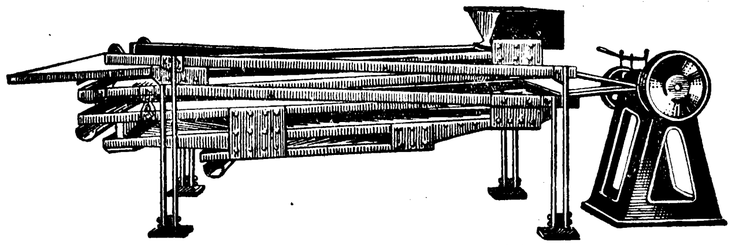

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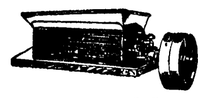

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obtained in a useful range of sizes. Frequently, however, the chemical industry has to use flame-proof electrical equipment and at the moment almost all of this has to be imported. Control and measuring instruments for industrial plants also have to come from abroad, apart from certain types of mercury-in-steel and vapour pressure thermometers and a limited range of pressure gauges.

Capital Equipment Imports

Taking the industry as a whole, about 40 percent of its capital equipment has to be imported at present. Although the procedure for obtaining import licences has been simplified, it still hampers the rapid execution of new schemes in some cases. The prospects for the future are more heartening. There are important projects scheduled for the public sector in the third plan, among them the heavy plant and vessel works, the heavy tool factory, the extensions to Hindustan Machine Tools, a precision instruments factory and high-pressure boiler manufacture. Directly or indirectly, these are likely to make capital goods more freely available. Plans have not been announced and may not be so far advanced for manufacturing the specialised equipment which the industry needs, and it is here that opportunities present themselves to the private sector.

In addition to raw materials and equipment, another prime need is men. In common with other industries, the chemical industry has to find the manpower to sustain a quick rate of progress. This problem is likely to be among the most difficult it has to face during the next decade. A great deal has been heard in the Press recently about the shortage of jobs for trained scientists and technologists, particularly those who have returned home after post-graduate studies and industrial experience abroad. Yet complaints are heard from the industry that trained men are difficult to come by. Whether the difficulty is genuine or not, there is evidently a conflict of outlook that needs to be examined. The question is: who will train the technologists? Industry looks to the universities for a major effort and welcomes the steps that are being taken to set up new colleges of engineering and technology in Delhi, Madras and Bombay.

Nevertheless, it would be short-sighted to overlook the point that industry has to make its own contribution. It must undertake to turn young graduates, who on entering should be well-grounded in the fundamentals of their science and imaginative in its application, into mature and responsible technologists. To some extent, formal courses within industry are useful, but for the maximum effect, the training should be continuous. Ideally, staff supervisors should be conscientiously and continuously teaching their subordinates. In the case of craftsmen, the situation seems to have been recognised sooner. The practice is growing of setting up apprentice schools within industry and following up with less formal training during post-apprenticeship periods.

As industry grows, more employment will be created. But for the present, there is no shortage of unskilled labour, especially in the larger centres of population. This tends to obscure the need to improve productivity, which is essential for progress at a satisfactory rate. India already has a high-cost economy, and unless steps are taken to keep down the unit cost of production, further inflation will be unavoidable. The National Productivity Council provides a focus for the exchange of ideas and techniques, among which work study is one of the most valuable. It was perhaps no accident that work study, as we now know it, was born in the chemical industry, where the need to employ skill effectively is of special importance. The pioneer work was done in the United Kingdom by Imperial Chemical Industries shortly after the war. In a few years, its use has spread to many industries in countries all over the world. In the beginning, it led to the study of the most beneficial use of labour and great improvements were made. Among the fruits were work reward and incentive bonus schemes that were acceptable to labour and management alike. More recently, it has proved a useful tool in project planning; by critically reviewing designs and layouts, spectacular savings in capital have been made. In the Indian chemical industry, some firms are beginning to use work study extensively. It can confidently be expected that it will make a notable contribution to the rate of progress.

Wide Range

The chemical industry embraces a wide range of processes and products. For the whole to move forward, the various parts have to keep in step. The production of electrolytic caustic soda, for example, cannot be increased far beyond the capacity for using chlorine which is made at the same time, even though caustic soda has to be imported to help meet the demand. The coal tar distillation industry has to make naphthalene before the manufacture of phthalic anhydride can become attractive. This, in turn, may affect the timing of other plans to make dyestuffs intermediates and the dyestuffs themselves. The plastics industry typically consists of a few big plants making polymer and a host of little ones, often in the hands of small family concerns, moulding, extruding and machining the polymer into the industrial and consumer goods that are now so familar in the modern world. Unless the two parts of the plastics industry are roughly in balance, things do not go smoothly and progress is slower than the demand for the products would seem to justify.

Industrial Licensing

The Industries (Development and Regulation) Act is the most important planning instrument in the hands of the Government. By and large, it has been used wisely and well. It has prevented some schemes from going forward which would neither have been profitable to their sponsors nor to the country as a whole, and it has forced upon others a vigorous technical and commercial scrutiny to trim them to the needs of the day. It is disturbing, however, that as the years go by, the administrative delay imposed by procedures under the Act is becoming unduly long. A period of 12 to 18 months sometimes elapses between the formal submission of a scheme and the granting of a manufacturing licence. Delays of a year or more at the licensing stage are a major obstacle to the swift realisation of a project. Until a licence is obtained, orders for capital equipment, often including long delivery items, cannot be placed. What is equally important, it is imprudent to start detailed planning. The cost of holding a project team together during months of negotiation for a licence is considerable. Morale suffers and the waste of trained manpower is deplorable. Planning and designing a large chemical plant may cost as much as 20 percent of the total capital investment. The industry has relied in the past on much of this work being done abroad or has found it already available in the form of standard processes and equipment. But times are changing. If expansion is to be rapid, it is necessary for India to do more planning and designing for herself with her own raw materials and markets in mind, and by an austere use of her resources make them go as far as possible.

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CONSUMPTION OF PLASTICS RISING

HEAVIER CAPITAL INVESTMENT NEEDED DURING THIRD PLAN

THIS year industry has moved into the "soaring sixties"—a decade which holds out more promise than ever before for rapid progress in industrial expansion. Developments in the plastics industry will, in all likelihood, continue at a pace even faster than average. In India, the decade might well witness plastics playing a new rôle in the country's economy. The industry is broad-based, so a precise classification at either the material makers' level or processors' level is not possible, as is the case with some other industries. It is easy to imagine manufacturers of chemicals, drugs, rubber and petroleum in the rôle of producers of basic plastics moulding powders and resins. In many parts of the world, however, this sector of the industry also encompasses companies engaged in ferrous and non-ferrous metals manufacture, mining, explosives, electrical goods, paints and textiles. The list can even be extended to banks and steamship lines. It is, therefore, only natural that because of widely divergent business interests, there would evolve a variety of approaches to financing, production and marketing. Since the makers of plastics all over the world are a heterogeneous group, it should be expected that as plastics develop in India, the same situation will prevail in the country.

The processing end of the industry consumes the basic plastics moulding powders and resins, and converts them into a continuously increasing range of products which includes packaging materials, moulded industrial accessories, housewares and toys, motor-vehicle, electrical and electronic products, building materials, aircraft parts and even missile components. As the industry makes progress at the processors' level, a larger number of units will be engaged in moulding, calendering, coating, extruding, fabricating, casting and laminating operations.

Production in the U.S.A. and the U.K.

The production of plastics reached 5,500 million lbs in the United States alone in 1959. This was a record output—up 25 percent in one year. Even more impressive and significant is the fact that this production exceeded the U. S. aluminium output for the year by roughly 500 million lbs. In the U.K. also, plastics attained a record production level of 1,100 million lbs. Compared with the progress achieved by the industry in those countries, the one in India has far to go. To draw a correct comparison, however, it is necessary to consider the industry's progress in terms of consumption figures, since a substantial part of the raw materials are still being imported into India.

The consumption of plastics within the country reached close to 30 million lbs in 1959, which represented an increase of about 5 million lbs, or about 20 percent, in one year. The 1959 consumption figure includes about 19 million lbs of imported plastics. Consumption could undoubtedly have been greater but for the licensing restrictions on imported plastics and also on the raw materials used by indigenous manufacturers. By 1966, the end of the third five year plan, consumption, barring unforeseen difficulties, is expected to be at least 120 million lbs a year, or four times what it is today. The growth could probably be further accelerated, and many within the industry think that a five-fold increase in consumption may be expected. But rapid growth is conceivable provided conditions favourable to the industry prevail during the years immediately ahead. An anticipated breakdown of the production figures for various types of plastics in India in 1966 is given in Table I. The 1959 production figures in the U.S.A. and the U.K. and the consumption rate in India are also provided for comparison. Basis I assumes that the plastics growth rate in India will be four-fold over the indicated period and will attain the more conservative production level of 120 million lbs by 1966. Basis II visualises that the industry will attain the more favourable position of five-fold growth.

To support a production of 120 million lbs of plastics by 1966, and allowing for the fact that in an expanding industry capacity should stay ahead of actual production, India will need an installed capacity of at least 150 million lbs in plastics moulding powders and resins by 1966. If the major economic factors operate in favour of the industry, the production of various plastics could go up collectively to 150 million lbs, as shown in Basis II —an average 25-percent upgrading of 1966 production estimates as given under Basis I. In that event, installed capacity requirements by 1966 will be about 200 million lbs.

Investment during Third Plan

Total investment for the manufacture of plastics moulding powders and resins presently runs into Rs. 12 crores or Rs. 13 crores, inclusive of fixed assets and working capital. By the end of the second plan, the figure will be enhanced still further. So far, the total basic plastics manufacturing capacity licensed in India is about 60 million lbs. Some of the licensed plants may not be in operation by 1961, so part of the investment will overflow into the third plan. Assuming for the moment the more conservative estimate of 120 million lbs of production capacity based on 150 million lbs of installed capacity by 1966 (Basis I), the total financial outlay for basic plastics by the end of the third plan is estimated at some Rs. 45 crores. Consequently, between now and 1966, this sector of the industry alone will require investment of the order of Rs. 30 crores to Rs. 35 crores. These are the requirements of the materials makers, but those of processors are no less important. In 1958, total investment in the processing capacity amounted to approximately Rs. 7 crores and covered 14,000 tons of compression capacity, 1,000 ounces of injection moulding capacity and 150 inches of extrusion capacity, besides auxiliary and tool-room equipment and moulds, etcetera. The end of the second plan should see investment in this sector reach a level of approximately Rs. 9 crores. This investment will have to go up substantially in the succeeding five-year period to keep in step with the 1966 production capacities for basic plastics materials. The estimate of processing capacity requirements for plastics in 1966

By

C. J. DADACHANJI

Sales Manager, Industrial Products Sales Division, Union Carbide India Ltd

TABLE I

Plastics Production in the U.S.A., the U.K. and India

(Million lbs)

Description	1959			1966 Estimates	
	U.S.A.	U.K.	India*	Basis I	Basis II
Polyethylene (low and medium density)	1,000	188	6.5	27	34
Polyethylene (high density)	80	2	(c)	5	6
Polystyrene and co-polymer Resins	890	90	6.5	20	25
Polyvinyl chloride resins	828	290	4.0	18	23
Other vinyls including acetates	232	31	(c)	8	10
Urea and melamine resins°	384	123	4.0	10	12
Phenolic and other tar acid resins°	604	167	3.0	8	10
Cellulosics	152	27	3.0	10	12
Acrylics	(a)	40	0.3	3	4
Polyester resins	140	16	(c)	2	3
Miscellaneous including epoxies, polyurethanes, polycarbonates, nylon, etcetera.	1,127(b)	135(b)	2.7	9	11
Total plastics production	5,437(d)	1,109(e)	30	120	150

* Production figures do not reflect imports which were still substantial in 1959. Annual consumption rates are, therefore, shown and these are based on the monthly consumption rates during the second half of 1959.

° Includes resins used in the manufacture of laminates and also moulding materials, but excludes fillers.

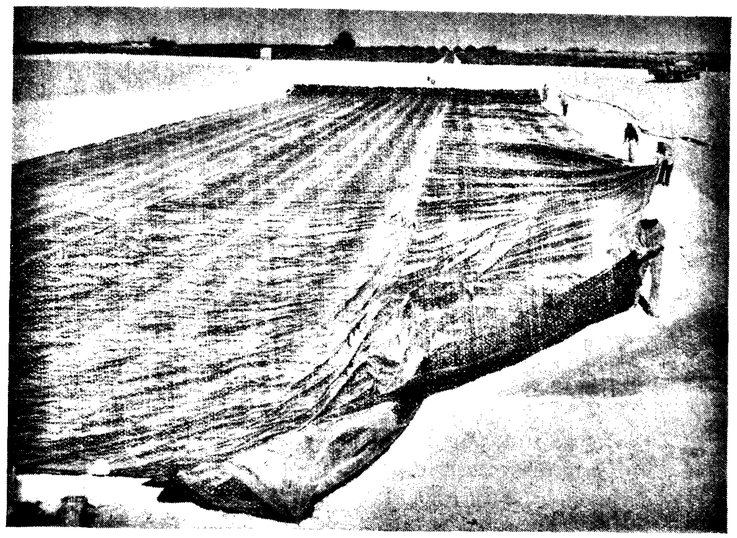
(a) Figure for total acrylics production in the U.S.A. was not available separately and hence should be assumed to show up in miscellaneous grouping.

(b) Breakdown of miscellaneous group is not given as this includes plastics which individually have negligible consumption in India and whose growth rate cannot be predicted with any degree of certainty.

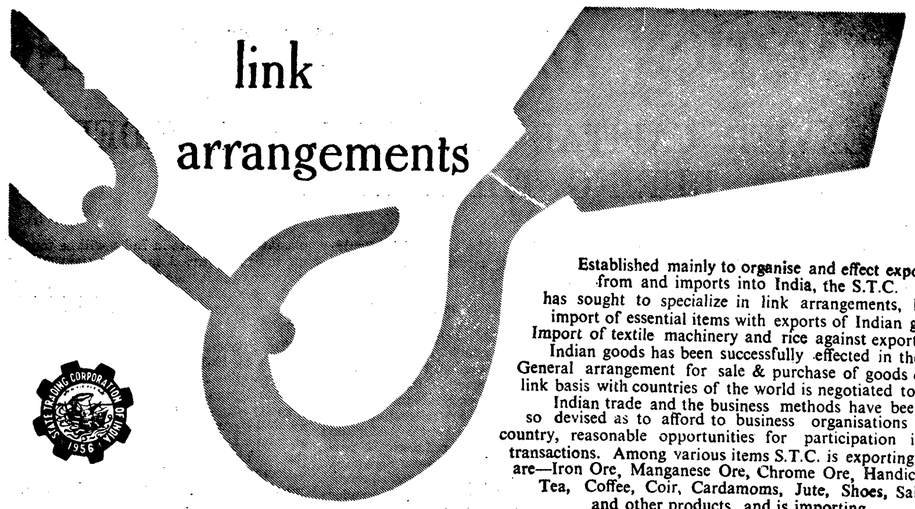
(c) 1959 figures are negligible.

(d) The U.S.A.'s 1959 production figures are obtained from *Modern Plastics*, January 1960 issue.

(e) The U.K.'s 1959 production figures are obtained from *British Plastics* January 1960 issue.



A polyethylene film being laid as lining for a pond



link arrangements

Established mainly to organise and effect exports from and imports into India, the S.T.C. has sought to specialize in link arrangements, linking import of essential items with exports of Indian goods. Import of textile machinery and rice against export of Indian goods has been successfully effected in the past. General arrangement for sale & purchase of goods on similar link basis with countries of the world is negotiated to promote Indian trade and the business methods have been so devised as to afford to business organisations in the country, reasonable opportunities for participation in linked transactions. Among various items S.T.C. is exporting some are—Iron Ore, Manganese Ore, Chrome Ore, Handicrafts, Tea, Coffee, Coir, Cardamoms, Jute, Shoes, Salt Cement and other products and is importing—Caustic Soda & Soda Ash, Raw Silk, Textile Machinery, Chemicals and other essential commodities.

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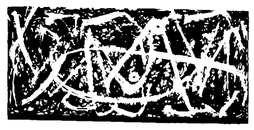

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is given in Table II. This is linked with an installed capacity of 150 million lbs of basic plastics (Basis I).

Table II

Estimate of 1966 Processing Capacity Requirements

Process	Capacity (Million lbs)
Extrusion	50
Injection	35
Compression	25
Fabrication	16
Bonding	10
Textile coating	6
Lamination	5
Calendering	3
	150

Processing Equipment Requirements

Assuming that the equipment now used by processors will have been almost entirely replaced by 1966, processing equipment requirements should amount to about 45,000 tons of compression capacity, 3,000 ounces of injection moulding capacity, and 650 inches of extrusion capacity, besides auxiliary equipment, tool-room requirements, etcetera. The total financial outlay for fixed and working capital should amount to about Rs. 20 crores. Furthermore, it can be assumed that about 4,000 moulds and 300 dies will be required by the injection moulders and extruders to operate at the indicated 1966 levels. These will involve additional funds to the extent of Rs. 3 crores to Rs. 3.5 crores. The production and processing of plastics at the rate of 120 million lbs a year by 1966 will require a total investment of about Rs. 55 crores between now and 1966—Rs. 30 crores to Rs. 35 crores for raising the present installed capacity for the manufacture of basic plastics to 150 million lbs, and Rs. 20 crores to Rs. 23 crores for providing the installed processing capacity for conversion of 150 million lbs of basic plastics into finished goods.

Simultaneously, investment must be undertaken for the manufacture of indigenous machinery. Otherwise, almost Rs. 10 crores in foreign exchange will be needed for importing processing equipment. It is evident, therefore, that inclusive of indigenous machinery manufacture, an additional investment exceeding Rs. 60 crores will be needed to support the four-fold expansion of the industry from the present levels. As mentioned earlier, many expect to see a five-fold expansion of the industry by 1966 (Basis II), and this rate will certainly be consistent with present world trends. At this level, where installed capacities for the manufacture as well as the processing of plastics will have to be around 200 million lbs, the industry will need total additional funds of about Rs. 75 crores over the next six years. One of the major questions is whether sufficient funds will be forthcoming to raise manufacturing and processing capacities to this higher level.

Problem of Finances

It is evident, therefore, that the most serious problem facing the industry in the years immediately ahead is the magnitude of financing involved. In the case of manufacturing plants for basic plastics, financing to the extent envisaged does not appear to be an insurmountable problem. In this sector of the industry, the pattern that is now emerging points towards greater financial participation by foreign companies, generally in collaboration with Indian enterprises. This trend will assist the industry in increasing capital investment and should continue to receive support if the pace of development is to be accelerated. The problems concerning the foreign exchange required for plant and machinery imports can also be solved through collaboration where foreign interests provide manufacturing equipment against long-term credit or in exchange for equity. But it is at the processing level that financing poses a serious problem. The progressive expansion of manufacturing facilities is bound to continue in the leading processing establishments, but the shortage of finance at the processing level could deter progress. It is essential, therefore, to encourage financially sound and well-organised industrial interests to enter the plastics finished goods field in larger numbers. For this purpose, intensive development work is necessary to popularise plastics: good outlets for plastics products and adequate returns will help provide the incentive to invest larger funds to build up the processing sector of the industry.

Contribution to Economy

At an output of 120 million lbs a year, the plastics industry will turn out basic plastics worth Rs. 30 crores. Processors will convert these basic materials into finished goods valued at around Rs. 50 crores or more. Exports could take up about 20 percent of basic plastics as well as finished goods, thereby earning foreign exchange of the order of Rs. 15 crores. The applications of plastics are too numerous to discuss here, but the areas where greatest benefits are expected in India in the future are indicated in Table III. The economy as a whole will also benefit through the growth of ancillary industries and increased employment.

TABLE III

Major Potential Markets for Plastics in India

	Polyethylene	Polystyrene	Polyvinyl chloride	Other vinyls	Urea and melamine	Phenolics	Cellulosics	Acrylics	Polyesters
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Industry									
Airconditioning and Refrigeration		MXO	MXFW		MB	MBL		M	L
Motor Vehicles	FMX	MX	MXOW		M	MBL	MX	M	L
Chemicals	FMXW	MX	MXW				MX		L
Furniture	FM	MX	FL	B	MB	MBL		MV	L
Packages and Containers	FLMX	MX	L		M		MXFL		
Paints and varnishes				R		R	R		R
Paper	FLMX			B		L			L
Radios, Fans, Lamps, etcetera	W	MX	W	B	MB	MBL	MX		L
Rubber	FMX								
Tea and Coffee	MXFL		MX						L
Textiles	MFL	MX		B		ML			
Trailers and Coaches	MX	MXO	FXOLW	B	MB	MBL	MX	M	L
Agriculture									
Fumigation covers	F		FL						
Grain silo liners	F								
Green houses	F								
Mulching cotton	F								
Fruits, Vegetables, etcetera									
Silage Covers	F		FX						
Water distribution	FMX	MX	FMX				MX		L
Irrigation									
Pipes and Channels	FMX	MX	FMX				MX		L
Water seepage prevention in canals, ponds, ditches, etcetera	F		F						
Power and Communications									
Power distribution									L
Telecommunications	MXW	MX	W						L
Construction									
Concrete curing	FL								
Damp-proof coursing	FL								
Pre-casting	FL								
Roof lining	FL								
Slab tilting	FL								
Miscellaneous	FLMX	MX	X	B	MB	MBL	MX	V	L
Domestic									
Decorative panels					B	B		V	
Drapes, shower curtains, etcetera	F		F						
Houseware	MX	MXO	O		M	M	M	V	
Toys	MX	MX	MX						

Legend: B Bonding agent; F Film; L Laminates; M Moulded products; O Foam; R Resins; V Fabricated products; W Wires and cables; X Extruded or calendered products

The future of plastics in India will depend largely on the progressive outlook of new entrants as well as of those already established in the field. The future will also depend on the Government's industrial policy. By the end of the third plan, the industry might reach the "take-off" stage and become self-sustaining. So an analysis of the factors which influence its growth and organised planning to forestall the factors which might deter progress, is essential.

It is necessary to ensure that indigenous raw materials are readily available for the manufacture of basic plastics. Indigenous alcohol has already been put to use for manufacturing polyethylene. For the polyvinyl chloride plant which is being constructed, indigenous calcium carbide and chlorine will be used as raw materials. The recently licensed plans for styrene monomer production are based on indigenous benzene and alcohol. The source of urea is the Sindri fertiliser factory. Other materials such as phenols, cresols, formaldehyde and wood pulp for cellulosics must be indigenously produced at an early date to meet the raw material requirements for manufacturing plastics. Not only must raw materials be made available in adequate quantities, but to encourage the growth of the industry supplies should be made under conditions which are favourable from the standpoint of prices, freights, sales tax, etcetera.

To promote the growth of basic plastics, manufacturing units in this sector of the industry must be encouraged to expand to optimum sizes. This fundamental industrial principle should govern future planning. Production costs cannot otherwise compare favourably with similar costs attained in industrially advanced countries, because overheads, profits, amortisation charges, etcetera, have to be spread over a limited volume of output. Economic-size units in India for polystyrene,

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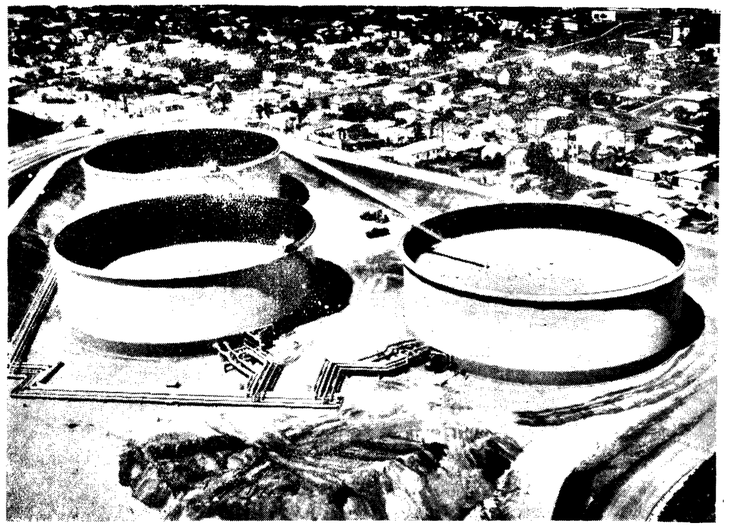

Huge oil storage tanks coated with vinyl resins

polyvinyl chloride, polyethylene and cellulose acetate could possibly be of the order of 20 million to 25 million lbs of installed capacity. For some other plastics, such as phenolics and urea, it is believed that relatively smaller units might function with efficiency. As stated earlier, the additional funds required to promote four-fold growth in the manufacture of basic plastics are estimated at Rs. 30 crores to Rs. 35 crores, although this assumes that production will be built up through economic-size units. The investment needed for a lb of output will be much greater, and funds considerably in excess of the estimate will be required if instead of building economic-size plants, the basic plastics programme is implemented through a larger number of small manufacturing units. Manufacturers have high hopes of building up exports to a level of 20 percent of total production by 1966. From this standpoint also, it is necessary for the production costs of resins and moulding powders to be reduced through the expansion of the basic plastics manufacturing capacity to economic levels. The machinery, moulds and dies required by processors must be readily available, otherwise the programme of development will be greatly affected. Plans for the manufacture of machinery should be taken up, and supplies can be obtained from abroad until indigenous production can cope with the demand. Adequate tool-room facilities are also essential.

Technical Know-how

Qualified and experienced administrators, engineers, technologists and craftsmen are required in increasing numbers as the production of plastics is stepped up. For this purpose, the industry should establish close liaison with universities, educational directorates and other educational establishments. The attention of these bodies should be drawn to such shortcomings as exist at present so that they may take constructive steps to assist the industry. As for research, instead of repeating the work already done in industrially advanced countries, the industry should be granted facilities to "purchase" technical know-how. Increased earnings and foreign exchange savings will, in many instances, more than make up for the initial expenditure. This will certainly be the case if such purchased information helps to advance the date by which a plant can be brought into production, or if it leads to economies in production. Any new fundamental or "process" research should, however, be co-ordinated through close liaison with the various research institutes within the country. The industry will then not only benefit through the purchase of available know-how, but will be able to profit further by taking up specific research and original work on current problems. These will be especially important if India plans to compete in the plastics markets abroad.

The industry has received active support from the Central Ministry of Commerce and Industry. Close liaison is maintained with the industry by the Plastics Directorate of the Development Wing. The industry is represented on a Development Council and an Export Promotion Council. Last year a Plastics Productivity Team was sent to Italy, the U.S.A. and Germany. This support from the Government should be made available in even greater measure to implement the ambitious expansion programme ahead. The industry, on its part, has to establish consumer confidence in domestic as well as export markets. This can be done by giving the consumer good value for his money through standardisation of products and emphasis on quality.

Brimming with laughter and excitement, these Rajasthani children cluster around their quaint 'conveyance', the camel. Not every day do they have such fun—a camel ride across the sandy wastes and a marriage feast awaiting at journey's end. A few moments more and off they will go, swinging in rhythm with the trotting camel and completely at ease on the tall mount.

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MORE RAW MATERIALS NEEDED FOR RUBBER MANUFACTURE

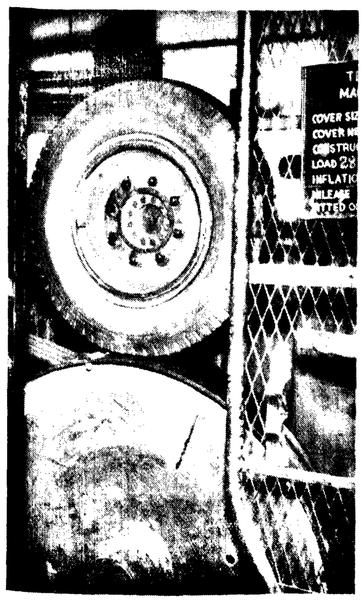
PRODUCTION CAPACITY FOR TYRES EXPANDS

THE rubber manufacturing industry in India is one of the dozen large industries with over 25,000 workers and a total annual output valued at about Rs. 68 crores. Its real beginning was after 1930. During the first three decades of the twentieth century, practically all the rubber produced in India was exported. In 1934, when the International Rubber Regulation Agreement for fixing world prices and export quotas came into operation, a large portion of Indian rubber was left over in the country. This enabled the indigenous industry to grow rapidly as it was able to buy its requirements of raw rubber much below the world price. The industry also enjoyed an expanding home market for its products. During the period, large overseas rubber manufacturers began to decentralise their production and some of them established subsidiary factories in India. Thus, from the beginning, the industry was not only assured of an indigenous source of supply of the raw materials, but also the technical know-how necessary for its advancement.

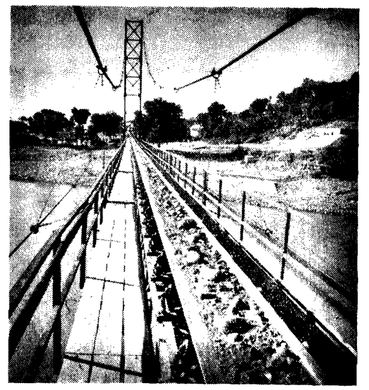
The most remarkable feature of the industry is neither its size nor its age but its extraordinary variety. Its constituent units vary from small firms with a few employees to some 30 large organisations, of which one ranks as Asia's largest rubber manufacturing enterprise. Its products range from the simple pencil eraser and the latex nipple to the increasingly complex and large earth-mover tyres, conveyor belting and industrial hoses. The table of output figures for selected rubber products appearing on the next page gives an idea of the industry's growth in recent years.

Tyre Manufacture

The most important unit of the rubber industry is tyre manufacture, which accounts for 63 percent of the total rubber consumption in the entire industry. The tyre industry's progress is closely related to the development of the motor-car industry and other forms of road transport. At present, there are about 500,000 motor-vehicles in the country, and their number is expected to increase to some 700,000 by 1965. By then, India's motor-car industry will have an estimated annual production capacity of some 60,000 lorries; 30,000 passenger cars and station wagons; 10,000 jeeps;



A lorry tyre being tested on a revolving drum



The four-mile-long belt conveyor system, the longest in Asia, at the Bhakra-Nangal project

12,000 tractors and 72,000 motor-cycles. In other words, the demand for tyres as original equipment and for replacement will be very high.

In 1959, India produced about 1.14 million motor-vehicle tyres. When the second plan was prepared, a target was fixed for 1.46 million motor-vehicle tyres to be produced by 1961. With the

By

A SPECIAL CORRESPONDENT

substantial increase in the production capacity of one of the existing manufacturers, and a programme which is being completed by the other and with the coming into production of a new factory in Madras in 1959, the total tyre production capacity has been greatly increased. When the Bombay factory, which has just commenced production, also reaches the first stage of its installed capacity in the second half of the current year, it will increase the total production capacity further. In addition, the Government of India has licensed three more motor-vehicle tyre manufacturing units to be set up, one each in Kerala, Delhi and Calcutta. All the three factories are expected to go into production by 1961-62, so that by about the beginning of the third plan, India will have an annual production capacity of 2.54 million motor-vehicle tyres.

The Bicycle Age

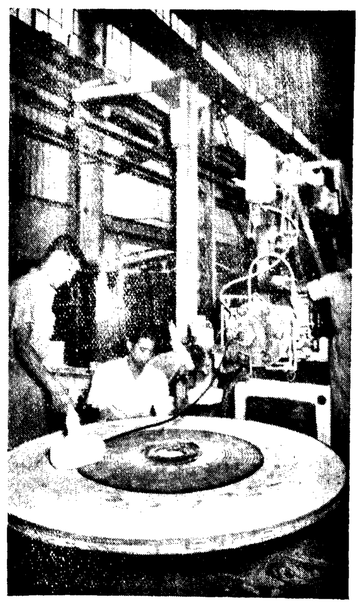
Mr. Nehru recently said that India has entered the "bicycle age"; one out of every 80 persons in the country uses a bicycle. The Tariff Commission has estimated that by 1960-61, the ratio might rise to one bicycle for every 58 persons. The Development Council for the Bicycle Industry has fixed a tentative production target of 2.5 million bicycles for the third plan, which is 1 million more than the second plan target. It is interesting to note that the industry has already achieved the target set for it under the second plan, and it is reasonable to expect that it will be able to fulfil the tentative target set for it under the third. The second plan target for the production of bicycle tyres is 16 million. The output in 1959 was 9.61 million. With 2.5 million bicycles to be produced by 1965, the demand for bicycle tyres during the third plan is expected to be about 30 million, both for original equipment and replacement purposes. In addition, India-made bicycle tyres are expected to prove competitive in export markets and if a sizeable export trade is to be built, their production should exceed 30 million.

Agriculture is another field where the pneumatic tyre has an important use. Since the main aim of the country is to achieve self-sufficiency in food production, it depends on how soon agriculture can be mechanised. The Federation of Indian Chambers of Commerce and Industry has estimated that to raise food production by 50 percent in ten years from the present level, the country will need 100,000 tractors, so in terms of demand for tractor tyres, there is almost unlimited scope for the tyre industry. In any scheme for road and road transport development, the bullock carts deserve consideration. There are about 10.24 million of them in India serving, for the most part, the feeder traffic generated by farms, factories and commercial establishments. But their usefulness is restricted by two disadvantages. The vehicles have a low payload capacity and their iron-tyred wheels damage road surfaces. The change-over to pneumatic tyres will increase the carrying capacity of bullock carts from their present payload of 16 maunds or 25 maunds to 50 maunds or 60 maunds. It will also reduce the damage to road surfaces.

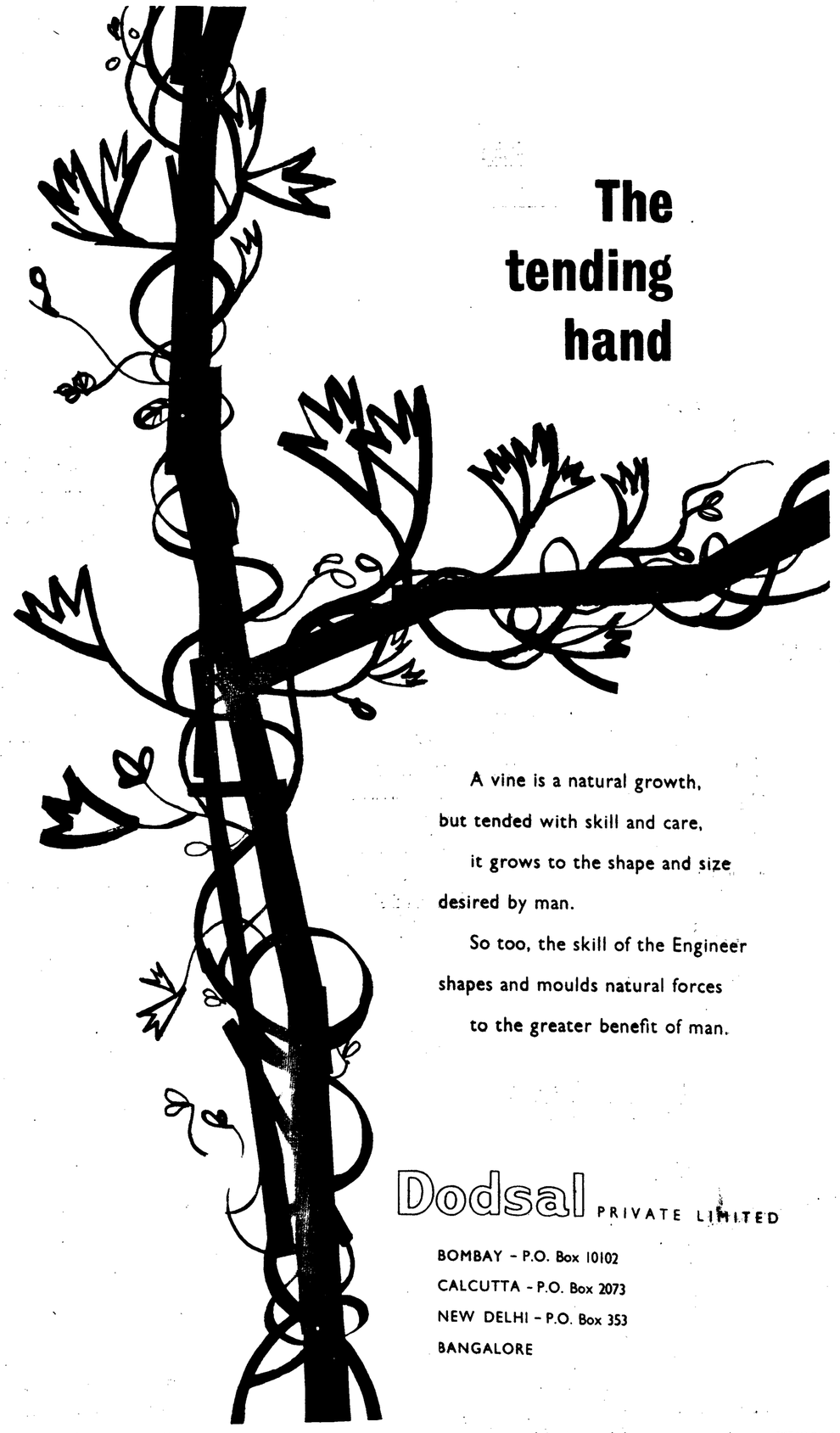
Recently, the Central Ministry of Transport made a study of the movement of goods traffic by road in the Union territory of Delhi. The study, which was in the nature of a pilot survey, showed that the idle capacity of animal-drawn vehicles was "phenomenally" high. If an animal-drawn cart averages 23.3 miles a week, 13.5 miles of this is loaded and 9.8 miles empty. Normally, a cart in rural Delhi is used for transportation for only 43 days in the year. In the urban area, on the other hand, it is used for transportation for 87 days in the year. The survey said that within a limited region of activity, the bullock carts are cheaper than motor transport. So if the country's transport needs are to be met adequately, the bullock carts, too, must be fully used. Heavy earthmoving equipment and aircraft also need pneumatic tyres and tubes. The tyres required for them are now made in the country.

Production of Footwear

The rubber footwear industry is the second largest constituent of the rubber manufacturing industry in India. It accounts for about 15 percent of the total rubber consumption of the entire industry. During the past decade, the popularity of the traditional leather footwear is yielding place to that of rubber. The 1958 annual report



Long braided hose being manufactured



The tending hand

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it grows to the shape and size
desired by man.

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A large earthmover tyre being taken out of its mould

of the U.K. Natural Rubber Development Board forecast a steadily expanding use for rubber in footwear manufacture. In India also, the introduction of rubber resins in footwear compounds is widening the field of use, particularly in leather-like materials. The outstanding properties of rubber, such as resilience, wear and protection, are making rubber footwear increasingly popular. Although the present *per capita* consumption of footwear in India is about one pair for every three years, the demand is bound to grow as living standards improve. Footwear manufacturers have also established export markets in the east European countries. Besides, they are exporting their manufactures to the U.S. and Asian markets. Recently, the Central Minister for Industry stated that during the third plan period, production of footwear (both leather and rubber) would be raised from the second plan target of 102 million pairs to 153 million pairs. An export target of 4 million to 5 million pairs for the third plan period, is now being considered. If greater attention is paid to quality and if styles and pattern which cater to the export markets are introduced, it is likely that exports during the third plan period might even exceed the target.

Industrial Rubber Products

Like the industries in developed countries, Indian industry has been quick to appreciate the economic advantages of transporting materials on conveyor and elevator belts. Sets of conveyor belts of varied length are now in use in the river valley projects, steel industry, coal mines, power-stations, cement factories, etcetera, and the demand for them is greater than the country's manufacturing capacity. So major producers in this sphere have already taken steps for the expansion of their existing production capacities. From the comparatively simple use as a means of "drive" on such machines as generators and water pumps, Vee belts and transmission belting have become the widely used methods of power transmission in industry. In view of the trend towards modernisation in the cotton textile and jute mill industries and of the need both to cut production costs and to increase industrial productivity, the demand for Vee belts and transmission belting is bound to increase. Rubber hose is one of the earliest products of the industry. Since the introduction of continuous length hose manufacture, a remarkable variety of types and sizes have been developed for general service and for specialised use in industry, mining and agriculture.

Market for Latex Foam

The market for latex foam cushioning has been growing at a phenomenal rate in the last few years and, from current trends, it appears that it may well occupy second place in potential importance to tyres. In 1959, India produced about 2.41 million lbs of latex foam rubber which is five times the output of 1951. Latex foam cushioning is becoming increasingly popular in public buildings, transport, cinemas, furniture and the home. In a country like India with a population of nearly 400 million, it may be expected to have an even more spectacular increase in consumption in the next ten or 15 years.

The great variety of uses to which rubber is put inevitably raises difficulties of classification for some of the other important products manufactured. The annual report for 1958 of the U.K. Natural Rubber Development Board provides a vivid account of the wide variety of uses. It records the growing use of rubber in building and engineering industries as anti-vibration mountings, joint sealing and in latex cement compositions. The utility of coating the under-carriages of motor-vehicles with a rubber solution to protect them from corrosion and accumulation of dirt, etcetera, is now widely recognised. The usefulness of rail-pads, inserted between the rail and the sleeper, to reduce vibration and wear is being increasingly appreciated and more and more countries are using them. These are the fields in which rubber is being used and before long these uses will become popular in India too.

Inadequate Supply of Raw Rubber

The rising demand for rubber products has created problems for the manufacturing industry. The foremost among them is the inadequate supply of raw rubber in the country. Between 1948 and 1958, natural rubber production increased by about 58 percent but consumption rose by over 93 percent. In 1951, the gap between production and consumption was about 30 percent; in 1958, it was over 56 percent. The indigenous production of natural rubber in 1959 was 23,398 tons, against the total consumption of 43,006 tons. The tyre industry alone used about 28,000 tons of rubber last year. In the current year, its demand is expected to exceed 31,000 tons. It is estimated that the total demand for rubber in 1961-62 will be about 59,700 tons, and it is expected to rise further to 93,800 tons by 1965-66. At current prices, imports of rubber to make up the anticipated shortfall in 1961 will cost the country more than Rs. 11 crores. In view of the foreign exchange shortage, it is necessary to evolve an immediate and more determined solution to improve raw rubber supplies.

Intimately related to the production of natural rubber in India is its low yield. The yield is at present 314 lbs an acre in India, against 470 lbs an acre in Malaya and 414 lbs an acre in Ceylon. There is also wide variation between the yield an acre obtained by small growers and that of large estates. Small growers, who hold nearly 56.6 percent of the total acreage and 44 percent of the tappable area, account for only 25 percent of the output. The average yield obtained by them is about 181 lbs an acre, against 419 lbs an acre by large estates. It is of the utmost importance to both the plantation industry and the manufacturing industry that the yield an acre be raised by implementing a vigorous replanting scheme. Although some incentive for replanting has been provided by the Government's subsidised scheme, the progress so far has not come up to expectations. It is reported that the Kerala Government is considering a proposal to bring more forest lands in the State under rubber cultivation. The Central Minister for Commerce and Industry also indicated in the Lok Sabha the possibility of starting rubber cultivation in the Andaman and Nicobar Islands. But these schemes are necessarily long-term, so their benefits will not be fully available to the manufacturing industry for many years.

Synthetic Plant

The rise in the price of imported natural rubber is also compelling the manufacturing industry to rely more on synthetic rubber. The use-ratio of synthetic rubber to natural rubber has been growing in recent years. India imported about 4,450 tons of synthetic rubber in 1959 which is about 10 percent of her total rubber consumption. Recently, the Government of India has approved a scheme for setting up a Rs. 15-crore synthetic rubber plant in Bareilly with an annual production capacity of 20,000 tons. The plant is expected to commence production in 1962 and will save Rs. 5 crores a year in foreign exchange. The Central Government has also approved three schemes for the production of reclaimed rubber, one each in Delhi, Coimbatore and Bombay, with a combined capacity of 7,000 tons of reclaimed rubber a year.

Important raw materials like carbon black, sulphur, anti-oxidants and rubber chemicals are now mostly imported. Some time ago, the Central Government invited foreign experts to explore the possibility of manufacturing carbon black indigenously. A plant for the manufacture of carbon black in India is to be set up shortly in Durgapur and it is expected to commence production early in 1962. The National Industrial Development Corporation has set up a subsidiary company in the public sector—Pyrites and Chemicals Development Company Ltd—to undertake the manufacture of sulphur from the pyrites deposits in the Amjor area of Bihar. A licence has also been granted for the establishment of a factory near Calcutta to manufacture diverse types of rubber chemicals. The plant is expected to commence production by 1961.

Intimately connected with the progress of the industry is the training of technical personnel. In order to devise ways of coping with the technological advances for increasing production and for using the expanded range of raw materials which are now available to the rubber industry, it is necessary to have a trained cadre of technologists and technicians. With this end in view, a series of apprentice training schemes have been instituted by the industry in conjunction with the various State Governments. A few universities and technical institutions have also introduced graduate and post-graduate courses in rubber technology.

Scientific Research

Although the Indian rubber manufacturing industry is able to avail itself of the advances made in rubber research all over the world, it has yet to secure the facilities for organised research within the country. A beginning has now been made and the Council of Scientific and Industrial Research has drawn up plans for the establishment of an Indian Rubber Manufacturers Research Association in conjunction with the Association of Rubber Manufacturers in India and the Indian Rubber Industries Association. The National Chemical Laboratory in Poona has also made a promising start in this direction, and there is no doubt that the results of its research will benefit the rubber industry in the years to come.

	1951	1956	1957	1958	1959
Tyres					
Motor-car (thousands)	870.0	938.4	990.0	1,005.6	1,138.6
Bicycle (thousands)	3,940.8	6,320.4	7,152.0	8,259.6	9,612.6
Tractor (Nos.)	3,180	30,768	47,400	28,896	35,128
Animal-drawn vehicles (Nos.)	18,984	28,032	46,644	42,072	41,470
Aero (Nos.)	2,472	3,660	4,476	2,328	1,834
Off-the-road (Nos.)	—	2,112	1,932	3,288	3,376
Footwear (100,000 pairs)	230.4	361.2	369.6	367.2	392.0
Fan belts (thousands)	298.8	724.8	652.8	666.0	1,040.1
Industrial vee belts (thousands)	—	266.4	451.2	546.0	729.9
Rubber ply transmission and conveyor belting (tons)	—	1,656	1,536	1,908	2,317
Latex foam sponge (thousand lbs)	477.6	1,777.2	1,956.0	2,226.0	2,414.9
Dipped rubber goods—toys, balloons, nipples, valves, teats, etcetera (100,000 dozs.)	110.4	260.4	198.0	242.4	290.0
Radiator hoses (thousands)	220.8	248.4	171.6	168.0	241.8
Vacuum brake hoses (thousands)	472.8	552.0	777.6	602.4	472.1
Other types of rubber hoses (thousand feet)	3,574.0	6,603.6	7,981.2	9,217.2	11,161.8
Ebonite rods, sheets, tubes (thousand lbs)	199.2	210.0	240.0	234.0	249.7
Water-proofed fabrics (thousand yards)	1,576.8	2,574.0	3,076.8	3,236.4	3,575.9
Rubber components for railway fittings (thousands)	1,748.8	1,656.0	1,762.8	1,350.0	1,269.9
Rubber and plastic insulated cables and flexibles (100,000 yards)	411.6	1,056.0	1,038.0	1,287.6	1,678.4

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The Importance of Fertilisers to Agricultural Progress

Great Scope for Expanding Domestic Production

INDIA has a land area of 811 million acres, 41 percent of which is cultivated. The proportion is among the highest in the world. (The world average is only 10 percent.) The U.S.A. cultivates 25 percent of its area, and Russia, China and Argentina about 9 percent to 10 percent each. India has almost reached saturation point in the area which can be brought under cultivation. In fact, agriculture has encroached on vast areas of forests and grazing lands, affecting the balance of land utilisation adversely. It is now being widely recognised that bringing new land under cultivation cannot alone be a substantial means of increasing food production.

In spite of the fact that the percentage of the cultivated area in this country is among the highest in the world, the *per capita* figure is one of the lowest. It is 0.9 acres, compared with 10.8 acres in Africa, 7.4 acres in North America, 6.9 acres in South America, 1.6 acres in Asia and 1.5 acres in Europe. The world average is 3.5 acres. This means that more food has to be produced from the same area to feed a population which is steadily growing.

There is another aspect also. The size of the agricultural holding should be used to the fullest extent, to meet the food and other needs of the farmer and his family. In India, the average size of the agricultural holding is 7.5 acres, compared with 145 acres in the U.S.A., 40 acres in Denmark, 26 acres in Holland and 20 acres in Britain. This means that, if the size of the Indian holding is to be an economical one, a larger quantity has to be produced from the same area. With the low *per capita* cultivated area and small size of holdings, the need is to obtain higher yields an acre. Instead, the crop yields are very low, compared with those in the advanced countries. So it is natural that the Indian agriculturist is perhaps the poorest in the world. His holdings are small, the yields he obtains are low, and since 70 percent of the population belong to this category, the country is poor.

A panoramic view of the Sindri fertiliser factory

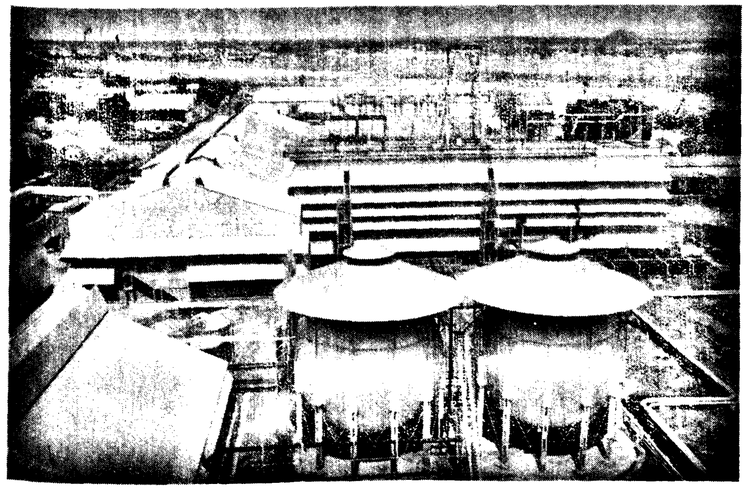
Soil and Plant Food

No crop growing in adequately moist soil can give the yields of which it is potentially capable without enough plant food. The higher the yield of which it is capable, the more plant food it needs, and the faster does it exhaust the soil, unless enough food is supplied to meet this need and to maintain the necessary high level of soil fertility. It is largely wasted effort to change over to a new high-yielding or disease-resistant crop variety, or to apply crop protection or better cultivation methods, if the fertility of the soil is so low that the crop is starved. This holds good even when arid land is newly brought into use by irrigation, for although such land may contain dormant stores of plant food which are mobilised

By

A SPECIAL CORRESPONDENT

by the supply of irrigation water and which may then suffice to produce high crop yields at first, the natural reserves will be depleted by a few successive crops, and yields will fall unless soil fertility is replenished by manures and fertilisers.



The ammonia synthesis plant at a fertiliser factory

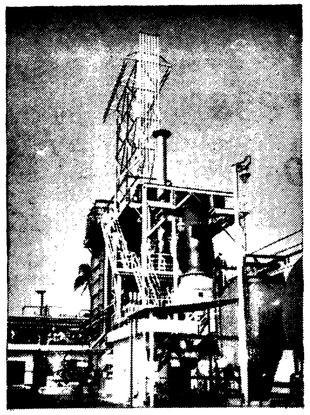
Although much of the plant food required may be met by farm-produced organic manures—and their use along with fertilisers is a necessary feature of the best farming practice—the quantities available are usually insufficient to fill the needs of high-yielding crops. Fertilisers are, therefore, a key factor in producing the extra crops needed to feed the growing population, no matter what other means are used to increase the crop yield.

Need to Raise Crop Yields

The bringing into cultivation of arid and waste land involves great capital expenditure on irrigation, drainage, roads and the like. Although many costly projects have been and are being implemented, especially in countries where the need for raising food production is urgent, the more immediately effective and less expensive way of increasing crop output is to raise yields on land which is already under the plough, but which is not yielding nearly as much as it could through the application of fertilisers.

The loss of Burma in the second World War brought to the notice of the Indian Government for the first time the difficult food situation in this country. This was followed by the Bengal famine of 1943. Food rationing, which was introduced in the latter year, continued until the end of the war. Shortages and massive imports have since then become the regular feature of the economy. Food production has not kept pace with the needs of an increasing population. The demand has also been increasing because of the rising standard of living and growing urbanisation. The challenge of the circumstances has brought home the imperative need for the use of fertilisers.

There were only two concerns in India producing nitrogenous fertilisers at that time, one in Alwaye, Kerala, and the other in Belagula, Mysore. Their output was modest. The establishment of a large factory had to be quickly planned. On the recommendation of a technical mission, it was located in Sindri and went into production in 1951. At that time, it was feared that it would be difficult to dispose of its output. Therefore, fertiliser demonstrations were held all over the country, and the results produced by the application of ammonium sulphate impressed the farmers. The States, however, were not prepared to take sufficient quantities to achieve the targets laid in



A close up view of the Converter of the Polythene plant at Rishra

Investment in India's future

In recent years I.C.I. (India) has been associated with a series of manufacturing schemes of great significance to the nation's economy. In November 1958, the President of India opened the Indian Explosives Ltd. plant at Gomia, Bihar—the country's first commercial blasting explosives factory. I.E.L. is a joint undertaking of I.C.I. and the Government of India.

In April 1959, Atic Industries Private Ltd., in which I.C.I. is in partnership with Atul Products Ltd., inaugurated a major extension to their vat dyestuffs factory at Bulsar, Bombay.

A third plant, opened in May 1959, is India's first polythene plant, built at Rishra, West Bengal, by the I.C.I. subsidiary, the Alkali & Chemical Corporation of India Ltd. It cost Rs. 4 crores and will save the country Rs. 1.5 crores every year in foreign exchange.

Yet another project... Soon I.C.I. and its subsidiary, the Alkali & Chemical Corporation of India Ltd. will build a Rs. 2 crore Rubber Chemical Plant at Rishra, West Bengal, which will save the country Rs. 1 crore foreign exchange annually.

I.C.I. (India) furnishes technical advice to its customers, costing the company over Rs. 10 lakhs a year.

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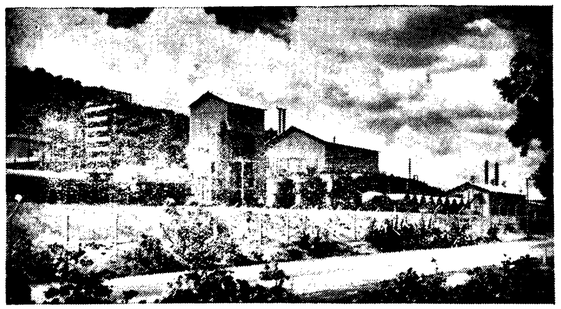
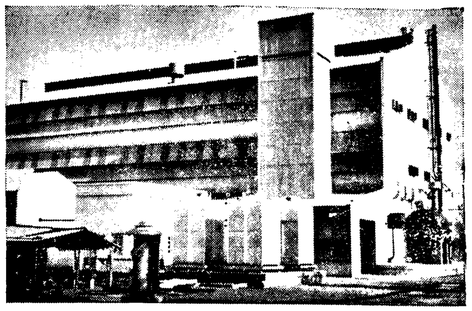
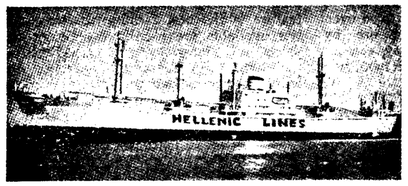


India's first Commercial Blasting Explosives factory at Gomia—General view of the area where raw materials are manufactured



Part of the extensions at the Atic Industries Bulsar plant

ICG 862 C



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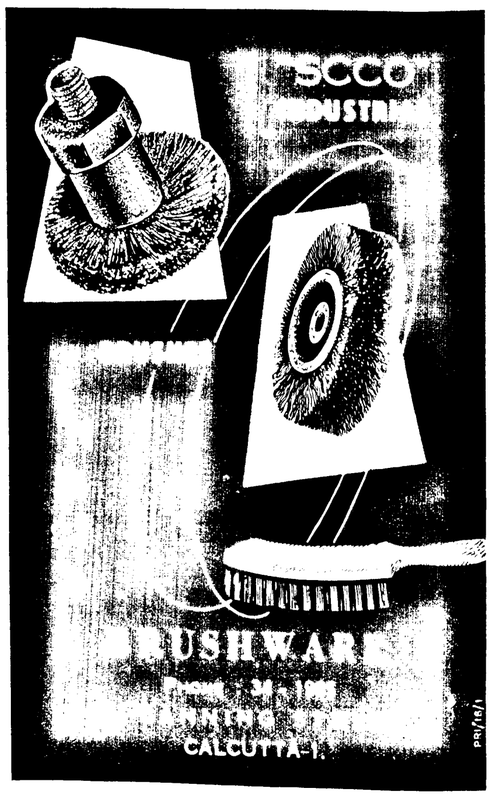


the first plan and it involved a good deal of persuasion to induce them to take more.

Consumption Targets

The initial opposition to the use of fertilisers has now worn away. The target for the second plan was fixed at 370,000 tons of nitrogen a year, whereas the current requirements are running ahead of this figure. Accordingly, consumption targets were visualised as follows:

	Tons of Nitrogen
1956-57	150,000
1957-58	190,000
1958-59	350,000
1959-60	425,000
1960-61	500,000

As at the end of 1958, there were eight units producing ammonium sulphate in the following quantities:

Name of unit	Location	Annual capacity (tons)
Sindri Fertilizers and Chemicals Ltd ...	Bihar	359,000
Fertilizers and Chemicals (Travancore) Ltd ...	Kerala	44,550
Mysore Chemicals and Fertilizers Ltd, Mysore	Mysore	6,600
Tata Iron and Steel Company Ltd	Bihar	16,500
Indian Iron and Steel Company Ltd, Burnpur	West Bengal	10,230
Indian Iron and Steel Company Ltd, Kulti ...	West Bengal	1,650
Burrakur Coal Company Ltd	Bihar	1,320
Bararee Coke Company Ltd	Bihar	1,155
		432,005

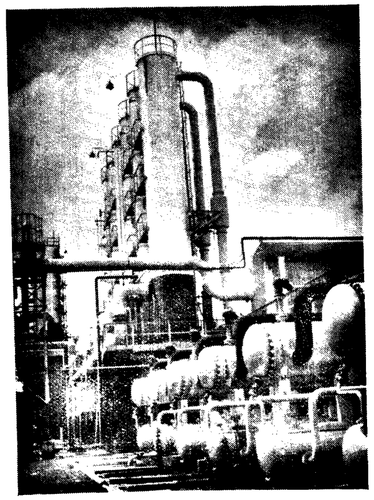
A phenomenal increase in capacity and production is now visualised in this sector of industry. Every State in the country except Jammu and Kashmir is likely to have a fertiliser factory of the size of Sindri, if not larger, by the end of the third plan period. At the end of 1958, the following schemes for new capacities of nitrogenous fertilisers were already being implemented:

Unit	Capacity in tons of Nitrogen a year
Sindri Fertilizers and Chemicals Ltd ...	47,000
Fertilizers and Chemicals (Travancore) Ltd	10,000
Indian Iron and Steel Company Ltd ...	6,000
Nangal Fertilizers	80,000
Rourkela Fertilizers	120,000
Neyveli Fertiliser project ...	75,000
Sahu Chemicals, Varanasi	10,000

*Since completed.

Fertiliser from Waste Gases

A new unit is coming up in Trombay using the waste gases from the nearby refineries as the raw material. The setting up of a factory in Kothagudem in Andhra Pradesh for the manufacture of 80,000 tons of nitrogen a year is under way. It is understood that 45,000 tons of nitrogen will be converted into urea and the remaining 35,000 tons will be produced in the form of complex fertiliser. Another unit is to be set up in Namrup in Assam for the production of 22,500 tons of nitrogen as urea and 10,500 tons of nitrogen as ammonium sulphate, using natural gas as the raw material. A recommendation has also been made to locate a factory in Hanumangarh in Rajasthan for the production of 80,000 tons of nitrogen in the form of ammonium sulphate. Itarsi in Madhya Pradesh and Durgapur in West Bengal are, it is reported, being considered as possible sites for fertiliser units in the public sector.



Scrubbers for ammonia and benzol in a coke oven

Next in importance to nitrogen is the phosphatic fertiliser. Superphosphate production in this country started in 1906, with the setting up of a small factory in Madras followed by another in Bombay in 1924. Except for a few hundred tons of triple superphosphate, single superphosphate of

Type of product	Target date for implementation
Urea and A.S.N.	1959*
A.S.N. and ammonium phosphate	Early 1960.
Ammonium sulphate ...	From 1960
Nitro-chalk	Sept. 1961.
Nitro-limestone ...	End 1961.
Urea	1959*
Ammonium chloride ...	

consumption hardly touched the level of 200,000 tons during 1958-59. The estimated demand for 1959-60 is about 350,000 tons of superphosphate, in addition to the normal consumption of 30,000 tons of bonemeal.

Agronomic Experiments

The rôle of phosphoric acid in crop production is, however, being increasingly appreciated as the years go by. Results of agronomic experiments, conducted by the Indian Council of Agricultural Research, have established that the application of phosphorus is as profitable as nitrogen, if the residual effect is taken into account. The consumption figures of phosphorus in terms of single superphosphate for the period 1937 to 1958 are given in the following table:

1937	... ...	7,400* tons
1948	... ...	22,000* tons
1951	... ...	43,000 tons
1955	... ...	80,000 tons
1957	... ...	135,000 tons
1958	... ...	170,000 tons

*Based on imports plus the estimated indigenous production.

Producing Units

Consumption is on the increase and if the trend is maintained, a target for the third plan will have to be fixed at a high level. According to the present thinking, and taking into account the increased production which has to be achieved, the target for superphosphate is likely to be about 750,000 tons of P_2O_5. The following table gives details of the units engaged in the production of superphosphate at the end of 1958:

Name of unit	Location	Annual capacity (tons)
Parry and Company Ltd	Madras	50,000
Fertilizers and Chemicals (Travancore) Ltd ...	Kerala	49,500
D.C.M. Chemical Works	Delhi	33,000
Phosphate Company Ltd, west Bengal	West Bengal	34,650
Shaw Wallace and Company Ltd	Madras	30,000
Dharamsi Morarji Chemical Company Ltd ...	Bombay	29,700
Bihar Government superphosphate factory ...	Bihar	23,100
Alembic Chemical Works Company Ltd ...	Bombay	21,000
Hyderabad Chemicals and Fertilizers Ltd ...	Andhra Pradesh	16,500
Anil Starch Products Ltd	Bombay	11,000
Sonawala Industries Ltd	Bombay	8,900
Mysore Chemicals and Fertilizers Ltd ...	Mysore	6,600
Premier Chemical Industries	Mysore	6,600
Eastern Chemical Company	Bombay	5,500
Western Chemical Industries ...	Bombay	3,300
West India Chemicals ...	Bombay	2,310
Mettur Chemicals and Industrial Corporation Ltd	Madras	1,650
Petland Turkey Red Dye Works	Bombay	990
		334,300

The manufacture of superphosphate requires the import of rock phosphate and sulphur from abroad. Production is, therefore, actually limited by the availability of these, especially of the latter. A ceiling of 720,000 tons has been set for the production of single superphosphate in the country. It is hoped that expansion beyond this figure will be in the direction of other phosphatic fertilisers, such as dicalcium phosphate and

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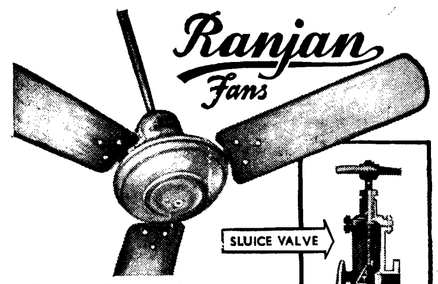

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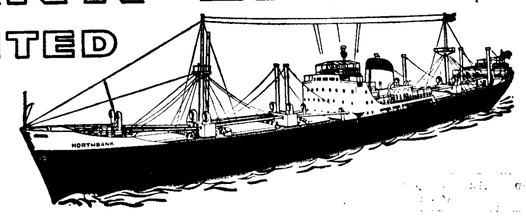

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nitrophosphates, which do not require the use of sulphur.

Licences totalling 236,650 tons a year of superphosphate have been issued for setting up new capacities as follows:

Name of unit	Location	Annual capacity (tons)
Krishna Industrial Corporation Ltd ...	Andhra Pradesh	60,000
Andhra Fertilizers (Private) Ltd ...	Andhra Pradesh	50,000
Adarsh Chemicals and Fertilizers ...	Bombay	36,000
Jay Shree Tea Gardens	West Bengal	33,000
Hyderabad Chemicals and Fertilizers Ltd ...	Andhra Pradesh	24,750
Dharamsi Morarji Chemical Company Ltd ...	Bombay	14,400
West India Chemicals Ltd	Bombay	10,800
Hindustan Heavy Chemicals Ltd	West Bengal	4,950
Western India Chemicals Ltd	Bombay	2,750
	Total	236,650

Apart from these, it is understood that there is a possibility of 25,000 tons of triple superphosphate being produced at the new zinc smelter which it is proposed to set up in Udaipur. Many of the public sector units may produce complex fertilisers and/or ammonium phosphate, so it is difficult to form any realistic estimates of the expansion in the fertiliser industry unless definite information is available on the Government's programmes.

Potassic Fertilisers

The third important plant nutrient is potassium, which is, however, not available in the country in any appreciable quantity. Until recently, the view was generally held that Indian soils are well supplied with potash and do not require potassic fertilisers. Experiments on coconuts, other plantation crops, potatoes, tobacco, etcetera, have shown a marked response to potash fertilisers. Almost the entire quantity of potassic fertilisers used in India at present is imported. The ratio of consumption of nitrogen, phosphoric acid and potash in most agriculturally advanced countries is roughly 1:1:1, while in India this ratio is only 1:0.09:0.08. The use of phosphoric acid and potash thus has to be stepped up greatly, side by side with that of nitrogen, in order to help raise farm production in this country. The target for potash consumption has been revised to 45,000 tons of K_2O for the end of the second plan.

For the production of potassic fertilisers, India is mainly dependent on imported muriate and sulphate of potash. Indigenous sources of potash, namely, salt bitterns, are very limited and do not account for more than 1,500 tons of low-grade salts a year. India's use of potassic fertiliser materials is one of the lowest in the world. Fertiliser mixtures of various types suitable for different crops and soils are prepared and marketed by a number of private firms on an increasing scale. At present, over 200,000 tons of fertiliser mixtures are manufactured and marketed in the country. There is a wide scope for the expansion of the mixed fertiliser industry and in the preparation of new compound fertilisers.

Chemical fertiliser distribution in India can be classified into two categories. In the first category fall the nitrogenous fertilisers which come under the central fertiliser pool operated by the Government of India. In the second category are the other chemical fertilisers, namely, phosphatic, potassic and fertiliser mixtures. All indigenously-produced nitrogenous fertilisers, as well as imported stocks, are purchased by the Government of India and placed nominally in a central fertiliser pool, which was started in 1944. Under the pool arrangement, the planning of fertiliser supplies is taken up a year in advance. The State Governments and other interests are required to estimate their monthly demand for the following year, taking into account the expected carryover stocks, and give the estimate to the Central Ministry of Food and Agriculture. On the basis of the demand thus received and after taking into account the foreign exchange position, the internal production and the likely carryover stocks with the pool, the total quantity to be imported and the monthwise break-up are decided upon. Thereafter, global tenders are invited by the Government and purchases made. Allocations to the States are issued in quarterly instalments on the basis of demands already indicated.

The bulk of the nitrogenous fertilisers allotted to State Governments is sold as straight fertilisers through marketing organisations set up by them. These marketing organisations vary from State to State. In some, co-operative organisations have been given monopoly rights, whereas in others, the distribution is left entirely to private marketing agencies. In a few States, the marketing is done by both agencies. The organisations thus appointed to distribute nitrogenous fertilisers sell through their own agents.

Central Pool

Under the central fertiliser pool, all the nitrogenous fertilisers are made available to the State Governments at the railhead destinations specified, at a uniform price. They are also obliged to sell the fertiliser to the farmer at or below the rate specified by the Central Government. Plantations, as also mixing firms, are charged a higher price than the railhead price by some State Governments. The production and distribution of single superphosphate are carried on largely by private business firms. Some States purchase superphosphate on Government account and distribute it through their approved agents. But most of the superphosphate produced is sold by the manufacturers through their own agents. These latter may be either private traders or co-operative societies.

The production of potassic fertilisers in the country is negligible, and almost the entire quantity consumed is imported. The distribution is done entirely by importers through their own agents and follows a pattern similar to that of superphosphate. The manufacturers of fertiliser mixtures obtain their requirements of nitrogenous fertilisers through State Governments from the central fertiliser pool. The mixtures are produced to specifications as required by planters and also for general sale. Their distribution is done on the same lines as for superphosphates. The prices of mixtures for planters are fixed by agreement. For sale to the farmers, the prices are fixed on the basis of the cost of production and marketing.

Although fertiliser production and consumption have made significant progress during the last decade, the offtake in India is just about 1 lb of plant food to each acre of agricultural land, compared with 193 lbs in Japan, 177 lbs in Belgium, 175 lbs in the Netherlands, 121 lbs in West Germany, 46 lbs in the U.K., and 43 lbs in France. If the targets of consumption visualised in the second plan are achieved, consumption will go up to 4.5 lbs an acre, which is still less than a fortieth part of what Japan uses for her agriculture.

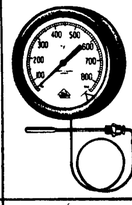
The Government's efforts to popularise nitrogenous fertilisers have paid rich dividends, as consumption has been increasing steadily. It is felt that the Government should try to popularise the use of other fertilisers also in a ratio suited to the nature of the soil and climatic conditions. Model farms demonstrating the advantages of using balanced fertilisers will go a long way in popularising them.

Foreign Exchange Costs

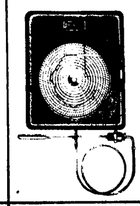
The Fertiliser Association of India has worked out the comparative foreign exchange cost involved in the import of foodgrains as well as that of fertilisers. The foreign exchange cost of one ton of nitrogen is estimated at Rs. 1,500. A number of experiments conducted on the response of crops to the use of fertilisers have shown that one ton of nitrogen, used as fertiliser, results in an additional yield of eight tons of foodgrains. Imports of 100,000 tons of nitrogen will cost Rs. 15 crores, whereas the import of foodgrains of an equal quantity that could be produced by the application of this fertiliser (8 million tons) will cost Rs. 40 crores in foreign exchange. The foreign exchange cost involved in setting up units for the production of 100,000 tons of nitrogen in India is estimated at Rs. 20 crores. The fertiliser industry of India has, therefore, almost unlimited scope for expansion.

MERCURY-IN-STEEL

Rigid Stem Dial Thermometer

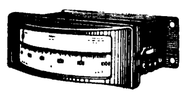


Distance Type Dial Thermometer



Temperature Recorder Single Pen—Duplex

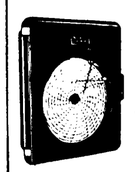
PYROMETERS



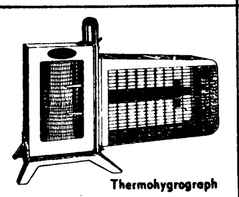
Indicating Pyrometer

Thermocouple

Quick Reading Potentiometer



Pressure & Vacuum Recorder



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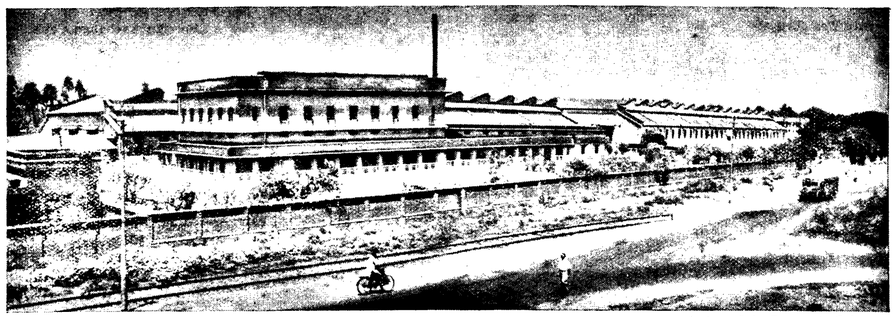

A view of the Factory in Calcutta

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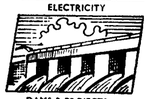
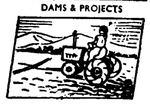


DAMS & PROJECTS



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PR. 6-50

DEMAND FOR PETROLEUM PRODUCTS RISES SHARPLY

NEED TO INTENSIFY EXPLORATION WORK

By

A SPECIAL CORRESPONDENT

THE rapidly increasing population and the desire for better living standards are exerting great pressure on India's energy requirements. The supply of energy in adequate quantities is vital to the country's development plans and its progress towards a self-sustaining economy. Of the various sources of energy, India is, in keeping with the world trend, placing increasing reliance on oil. Coal constitutes the major source of energy, but its dominance has been declining. The contribution of hydro-electricity, relative to other sources of energy, has been static for many years; oil alone has shown a steady advance. Illustrative of this trend is the pattern of commercial energy consumption during the 1947-57 period. It has been estimated that during these years, the relative share of coal fell from 86 percent to 80 percent, hydro-electric power maintained a 6-percent share, while the contribution of petroleum products increased from 8 percent to 14 percent.

In the future also it seems that India will rely increasingly on oil. On account of its bulk, coal makes heavy demands on transport, and the concentration of coalfields in the eastern part of the country is likely to place a limit on their contribution to energy needs. Hydro-electricity suffers from the disadvantage that it cannot be effectively stored. Moreover, the transmission of electricity from large-scale central generating plants will necessarily be slow in a country of India's size. Nuclear energy will undoubtedly make a contribution, but its development seems to be a matter of long-term significance. In meeting the country's future energy needs, therefore, oil can be expected to play a more important rôle.

Expanding Demand

India's demand for petroleum products has been expanding rapidly. Since 1948, when the consumption was 2.2 million tons, it has increased threefold to about 6.6 million tons, representing an increase of more than 10 percent a year. On the basis of existing growth rates in each product, and making rather conservative projections for future growth rates, the consumption of petroleum products at the end of the third five year plan has been estimated at 11 million tons which, in terms of crude input, will exceed 12 million tons. But this is a conservative estimate, and some sources have placed the figure at as much as 14 million tons. The pattern of product demand in India is somewhat unusual. It is dominated by the demand for kerosene, used mainly for illumination in rural areas. In the past, motor spirit accounted for a substantial portion of the total oil trade, but in recent years, it has given way to high-speed diesel oil, reflecting the large-scale conversion from the petrol to the diesel engine in commercial road transport.

Oil Exploration

During the last few years, the search for oil in India has been intensified considerably. The attempt to achieve self-sufficiency is a welcome and logical step in view of the rapidly expanding demand and the foreign exchange expenditure on large-scale imports. Much of the exploration work is being done by the Oil and Natural Gas Commission, which has undertaken survey and drilling work in various parts of the country. The Cambay region has now come into the limelight, where the Commission's efforts have met with a fair measure of success. Other areas where it has undertaken exploration work include Jwalamukhi, Janauri, the Baroda region and Sibsagar in Assam. In addition to this, some parts of West Bengal are being explored under the Indo-Stanvac project and parts of Assam by the Assam Oil Company, whose efforts have been rewarded by the discovery of oil in Nahorkatiya, Moran and Hugrijan.

The need to achieve self-sufficiency has arisen in recent years due to the foreign exchange shortage, which has served to highlight the tremendous task which lies ahead. Huge sums of money are required to accomplish the task, and it is becoming clear that the exploration costs cannot easily be met by the public exchequer alone. So it is a welcome sign that the country has decided to adopt a more liberal attitude towards oil exploration and has recently invited foreign oil companies to join in the search. The current crude oil output is only 400,000 tons a year from the Digboi oilfields, discovered by the Assam Oil Company. This represents about 6 percent of the present requirements, so the balance has had to be imported. India is likely, however, to have an output of about 3 million tons by the end of 1962, when the Nahorkatiya-Hugrijan oilfields are expected to go into full-scale operation. Meanwhile, the oilfield in the Cambay region has been officially declared to be suitable for commercial exploitation. These discoveries of oil, although encouraging, still fall substantially short of the needs.

There are at present four oil refineries, with a total capacity of about 5.6 million tons : two in Bombay (the Burmah-Shell refinery with a capacity of 2.6 million tons and the Stanvac refinery whose capacity is 1.8 million tons), the Caltex refinery in Visakhapatnam whose capacity is 800,000 tons and the Assam Oil Company's refinery in Digboi with a capacity of 400,000 tons. By the end of 1962, the country is expected to have two more refineries, one in Nunmati, Assam, and another in Barauni, Bihar. Both these will be in the public sector and will have a combined refining capacity of 2.75 million tons.

Third Plan Allocation

In the original draft of the third plan, as approved by the National Development Council, Rs. 115 crores was allotted for the exploration and production of oil in the public sector, and no provision was made for fresh refining capacity. Thanks to "marginal readjustments" in the plan's final allocations, it is now more or less certain that the entire sum of Rs. 115 crores will be spent on oil exploration. If and when oil is found, funds will be made available for its production and refining. If the current estimates of oil production in Cambay and Sibsagar materialise, it will mean an increase of at least Rs. 45 crores or Rs. 50 crores in the outlay on public sector oil. These adjustments are being made on the understanding that additional resources will be found

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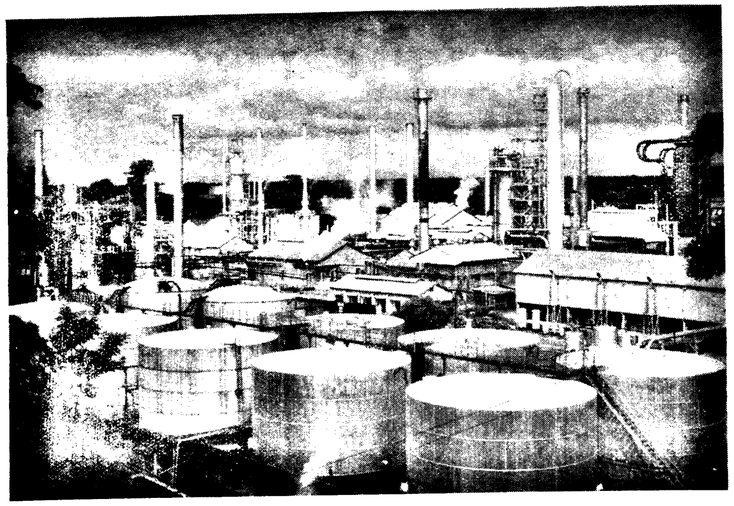
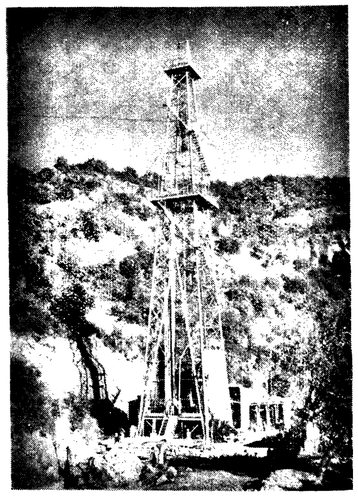


The oil refinery in Digboi

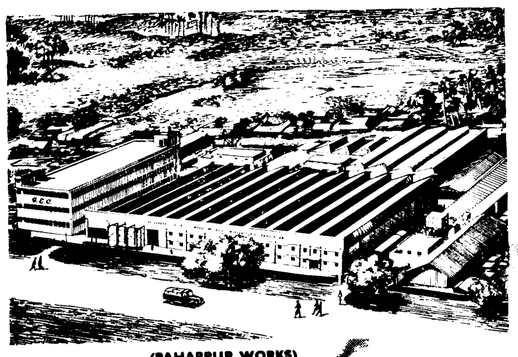


Exploratory drilling in Jwalamukhi, Punjab

through stricter economy in expenditure and without enlarging the size of the plan.

Besides the allocation for oil under the draft third plan, Rs. 61 crores still remain to be spent on second plan oil projects—Rs. 40 crores on completing the two State refineries to treat Assam oil, Rs. 6 crores on setting up the State marketing organisation, and a further Rs. 15 crores for contingencies. The total cost of the Gauhati refinery with a capacity of 750,000 tons a year will, according to the Government-owned Indian Refineries Ltd, be Rs. 20.76 crores (£15.6 million) towards which a credit of Rs. 5.23 crores for technical assistance and equipment is being granted by Rumania. The estimates for the 2-million-ton Barauni refinery, to be built with Russian help, have not yet been finalised. Burmah-Shell Refineries Ltd wishes to enlarge the capacity of its refinery near Bombay from 2.6 million to 3.9 million tons a year, and to build a lubricants plant. Several other proposals have been received by the Government for the manufacture of lubricants, including one from Stanvac. The Government's own oil distributing company has a programme for constructing storage tanks and is now negotiating with Russia for importing oil products from that country.

Commerce in oil is essentially international and the world comprises virtually a single market as far as the commodity is concerned. Sources of production are often distant from consumption centres and the greatest benefits to all concerned —this applies equally to producing countries and to consumers who buy the end-products—result from achieving the maximum flexibility in getting the right products to the right place at the right time. Throughout its conversion from crude oil underground to refined products delivered to consumers, oil is subject to the impact of world events and their economic consequences. These influence the rate of consumption and the prices at which the finished products will sell. The world economic climate thus determines the demand for oil; this demand, in relation to the available supplies and the cost-efficiency of competing suppliers, governs the price.



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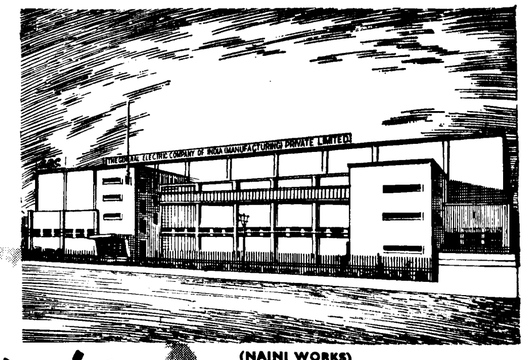

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GEC/P/74

The Rapid Growth of the Glass Industry

High Costs and Large Excess Capacity Impede Progress

By

P. N. TALUKDAR

Managing Director, Hindusthan-Pilkington Glass Works Ltd

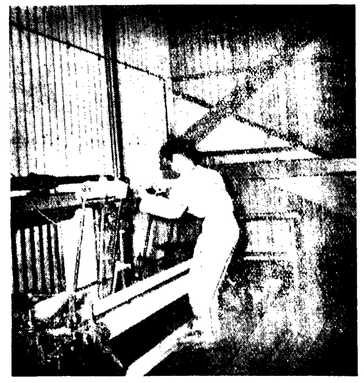
EVEN as late as the 1930s, the mainstay of the glass industry in India was the bangle, the manufacture of which accounted for more than 90 percent of its activity. Other manufactures were few, the methods of production crude, and the quality often much below the standard. The greatest handicap before the second World War was insufficient home demand. Low prices due to depressed conditions at home and abroad and the keenness of actual or potential external competition acted as a deterrent to enterprise. The refusal of the Government to recognise the importance of the industry for purposes of protection, on the ground that the local supply of some essential raw materials such as heavy soda ash was not available, created an additional difficulty. But the Tariff Board, which was fully aware of the raw material handicap, had already recommended protection for the industry.

In view of the fact that glass manufacture was in a rudimentary stage, until recently, its present position must be considered quite satisfactory. There have been two changes in the internal situation since the 'thirties. Firstly, the public is more development-conscious and, secondly, the general level of economic activity has risen. At the official level, the old fiscal formula has given place to a new, more realistic one, which looks at industrial development as an integrated process involving a number of industries and not as a matter for the separate and piecemeal development of particular ones; in other words, the tariff policy has become an integral part of the overall industrial policy. The rise in the general economic activity has created conditions highly favourable to an industry like glass which turns out products necessary for better standards of living. Indeed, the modern home, the modern factory and the modern scientific laboratory are the best consumers of glass. The industry has not only grown in size, but has considerably diversified its activities during the past few years. The bangle-making section, once the most important, has fallen into the background, while altogether new items, never produced before, are coming into increasing prominence. Even the bangle-making branch of the industry is trying to keep pace with the changes in demand and consumer tastes, by modernising its products as well as by using part of its productive capacity for making new types of goods such as paper-weights or mantlepieces.

A materials mixing machine

Structural Changes

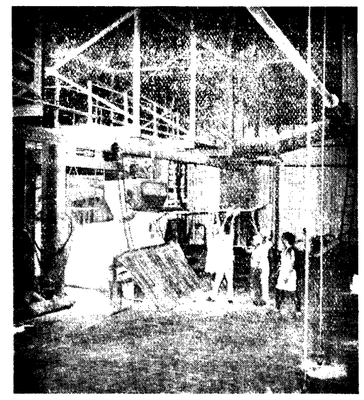
The production of new items like sheet glass, pressed and blown ware and scientific glass, has necessitated an important change in the structure of the industry, from cottage-scale operation to a largely factory basis. Consequently, there has been a growing mechanisation of production. The fact that many of the articles have to fulfil high standards of durability, refinement or precision makes mechanisation indispensable. In the manufacture of neutral glass, for example, tube-drawing by hand makes ampoules liable to breakage which renders them unsuitable for filling by automatic machines. Items like the thermometer or the measuring glass can be produced by labour-intensive methods, but only at the sacrifice of standards of precision. Other products like sheet glass and safety glass require the most up-to-date production methods and the use of fully automatic machines. The industry has, therefore, been changing over to large-scale methods and to automatic or semi-automatic machines under the compulsion of technical conditions of production (as in the case of sheet glass), of the consumer's choice (as in the case of ampoules). If some branches of the industry are still less modernised or developed, it is due to the delay in introducing mechanisation and the automatic processes. Ill-designed furnaces and faulty annealing increase the consumption of fuel, sometimes by more than 100 percent, and thereby increase unit costs. Considerable progress has been made in recent years in the mechanisation of the blown and pressedware sections of the industry. Sheet glass production alone is fully mechanised at present. Other branches are rapidly undergoing the change.



Sheets are drawn from the tank at the final stage

Urge for Diversification

One of the most persistent trends within the industry in recent years has been the urge for diversification. Sheet glass, bottles and phials, table and pressedware, lampware and scientific glassware were established as important lines of production even before the beginning of planning. The new items introduced since 1951, when the first five year plan started, make an impressive list, and include penicillin vials, sheet glass of less than 16oz. and over 32oz., coloured sheet glass, obscure glass, glass tubing by automatic drawing, narrow-mouth thermos flask, decorated aerated water bottles, glass wool and fibre glass, glass building blocks, glass syringes, synthetic stones and glass chatons. Heat-resisting glassware and some other important items, it is expected, will be produced on a sizeable scale very soon. It is also expected that a modern plant for the manufacture of optical glass will be set up in Durgapur in the near future as a public sector venture in glass manufacture on a commercial scale. The pilot plant for optical glass at the Central Glass and Ceramic Research Institute, Calcutta, which was sanctioned recently, will obviously confine itself mostly to the problems of research and experiment. The Madras Government has a project for the manufacture of scientific glassware. Further new items will not be possible as long as the home demand remains inadequate. For example, a plate glass factory has not been established in India, as the present domestic demand is so low that it cannot absorb more than a month's output of a modern plate glass factory. But the demand for such products has on the whole been growing both in volume and in intensity. Sheet glass, bottles and phials, table and pressedware and other items, under the present favourable conditions of demand, have been doing well. During the last few years, the demand has been growing at an average rate of 15 percent a year, and there has been a similar growth both in output and in installed capacity. With imports at a negligible level, this has meant that the industry has been able to sell all that it has currently produced.



Feeding the furnace with raw materials

Demand Prospects

Whether demand will continue to grow at the present rate, or whether it will grow at an even higher rate in the future, cannot be definitely predicted. But if present trends are any indication of what may be expected in the future, there is every reason to be reassured by the improvement in general economic activity and in the demand for all types of glass products. The practical implication for the industry is that it has to think in terms of a substantial increase in its installed capacity in order that it may be able to meet in full the future rise in demand. The emphasis on construction activities as a result of planning should ensure increasing demand for sheet glass which, for purposes of modern construction, is almost as essential a building material as steel or cement. In the course of the four years, 1955 to 1958, the production of sheet glass has gone up by more than 80 percent, from 20,500 tons to 37,500 tons. It is expected that with the various building projects in hand or contemplated, the demand for sheet glass will rise to 50,000 tons by 1960-61 and to 80,000 tons by 1965-66. If this rise takes place, the present installed capacity of the industry, which amounts to nearly 65,000 tons, will in the course of a year or two prove inadequate, since it is not possible to use capacity 100 percent; some capacity must always remain unused at least for technical reasons. Nevertheless, the creation of fresh capacity in sheet glass production to the tune of a further 33,000 tons during the period covered by the third five year plan, as tentatively suggested by the Planning Commission, might prove a rather ambitious proposition.

Not very long ago, sheet glass production (like some other sections of the industry even today) suffered from a considerable excess of capacity. It cannot be said that the threat of excess capacity has disappeared even now in spite of the

steady rise in demand. Any proposal for expanding capacity on the basis of statistical projections of the current levels of demand has, therefore, to be viewed with a degree of caution. The safer thing to do would be to expand some of the existing works rather than create altogether new units. As for other items of glass products such as bottles and phials, table and pressedware, and scientific glassware, there is considerable surplus capacity in these branches in spite of the rising demand. In bottles and phials, for example, production went up by over 50 percent during the period 1955-59, but even at this higher level, it seems that the industry is using only about 41 percent of the installed capacity. Although the demand for bottles and phials has been going up at a substantial rate in recent years and, in fact, at a rate even higher than was visualised, it is feared that 50 percent of the capacity in this line is likely to remain unused at the end of the current plan. This is largely due to the fact that, between April 1956 and April 1959, the production capacity for bottles and phials was increased by nearly 50 percent when there was already a heavy margin of idle capacity in these branches.

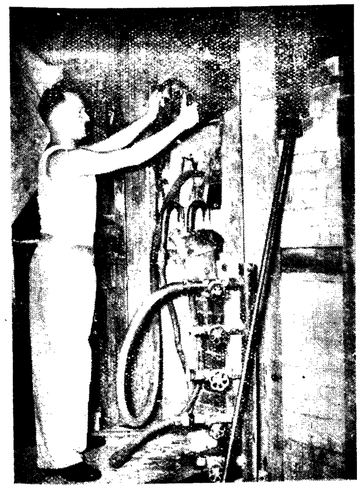
Growing Demand for Bottles

There has been a growing demand for bottles and phials in recent years, and this has been largely due to the development of the drugs and pharmaceutical industry, of dairies, and of fruit and vegetable preservation, but the unplanned creation of capacity has largely nullified the beneficial effects of the increase in demand. While planning for extra capacity for bottles and phials during the third plan period, this fact of excess capacity has to be borne in mind. Moreover, there are a few other considerations which are equally relevant. One is the likely growth of substitute materials like plastics, which may become strong rivals of bottles and phials in at least some sectors of demand, particularly the packing field. Secondly, the extension of Prohibition may also reduce the demand for liquor bottles. Thirdly, the increasing availability of used bottles may also have some adverse effect on the demand for new ones.

On the whole, it seems reasonable to argue that as long as 60 percent or so of the installed capacity in a particular line remains unused, any creation of extra capacity in that line should be undertaken only with great care and forethought. The art, or the science as some like to call it, of forecasting demand is still far from being perfect even in advanced countries: in India, it is just beginning to interest the Government and a few private organisations, and the necessary organisational framework for making meaningful forecasts has yet to be created. Here is one serious difficulty for the industry in making its plans for future expansion, for estimates of demand such as are available, are often based on inadequate material, and are offered only as "best guesses". The excess capacity at present in some other sections of the glass industry is roughly as follows: table and pressedware 40 percent; lampware 43 percent; scientific glassware 29 percent; thermos flask 74 percent; and miscellaneous items 71 percent. There is practically no excess capacity in sheet glass and shells for lamps. Taking the glass industry as a whole, excess capacity is of the order of nearly 50 percent. Bottles and phials, table and pressedware, sheet glass, and lampware account for more than 90 percent of the installed capacity, and also more than 90 percent of production in the glass industry as a whole. Hence the overall picture of excess capacity in the industry is heavily weighted by conditions prevailing in these branches. The most important point to note, however, is that the problem of excess capacity is largely due to the additions on top of capacity which itself was excess, on the basis of over-optimistic demand guesses. It is not due to the failure of demand to grow as such, for demand has indeed grown during the past few years for almost every item of glassware, at a rate even higher than was expected. The wisest thing, therefore, would be not to allow further additions in those lines in which there is already heavy excess capacity. The course of prudence here would be consolidation before expansion. Only in those branches which have no excess capacity or which have small surplus capacity, should extra capacity be installed.

Concentration of Industry

The industry is at present heavily concentrated in West Bengal, Bombay and U.P. In West Bengal, the factories are situated in Calcutta and its vicinity, and they account for nearly one-third of the total installed capacity. Of the total additional capacity of 98,476 tons created between April 1956 and April 1959, 32,604 tons was in West Bengal, which again was nearly one-third, 29,272 tons in Bombay, and 22,140 tons in U.P. The main reason why the industry is largely concentrated in these three States is their proximity to, or the local supply of, some important raw materials, the nearness of large consuming centres, transport, banking and insurance facilities, and easy supply of labour. Of particular importance to this industry is the nearness to consuming centres, and the development of the industry in and around Calcutta has been specially facilitated by this condition. There is already a feeling in certain quarters that glass manufacture should be dispersed more widely so that the disparities in regional industrialisation may be minimised. However, while it is desirable to have industries in every part of the country, it is not necessarily desirable to have every industry in every part, irrespective of costs and other considerations. An industry tends to be located at places where overall costs are the lowest. Under all normal circumstances, that is, except for strategic reasons, it would be best to leave natural economic forces alone. Moreover, as has been already argued, the country has to be particularly cautious about creating fresh capacity in glass.



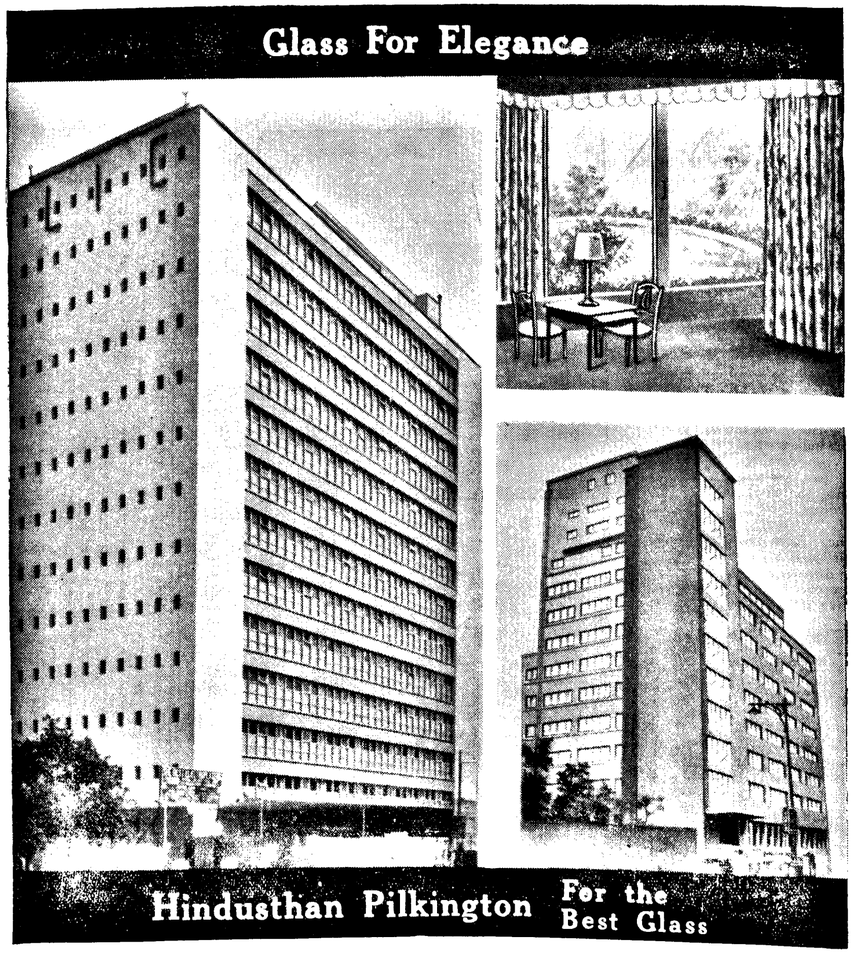
The speed adjuster of drawing machines

Export Markets

The development of the glass industry, satisfactory from several points of view so far, leaves one cause for dissatisfaction, and that in an important field. This industry has not yet been able to establish any major export market. Glass products are of universal appeal, and cultivated tastes all over the world crave for more and better types of glassware. Glass is, therefore, an export industry in its own right. One reason for the inability of the industry to attract foreign buyers so far (except in a very small way) is its high costs of production, for which the high incidence of idle capacity is largely responsible. Other factors are low labour productivity, high raw material costs and high transport charges. Moreover, export markets are, by and large, dominated by the more advanced countries who have had a much earlier start than India in glass. For the promotion of exports, therefore, efforts are necessary in three directions: price, taste and quality. This means that the Indian article must be able to compete with foreign products in price and quality, and, moreover, it should be made to suit special tastes, where they exist. There has recently been a considerable improvement in the quality of the Indian product, although much still remains to be achieved, but it is the price which at present is the chief handicap. If some special circumstances did not exist, the position even in the home market would have been causing concern. These special circumstances are the import restrictions, and the high protective or revenue duties which keep imports down to the minimum level. But prohibitive or protective duties cannot be expected to last for ever, and import restrictions are also temporary. The industry must, therefore, face earnestly the task of bringing down its costs to competitive levels.

One element in the high cost of glass production is the heavy incidence of railway freight. Largely due to the transport charges, raw materials often cost more to the Indian factories than they do to those in foreign countries. It was pointed out some time ago that while U.K. producers got heavy soda ash at factory sites at about Rs. 118 to Rs. 145 a ton, the corresponding costs to Indian manufacturers came to nearly Rs. 385 a ton. Likewise, limestone and sand cost Rs. 13 to Rs. 15 a ton at factory sites in other countries, compared with Rs. 25 to Rs. 35 a ton in India. Railway freight rates in India have recently been raised, which makes the comparative position still worse for the local industry. The fact that raw materials for glass are dispersed over wide areas makes transport costs a crucial factor. The high price of coal due to Central control, the heavy incidence of Central and State duties, consumption of unsuitable refractories due to an irregular supply of the required types, and similar factors tend to increase costs. Costs also go up when up-to-date methods and processes are not used in production. It is thus evident that both the industry and the Government have equal responsibility in seeing to it that the economics of glass manufacture is placed on a sound footing. The poor quality of refractories and chemicals also affects quality. The difficulty in getting a sufficient and regular supply of heavy soda ash on account of the fitful issue of import licences is at present one of the major worries for glass manufacturers. Even those raw materials which are locally produced are not received at factory sites in time on account of the operational irregularity of the railways.

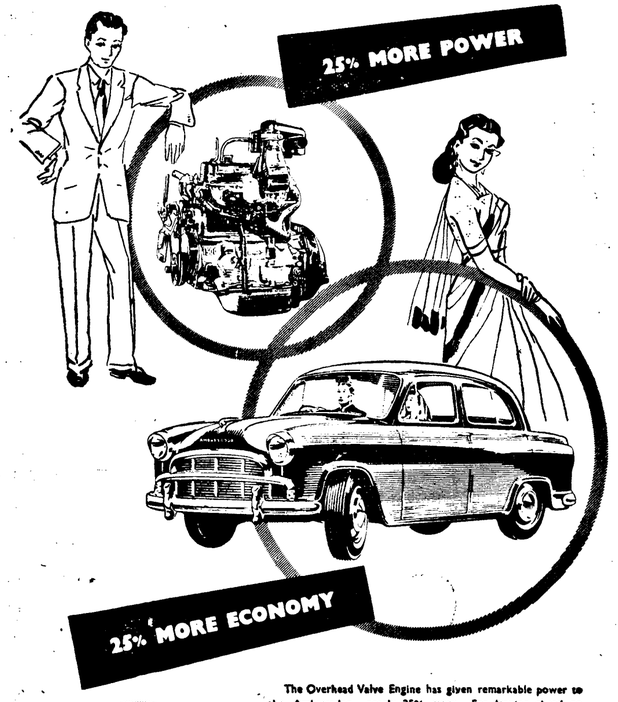
When it is considered that the glass industry is largely a creation of the second World War and the period following it, its problems and difficulties, great as they are, appear not so formidable when judged against the progress it has made in so many directions. It has gained considerable strength, and has attracted capital and enterprise in a handsome measure. The total investment in the industry was estimated at roughly Rs. 10 crores in 1951, and a further investment of about Rs. 6 crores has already taken place. When the various schemes of modernisation and expansion now in hand or projected, are completed, as they are expected to be in two or three years, the capital investment will have been more than doubled. The industry has also been fortunate in attracting foreign technical collaboration as well as participation in some important fields. It has made the industrial structure better balanced, and has offered employment to more than 25,000 people.



These two magnificent edifices bear testimony to the elegance and architectural beauty that can be achieved with the use of Hindusthan Pilkington Glass. On the left is the new Life Insurance Corporation Building in Madras; India Exchange Building Calcutta, is pictured on the right

Hindusthan Pilkington Glass Works Ltd.

Managing Agents: Talukdar Law & Co., Private Ltd.
HINDUSTHAN BUILDINGS - CALCUTTA-13, Works - ASANSOL



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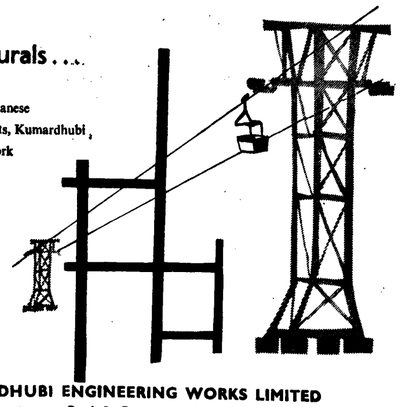

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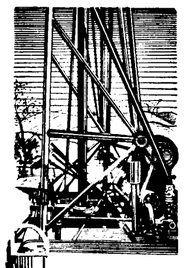

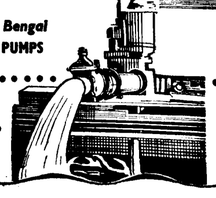

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B 3730.

THE IMPORTANCE OF QUALITY IN CABLE MANUFACTURE

IMPORT RESTRICTIONS HAMPER PROGRESS

ELECTRIC cable manufacture in India is now backed by more than 37 years of practical experience. At least one factory numbers among its employees a fair number of the sons of men who have helped build the industry to its present status—sons working alongside their fathers to establish that continuity of knowledge and practical ability so necessary for the successful growth of any venture. For many years, foreign technicians have worked, and are still working, to develop in India the skills constantly required to keep pace with new manufacturing techniques and new demands. But Indian technical personnel are now playing a progressively larger part in the development and expansion which has made such rapid strides in recent years.

To go back a little in time, to the years between the wars, the problems confronting the cable maker in India were largely concerned with training operatives and adjusting processes to climatic and other local conditions. At that time, there was no nationwide drive to increase industrial capacity or focus attention on the needs of industry generally. The initiative was, therefore, in the hands of the few, and the task of training labour was a formidable one indeed. Doubtless, there were also problems in obtaining raw materials of the correct quality, but in those days there were few of the import restrictions which present major difficulties today.

Depending as it must on the import of by far the major portion of its raw materials, the

By
A SPECIAL CORRESPONDENT

cable industry has been faced during recent years with the need to carry large stocks of such materials. Otherwise, interruptions in production would have been far greater than they have in fact been. While it is always prudent to carry reasonable stocks of materials in any manufacturing unit, it is a severe strain on finances and on storage space when abnormally large quantities have to be held in readiness. The lengthy procedure involved in obtaining imported materials has forced those responsible for maintaining supplies to face periods of acute anxiety. The worries have arisen, on the one hand, from the thought that huge stocks of expensive materials occupy valuable space, tie up large sums of money, and are accompanied by the ever-present threats of loss, damage and/or deterioration. There have, on the other hand, been even greater worries lest stocks of vital materials diminish below the safety level because of import delays.

Remarkable Progress

The Government of India has adopted a firm policy of industrialisation and quite remarkable progress has been made. But the fact remains that much actual production has been lost in recent years which need not have been lost if more regular supplies of raw materials had been forthcoming. The period of time covering the shipment and transport of such materials from their country of origin to India is measurable in weeks, whereas the time required to process the documents connected with the import of such materials is frequently counted in months. Furthermore, even after arrival in India, the delay in the clearance and onward movement of these materials may equal or exceed the time they have spent at sea.

Up to a point, delays are unavoidable and are catered for and accepted, as is the necessity for controlling imports as long as foreign exchange problems exist. But documentation delays could be reduced. A cable manufacturer who produces any reasonable variety or types of cables has to carry stocks of probably more than 400 items of raw materials alone. In addition, he also has to carry stocks of general stores used for factory maintenance, packing, etcetera, which include 5,000 to 6,000 different items. Many of these still have to be imported and the manufacturer looks forward eagerly, even at times a little wistfully, to the day when he can obtain his requirements freely and in competitive markets, either as a result of the removal of controls or preferably from reliable indigenous sources.

Inherent in the manufacture of cables is the necessity to make a product which will satisfy not only rigid electrical and mechanical specifications but which will also comply with the equally rigid safety regulations applicable to their installation. It is only by constant factory testing and vigilance that reliable cables can be made. The unscrupulous individual who knowingly makes and sells poor quality cables is guilty not only of dishonest dealing but also of putting into the hands of the lay public a potential instrument of death. During recent years, your correspondent has personally examined cables purchased in retail shops only to find them extremely faulty and even with exposed conductors in some instances. A small flexible cable in this condition, purchased by a householder and connected to a domestic appliance, is highly dangerous. The cables so examined have been made in India not by reputable manufacturers, but by small concerns apparently without testing facilities. Such concerns are evidently unaware of specification requirements or deliberately choose to ignore them.

Close Copy

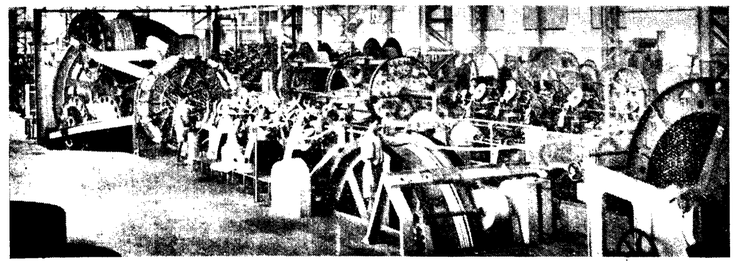
It has also been distressing to discover numerous instances of the poor quality cables being packed and distributed on reels which are a very close copy of the recognised reels of the leading manufacturers. And it is not only the reels of the Indian manufacturers which are copied. The reels of prominent foreign companies, with an international reputation for quality, have been closely imitated in detail. The reasons for this nefarious action on the part of unscrupulous individuals are obvious and need no discussion here, but unfortunately such action harms the industry as a whole. Resort to litigation, as a possible preventive, can be a lengthy and costly business and may not be effective. Thus, while reputable cable manufacturers are constantly vigilant, the consumer can probably do more to remove this evil by exercising care in purchasing and by insisting on compliance with specifications. Installation engineers can also play their part by making a careful examination of the cables they handle and by carrying out correctly all the required tests on the completed installation.

Such precautions will provide safeguards mainly, of course, where electric cables are being used by experienced men who are familiar with wiring regulations and codes of practice. The only safeguard against the use of poor quality and dangerous cables by the man in the street, who can readily purchase such cables in retail shops, is to discourage the manufacture and sale of untested cables ; and to encourage, possibly by widespread propaganda, the use of cables which are known to comply in all ways with the established specifications.

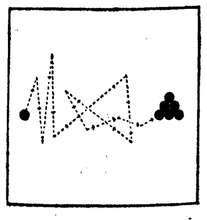
Electrical Conductors

Electric cables today are an essential part of everyday life. Although one may not always see them, they are there doing their job quietly and steadily year after year. Because of the wide field of application, there is a very wide variety of types and sizes. So their manufacture is, of necessity, a complex affair. The basic structure of an electric cable is simple enough, consisting of a conductor, an insulating medium and some form of external protection. But the complexity of actual design and manufacture can perhaps be imagined when one takes a closer look into the possibilities which lie in those three basic parts. A conductor can consist of a very fine wire or a combination of virtually any number of fine wires. Some flexible conductors, indeed, are made up of over 2,000 fine wires laid together. A conductor can also consist of a solid wire or a number of solid wires laid together to give current carrying capacities ranging from, say, 3 amperes to 600 amperes. A conductor may be circular in section, or rectangular, or shaped into a variety of sections. Furthermore, these conductors can be made in any one of a number of different metals and in all cases they have to be made accurately to very close limits. And so, for the manufacture of the conductor alone, a considerable range of machinery and equipment, including testing equipment, is required.

Consideration of the insulating medium opens up a whole field of possibilities. The



A large laying-up machine in a cable factory



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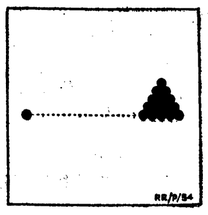

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INDUSTRIAL FINANCE CORPORATION OF INDIA

Incorporated under the Industrial Finance Corporation Act 1948 (XV of 1948)

HEAD OFFICE :

Reserve Bank Building, Parliament Street, New Delhi.

BRANCH OFFICES :

Liberty Building, 8, Marine Lines, BOMBAY. **P-11, Mission Row Extension, CALCUTTA.** **38, Whites Road, Royapettah, MADRAS.**

AUTHORISED CAPITAL: **Rs. 10,00,00,000**
ISSUED AND PAID-UP CAPITAL: **Rs. 5,00,00,000**
TOTAL LOANS OUTSTANDING (as on 31. 12. '59) **Rs. 35,32,61,733**

AUTHORISED BUSINESS :

(a) Granting of medium and long-term loans to, and subscribing to debentures of, existing industrial concerns (public limited companies or registered cooperative societies) engaged in, or new ones proposing to engage in, the manufacture or processing of goods, or the generation or distribution of electricity or any other form of power, or mining, or shipping or hotel industry;

(b) Guaranteeing of loans raised by aforesaid industrial concerns which are floated in the public market and are repayable within a period not exceeding twenty five-years;

(c) Underwriting the issue of stock, shares, bonds or debentures by aforesaid industrial concerns;

(d) Guaranteeing deferred payments in respect of import of capital goods by aforesaid industrial concerns.

PURPOSES FOR WHICH LOANS ARE SANCTIONED :

Purchase of machinery, renovation or modernisation or replacement of worn-out or obsolete machinery, purchase of land for factory site, and construction of factory buildings.

IMPORTANT TERMS AND CONDITIONS OF LOANS :

(i) **SECURITY :** First charge of all the fixed assets such as land, buildings, plant and machinery and fixtures. Raw materials, stock-in-process and finished goods will not be mortgaged and will, therefore, be available for raising working capital from elsewhere.

(ii) **MARGIN :** Generally 50% of the value of total assets including those to be acquired with the loan. This margin may be reduced to 40% in case of industrial concerns importing plant and machinery under the U.S. Export-Import Bank Loans or other foreign currency loans (tied credits) taken by Government from foreign governments or financial institutions abroad where the cost of imported plant and machinery is 60% or above of the total capital cost of the project. The margin may be further reduced to 35% in special cases with prior approval of the Central Government.

(iii) **INTEREST :** 7% per annum with a rebate of ¼% for punctual payment of instalments of principal and interest.

(iv) **REPAYMENT :** Will be spread over up to 25 years to suit borrower's convenience.

TERMS AND CONDITIONS RELATED TO OTHER BUSINESS
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General Manager

K. R. K. MENON
Chairman

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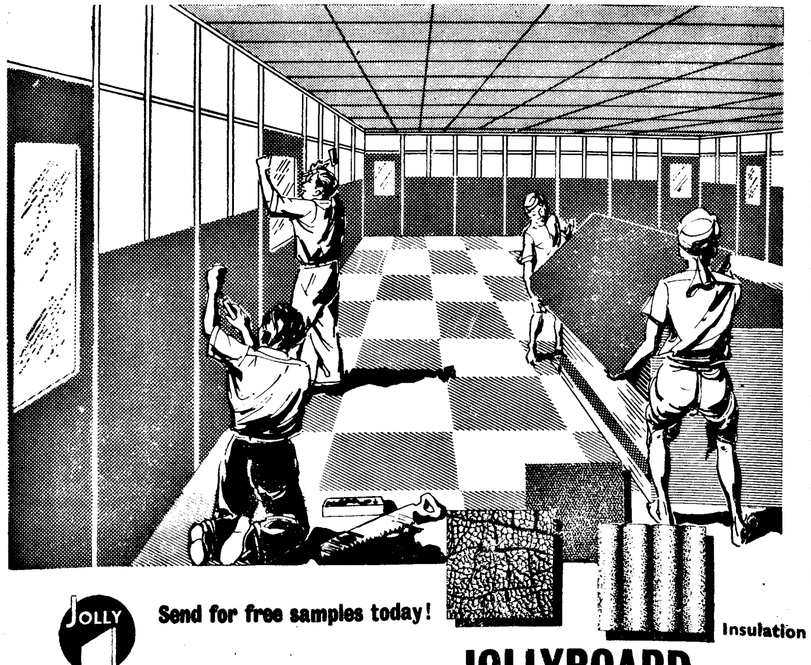

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insulating materials in general use today are rubber compounds, papers, varnished tapes, enamels and thermoplastics. Within each type lies a range of materials from which the manufacturer can choose in order to make a cable which will be suitable for its end-use. Coupled with this range, the manufacturer also has to choose in each case one or more of several possible methods of applying the insulating medium to the conductor. Thus a further variety of machines and equipment is necessary. The type of external protection is normally determined by the use to which the cable will be put in service, its manner of installation and the nature and condition of its surroundings. Once again, the manufacturer has a choice of materials and methods and the picture is filled out to include the necessary plant.

Protective Coverings

The function of protective coverings is, of course, to safeguard the cable against the many adverse factors affecting it in service. In a country as large as India, the terrain and climate offer so many different operating conditions and temperatures that at first sight it appears to be almost impossible to design and construct cables which will perform their duty successfully. Protection has to be provided against such widely different enemies as termites, acids, alkalis, vibration, abrasion, heat, cold, mechanical shock, and not least against moisture. Most cable installations are liable to suffer the depredations of any one or more of these destructive influences. Some installations, on the other hand, call for the protection of the cable against unusual forms of attack. For example, in the more thickly populated areas of India, where underground power cables are buried within a few feet of the surface and where sanitary arrangements are not always adequate, human urine can have the most devastating effects. Fortunately, however, long years of research and experience have resulted in the development of protective finishes of such a high order that virtually all conditions can be met. Thus, where adequate quality control exists during manufacture, both manufacturer and purchaser can feel confident that a cable properly made and properly installed will withstand these attacks and continue to function satisfactorily for many years.

Research into cable design and structure is practically non-existent in India and the industry has depended on technical assistance from foreign countries. Agreements under which the assistance has been forthcoming have worked well and are playing a very large part in the expansion of the Indian industry. Such assistance is still essential and vital to the well-being and further growth of cable-making in this country because there is still a wide field of manufacture, particularly for high-voltage work and specialised applications, not yet catered for by existing plant and equipment. In fact, in spite of the expansion of various factories and the licensing and construction of new ones, the present installed capacity for the manufacture of even what might be termed "normal" cables will, it is estimated, do no more than meet the present demand. The following figures indicate the situation as now known :

General type	Approximate present capacity, effective and licensed	Estimated demand in 1961-62
Rubber and thermoplastic	520 million yards	600 million yards
Paper insulated	1,000 miles	1,600 miles

It is of interest to note that rubber insulated cables and thermoplastic insulated cables have been grouped together. These two general types are in fact different in manufacture (being made on different types of machinery) but they are complementary in end-use to a considerable extent. In other words if the gross requirement of low-voltage cables was, say, 20 million yards, it would be possible, with suitable safeguards, to meet that requirement partly from each type. Rubber and its compounds have been used in cable manufacture for a hundred years or more, whereas thermoplastics were not brought into use for this purpose until the 1930's. In the early years of their introduction as a cable-making material, thermoplastics were looked upon as a "substitute" for rubber compounds. This impression was heightened during the second World War, when raw rubber supplies to the western countries were severely curtailed and it became necessary, in order to sustain the war effort, to make the fullest possible use of any alternative material. But in later years as scientific development continued and manufacturing techniques with the new material improved, thermoplastics began to throw off the stigma of being described as "substitute" or *ersatz*.

Field of Use

Today they stand firmly as materials in their own right. They do not replace rubber compounds, nor can they do so over the very wide range in which rubber is used. But they have established for themselves a field of use built up in the main of: (a) applications in which thermoplastics and rubber compounds are alternatives for each other; and (b) applications in which thermoplastics, by reason of their special properties, are particularly suited. The thermoplastic most commonly used as a cable dielectric is polyvinyl chloride, and as far as India is concerned, its use is at present confined to low-voltage cables. European continental practice is to use it for higher voltages, say, up to 11kV, but British and American engineers have been a little more cautious or conservative, seemingly preferring not to recommend P.V.C. for working voltages beyond 3kV. Field trials at all voltages are constantly being conducted. It will be interesting to watch developments and to see whether or not the use of P.V.C. for high-tension dielectrics achieves universal approval. Before leaving thermoplastics, mention should also be made of polythene. This is a material with excellent electrical properties and a well-developed processing technique and one which is in fact used on a production scale in India. Polythene, however, is not as versatile as P.V.C. and, under some conditions, can have a relatively short service life unless it is suitably protected.

One of the most progressive steps in cable making in India was the introduction in 1958 of paper insulated power cables. Prior to that year, such cables had never been manufactured in India and in some quarters it was felt that a climate which produced dust storms and extremes of relative humidity was hardly suitable for the venture. The fears were, however, unfounded and paper insulated power cables are now successfully being produced at the rate of about 600 miles a year. This is supplemented by the introduction late in 1959 of the manufacture of thermoplastic insulated power cables in a low-voltage range. The total will not meet the country's needs but plans have already been framed, by more than one company, to increase capacity and install new capacity. Even after the completion of the new projects, considerable scope will exist because nobody has yet tackled the manufacture in India of power cables for working voltages beyond 11kV. Future development in this line has to come if India is to achieve the self-sufficiency she desires.

Essential Part

Alongside the manufacture of insulated cables and flexibles is usually found the production of electrical conductors of different types. Hard drawn solid conductors and stranded conductors for overhead lines, paper-covered and cotton-covered wire and strips for transformer windings, enamelled wires for motor and coil windings are the most common "allied" products. The installed capacity for these items has grown rapidly in recent years, and it is estimated that for solid and stranded conductors, the production capacity is now adequate, although the replacement of obsolete machinery will be necessary. For covered conductors and winding wires (enamelled, paper-covered, cotton-covered), production has to be increased further to keep pace with the needs of the expanding electrical industry.

What of the men who are to run these machines and take care of all this production capacity, consisting as it does of crores of rupees worth of plant and equipment, all designed, developed and constructed in foreign countries? On this count, the cable industry has not been found lacking. For many years, training schemes have been in operation and full use has been made of technical agreements with established foreign companies so that today there is a reasonably strong cadre of Indian personnel. They are supported by operatives with substantial experience, and there seems to be no reason why this combination should not play its full part in the growth of the industry.

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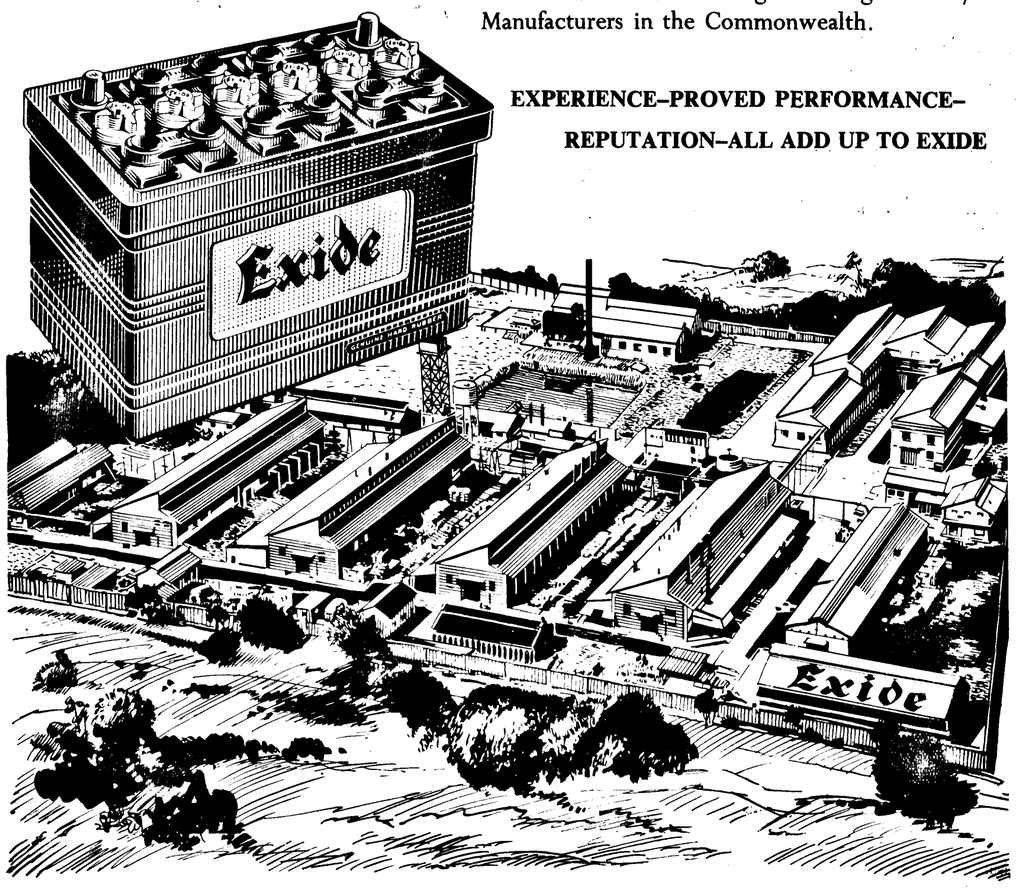

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EBSC-40

Production of Storage Batteries Rises

Range of Manufacture being Diversified

By

H. R. GREGSON

Managing Director, Associated Battery Makers (Eastern) Ltd

THE importance of the battery industry was first impressed on India during the second World War. Before that time, there were a few small factories for the production of motor-vehicle batteries, but their output was limited and India was almost entirely dependent on imports for her supplies. With the outbreak of the war, imports were severely curtailed due to a sharp increase in military demand in other countries which meant that vital means of transport in India were threatened with dislocation. The need for the production of good quality storage batteries in sufficient quantities was keenly felt. The progress of the industry was naturally accelerated during the war years, and three new factories came into existence. It was not until 1946, however, that batteries of Indian manufacture became available in substantial quantities. From this small beginning, the country rapidly became self-sufficient in motor-vehicle batteries. In 1948, the industry was given a protective duty of 80 percent for some years, but it is worth recording that no advantage was taken of this as price levels were maintained at rates competitive with those prevailing in other nearby unprotected markets. Protection gave a real impetus to producers to increase their scale of manufacture and also to make efforts to achieve self-sufficiency. The rapid development of the industry is evident from the fact that 27,600 units were produced in 1946, while production rose to 110,400 units three years later. A decade later, the industry's output was 419,300 units, and the demand continues to grow with the industrial development of the country.

The man in the street usually thinks of storage batteries in terms of the 6-volt or 12-volt battery, so familiar and essential in the modern motor-car. He seldom realises that this battery is representative of a vast world demand for storage batteries working on exactly the same principle and in a variety of shapes and sizes too numerous to mention, from minute things like the proximity fuse batteries, accommodated in the nose of certain anti-aircraft shells, to gigantic batteries for telephone exchanges and power-stations. Storage batteries meet the need for a source of electric power where other means are lacking, and because of their complete reliability, they are used as a secondary or emergency source of power to safeguard controls and service.

Telephone Exchanges

Large stationary type storage batteries form an important part of telephone power-plant equipment. The demands of the telephone service are exacting, so the utmost care and engineering skill have been devoted to the development, design, installation and maintenance of the batteries. When Graham Bell first invented the telephone in 1875, speech currents were energised by primary cells situated near the transmitter and signalling was carried out by a hand-operated magneto. This worked satisfactorily as long as there were only a few telephones in use, but when their popularity was established later, it became uneconomical and impracticable to renew the thousands of primary batteries at regular intervals. Means were then sought to centralise the supply of electrical energy at the telephone exchange itself. All modern telephone exchanges have a large storage battery to provide electric current for transmitting, signalling, switching and various miscellaneous services. The largest battery in the East is installed at a telephone exchange in Bombay and comprises 50 "Chloride" Plante cells with a capacity of 10,000 ampere hours. This battery weighs over 100 tons and occupies a large area in the basement of the exchange building.

Electric Generating Station

The storage battery industry started at about the same time as the electric supply industry, and the two have always been closely associated. Battery installations in power-stations and sub-stations are used mainly for providing an uninterrupted source of supply for operating remote control and automatic protective apparatus. The services include stand-by power in case of a shut-down or other emergency. Another important use of the power-station battery is to close and open the high voltage oil-filled switches through which the output of a station is fed. This type of battery is usually maintained in a state of complete readiness by a carefully controlled rate of trickle charge. In the old days, before the advantages of alternating current outweighed those of the direct current system, power-stations usually employed a large capacity battery to function as a reservoir to assist in maintaining a good load factor, and to allow power to be generated as economically as possible. During periods of low demand, as for example throughout the night, the spare available generating capacity would be used to charge the battery, thus permitting the plant to operate at its optimum efficiency. When the demand increased and the machines became loaded to capacity, the battery would be discharged into the system. In this way, the hollows of a varying load were filled up and the peaks levelled off. The advent of alternating current, however, has provided other solutions and the battery is nowadays a rarity for improving the load factor in a modern power-station.

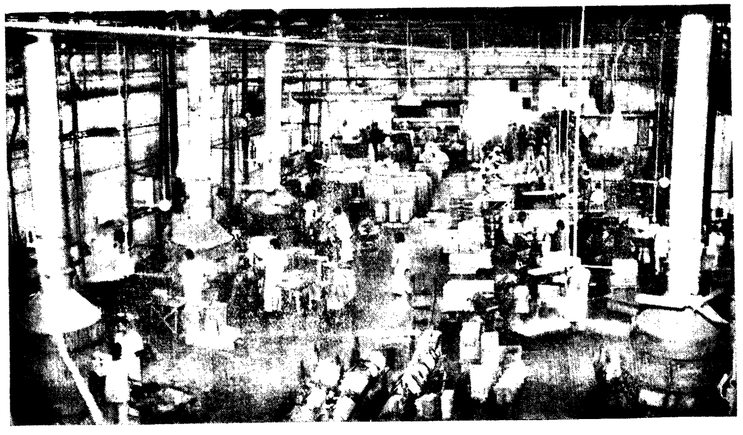
Large hydraulic presses for the manufacture of hard rubber battery containers

Curiously enough, modern developments which have eliminated the load factor battery in power-stations, have created a similar need in another field for some of the largest batteries in the world, namely, in film studio work. The enormous amount of current consumed by the arc lamps in illuminating a modern film set, especially where colour film is in use, creates an acute load factor problem since this demand, although extremely heavy and running into tens of thousands of amperes, is frequently of quite short duration. Here the storage battery has come to the rescue and huge installations provide the electric current for lighting the sound stages while comparatively small generators may be installed for recharging purposes during offload periods, thus effecting immense economy in the power plant.

Emergency Lighting

Wherever power failure carries with it potential danger to life, or involves the loss of costly goods in course of production, damage to working machinery or theft from suddenly darkened premises, emergency lighting is essential. No matter how reliable the supply of electricity may be—and failures are rare these days—there are certain situations in which the remotest possibility of failure cannot be entertained, where a failure of perhaps only a few minutes might have disastrous consequences. The surgeon in the operating theatre of a hospital at the critical point in an operation, and the patient under his skilful care, are practically dependent on the illumination from the shadowless lighting unit above the operating table. Absolute continuity of supply is essential here and only the storage battery, in conjunction with automatic switchgear, can solve the problem completely.

It is usual in this type of installation to supply the main operating lamp from the mains and have a group of emergency lamps in the same fitting connecting through control equipment to the storage battery. If the mains fail or the main lamp is extinguished for any reason whatsoever, such as filament or local fuse failure, the emergency lamps immediately come into use providing a beam of shadowless light of similar intensity. The surgeon is able to proceed with the delicate operation which has been started. Marketed in India under the trade name of "Keepalite", the equipment is now indigenously manufactured. Other applications where the storage battery plays a vital rôle are in theatres and picture houses where sudden darkness could, and has in the past, caused disastrous panic. Here it provides the power for emergency lighting which automatically comes into operation in the event of a mains failure. In industry, these batteries are also in considerable demand for emergency power duties in many factories where it is essential to avoid an interruption in process work, notable examples being the largest glass producing factory in India, and also one of the largest producers of fine paper



The grid casting department, where battery plates are manufactured from specially prepared alloys

where a break in process will involve a most costly loss.

Storage batteries play an important part in the tea industry in India where they will be found installed on a large number of estates to supply electric power for lights and fans in factories and quarters during the time when the main engine is closed down. Large capacity batteries may be found deep down in the earth where they provide propulsion power for underground locomotives in coal mines. In mine engineering, various forms of haulage have been tried but none so effectively as the battery-operated electric locomotive. The petrol and diesel locomotives have been unable to compete in most cases due to the emission of obnoxious fumes and the ever-present danger from explosive gases. The latter risk also rules out the use of electric locomotives which derive their power from an overhead trolley wire. A battery-operated locomotive is found to be the perfect answer in providing silent and fumeless transport for loads up to as much as 100 tons with no risk of explosion from sparks or naked flames. The battery locomotive for use in mines may be constructed with an extremely low overall height, which is frequently a necessity where haulage ways provide a low roof clearance. The mine locomotive battery is usually assembled in a steel container and may weigh several tons. Provision is made at the charging bay for the battery to be removed from the locomotive and replaced by a fully charged one. By this means a locomotive may operate continuously throughout the whole of a working day without being taken out of service for recharges. Battery operating coal cutters and shuttle cars have become increasingly popular due to their flexibility of operation and freedom from fumes in modern coal mines.

Freedom from fumes and silent operation have won for the traction battery a place of popularity in industry. In godowns and stores, the battery-operated forklift and platform truck have proved the advantages and economies of mechanical transport which eliminate hazards such as fumes and fire risks in enclosed spaces. It is for this reason that one encounters this class of mechanical transport in factories, such as those engaged in the manufacture of explosives, where no fire risks may be taken. India's expanding industrial production has resulted in the increased use of these mechanical hand-made devices, with a view to improving storage and handling facilities in addition to making more profitable use of labour.

Train Lighting Batteries

In India, as in all countries with highly developed rail transport systems, the railways are large users of storage batteries. On all the Indian railways, specially designed train lighting batteries are installed beneath the coaches to provide power for the lighting and for the electric fans. The equipment ordinarily in use consists of one, or more often two, batteries of 12 cells and the total battery weight for each coach may be from 1,200 lbs to 2,000 lbs. Provision is made for recharging by means of a generator connected by belt drive from the axles of the coach. It is difficult to visualise any conditions of operation more arduous for a storage battery than those encountered in railways, where vibration and dust, etcetera, are added to the uncertainties created by variable charging and discharging conditions, depending on the number and duration of halts and the number of lights and fans in use. The skill and resourcefulness of the train lighting engineer is fully taxed in devising equipment to compensate for these variables. In this country, extreme minimum and maximum temperatures may be encountered on the same run in a matter of hours and very long journeys add to the problems to be overcome. It will be appreciated, therefore, that only the highest quality of material is used with satisfaction in train lighting cells and the greatest care in design, based on wide experience of the various conditions of service, is necessary to ensure trouble-free operation. The air-conditioned cars, which operate between the main capitals on the mail trains, are equipped with the largest of all train lighting batteries. The latter have to carry the load of the powerful compressors, sometimes for long periods when the train is delayed by non-scheduled stops. In addition to the batteries required for train lighting and air-conditioning, the Indian railways also need batteries for diesel locomotive starting, track circuits, signalling, and stationary batteries for use in sub-stations on the electrified sections.

Demand for Automotive Batteries

The importance of road transport in industrial and agricultural development cannot be over-emphasised. At present, there are more than 215,000 lorries and buses on the roads, and over Rs. 400 crores have been invested in this industry alone. The demand for automotive batteries has increased considerably during the last few years due to the impetus given by the increasing indigenous production of motor-cars, lorries and buses. In the various construction projects under the five year plans, storage batteries play an important part in the various types of earth-moving equipment, etcetera. They start up aircraft and are also used in the air for lighting and various other purposes. In many ships, stand-by batteries are used to provide emergency power to take over such important services as steering motors, essential lighting and life boat operating gear in an emergency. These batteries are specially designed to withstand shock and vibration and, of course, unspillable to withstand the rolling of the ship. In addition to these services, special batteries are required for various defence purposes, in the field of telecommunications, etcetera.

This wide range of use calls for a great variety of batteries to withstand the arduous conditions of service in India where high temperature, dust, rough roads or rough conditions on new projects have all got to be met. The Indian industry has played its part in the developing economy. The larger units have taken steps to widen their range of manufacture with a view to reducing imports. The Indian industry has also to meet the new designs required by the motor-car manufacturers, who now get all their requirements of original equipment batteries in this country. There are in India some 15 approved battery manufacturers who came under the scope of the Industries Development and Regulation Act, 1951, and several of the larger units have first-class factories comparable with the best in Europe, America or any advanced industrial country. The smaller units are also showing good progress and there is plenty of competition which encourages efficiency and quality.

Stress on Quality

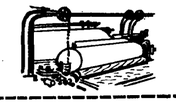
There is no doubt that the consumer in India has become far more quality conscious over the last few years. The introduction of Porvic separators some years ago, by Chloride and Exide Batteries (Eastern) Private Ltd, has meant that the previous weakest part of a battery, the "wood separators", is replaced by the indestructible microporous plastic separator. Because of the somewhat large number of smaller assemblers or rebuilders, there is a belief that the manufacture of a storage battery is a simple process. But a visit to one of the larger factories will help to form a clearer idea of the production of a quality engineering article. The largest and most well-equipped unit is the Exide factory in West Bengal. A rigid standard of quality is maintained there by the inspection department. Thorough inspection is made of all raw materials and provision is made for the inspection of components in every stage of manufacture and assembly, and routine bench testing of finished products. The three laboratories carry out tests of more than 17,000 samples a year, in addition to hundreds of tests that are carried out as part of the daily routine. All bought-out materials have to satisfy the inspection department's rigid specifications. There is a fully equipped test house with full facilities to carry out tests to the Indian Standard specification for motor-vehicle batteries. It is believed to be one of the few test houses in India which is capable of fully carrying out the life tests involved under the specification.

Constant research goes on to improve the quality of the battery. In recent years, considerable progress has been made in the development of storage batteries. The introduction of the microporous plastic separators has already been mentioned and the use of hard rubber containers, fully shock resisting and leak-proof, coupled with improved alloys used in the manufacture of the plates—all combine to provide outstanding electrical performance along with long service life which is considered important by consumers.

Lead Recovery Plant

Although certain raw materials have still to be imported, the factory is progressively aiming at self-sufficiency in all fields. A good example of this is the lead recovery plant which is capable of producing at the rate of 1,000 tons to 1,400 tons a year, thereby saving valuable foreign exchange of over Rs. 12 lakhs. It is well laid out with modern buildings to provide adequate light and ventilation and to permit expansion of output, if required. The most up-to-date machinery and equipment are used in order that labour productivity might be high. Great care is taken on industrial hygiene since lead poisoning is a constant hazard in the industry. Fine particles of lead may be inhaled during work or later from lead deposits on clothing. If they penetrate into the blood stream, they can cause serious physical damage. Profiting from the experience of the associated U.K. factory in combating this industrial hazard, the Shamnagar factory was designed from the start with elaborate precautionary measures to prevent lead hazards. Respirators, gloves and special working clothes are provided, and a forced draught exhaust system minimises the chances of lead dust being absorbed by workers. Wet floors keep the air humid, and there is an ablution shed where lead workers may change from their overalls to everyday clothes and take showers. All workers coming in contact with lead receive a thorough medical examination at least once a month.

The Indian Standards Institution has taken up the question of standards for various types of batteries. Its specification for motor-vehicle batteries has been in operation for some time past. It is a sound specification based on world practice in this matter, and it should not be beyond the capabilities of the various Indian manufacturers to meet its requirements. The specification calls for various tests, including a satisfactory life-testing procedure, all of which should help raise the quality of the batteries available to Indian consumers. The larger manufacturers have submitted samples to the Indian Standards Institution and have been granted licences to use the I.S.I. certification mark on their products, which are now in no way inferior to imported batteries.



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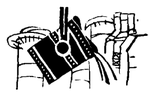

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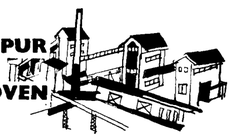

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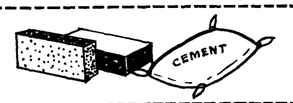

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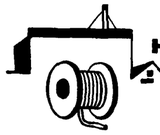
AMMONIUM SULPHATE FACTORY

COAL



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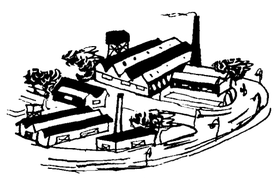

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WBG/38

Electronics Manufacture Makes a Fair Start

The Drive for Self-sufficiency in Radio Components

NOT very long ago, "Destination Moon" belonged to the realm of science fiction. Today it is a reality. When space-ship voyaging has become a distinct possibility, and when a modern radiologist probes the human anatomy armed with what can be called a pair of "electronic eyes", thanks to the invention of the image intensifier, and helps the physician diagnose difficult cases without groping in the dark, one realises what the electronic age has brought for mankind.

Apart from a number of things like radio, television, telephone, radar, mobilophone which one sees around oneself pressed into service, electronics is the fountainhead of a very wide range of equipment making use of electronic valves and transistors. The development and application of electronic principles have undergone five broad

By

P. C. VINK

Chairman and Managing Director, Philips India Ltd

phases so far : the first phase brought wireless telegraphy, to be followed in later years by radio, telephone and telegraph communication by long-wave, short-wave and microwave. The second phase introduced radio broadcasting. The third phase saw the application of electronics to military uses during the second World War: radar, sonar, loran, shoran, to name only a few. The fourth phase relates to television—first in black and white and now in colour. The fifth phase has just begun. It is a phase of the application of electronics in factories and offices. This, by and large, is the world of electronics today. Science is constantly trying to conquer new horizons and to find new applications, so further developments are to be expected. The effect of the electronic age is being increasingly brought to bear on man's life, although in varying degrees, depending to a large extent on the progress made in different countries.

Comparative Newcomer

India, a comparative newcomer to the field, has made a fairly good start, and the outlook for the future is promising. The foundation was laid by the radio industry, which has made rapid strides in a comparatively short time. In its initial years 1947-48, radio manufacture was in the nature of an assembly operation depending entirely on imported components, parts and valves. But realising the danger of this dependence on imports, programmes for manufacturing parts and components in the country were chalked out and production undertaken. The following table shows the progress of the Indian radio industry over the past 12 years :

Year	Sanctioned annual capacity (Nos.)	Annual production (Nos.)
1948	24,000	25,000
1949	60,000	16,800
1950	77,000	44,300
1951	87,000	82,800
1952	153,000	71,500
1953	153,000	56,300
1954	153,000	56,300
1955	138,000	81,200
1956	213,000	150,000
1957	240,600	190,300
1958	308,000	198,108
1959	—	225,000

The component assembly lines in a radio factory

In addition to the production of the scheduled units of the industry, another 30,000 to 50,000 sets were produced by the smaller manufacturers in 1959. The rise in production has followed an increase in the demand for radio receivers in the country as indicated by the number of licences issued for receiving sets. From 286,046 in 1948, it rose to about 1.7 million by December 1959. The recent decision of the Government to reduce the annual licence fee to Rs. 7.50 for radio receivers costing not more than Rs. 120 is likely to induce more people to go in for the cheaper sets. Yet another concession concerning the licence fee for additional sets has been announced. All these steps taken will increase the popularity of radios. The main reason for the increasing demand, however, lies in the rise of the *per capita* income of the people in recent years due to the growth and development of industries under the impact of the five year plans. Among the five major objectives laid down for the third plan is included a 5-percent increase a year in the national income. This rate of progress should also be sustained in the subsequent plans. Add to this the rapid spread of literacy through mass education. Preliminary studies for the census of 1961 indicate that the literacy percentage will be almost 40 percent in that year, compared with only 16.6 percent shown in the 1951 census. Under these changed circumstances, the radio is no longer considered as an item of luxury within the buying power of only a few ; with the spread of education, its rôle as a medium of instruction is being increasingly appreciated.

Progress of Electrification

The progress made in taking electricity to more and more areas during recent years has aided the use of radio listening facilities. The installed electrical capacity at the end of the second plan period will be 5.8 million kW, against 3.4 million kW in 1955-56 and 2.3 million kW in 1950-51. About 6 million kW of installed capacity is likely to be added during the third plan period. All India Radio's effort to cater, through its programmes, to the various listening groups—men, women, children, agricultural and industrial workers, students, scientists, educationists and others engaged in developing the national art and culture—is a move in the right direction. It has gone a long way in making radio listening popular in the country. Mention must also be made of the programme of the Government to bring more and more areas under broadcast coverage. In 1955, approximately 472,000 square miles were covered, compared with 110,000 square miles in 1951. There has been a further rise in the coverage since 1955.

Demand for Radio Sets

By 1961, that is, towards the end of the second plan, the demand for radio receivers is expected to rise to 300,000 sets. The licensed capacity of the industry, which stood at 308,000 receivers in 1958, and the actual production in that year, do not suggest that the anticipated demand can be met, unless the situation concerning the supply of components, parts and a number of other materials improves in the meanwhile. The industry is still dependent on imports for a number of items. Due, however, to the policy of restricting imports in order to save foreign exchange, it will have to draw on its own resources for some of the parts which are not yet produced in the country. In other words, efforts must be made further to increase the tempo of making locally all the components and parts required. But until such time as all the requirements are met by indigenous production, the industry should be allowed to import these, although on a restricted scale as a stop-gap measure. It is gratifying to note that the industry, appreciating the desire of the Government to save foreign exchange, and to make itself self-sufficient as quickly as possible, is trying to become self-reliant and has already undertaken the local manufacture of a number of imported items. Cabinets, loud-speakers, potentiometers, wavebend switches,

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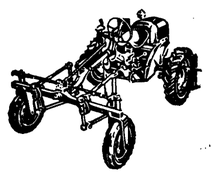
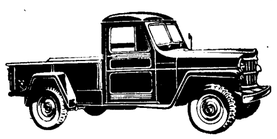
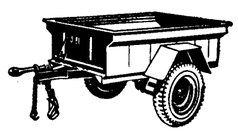


David Brown 2D Tractor

Willys Universal JEEP

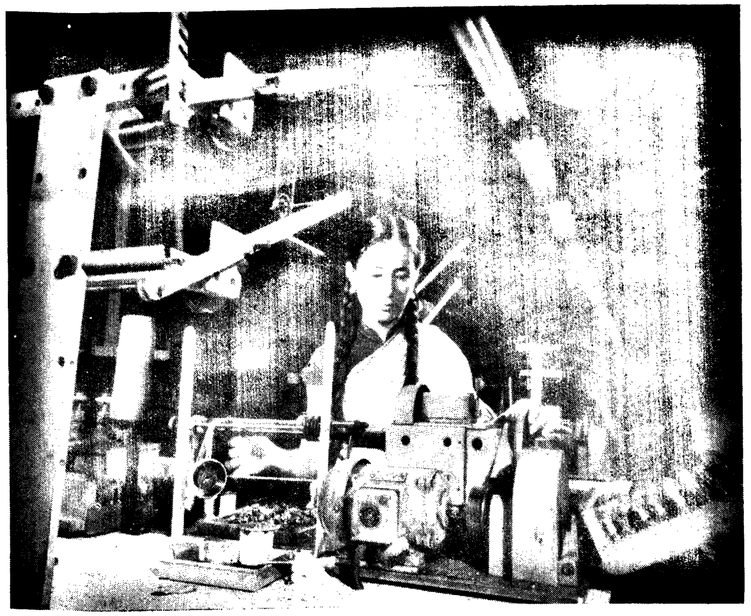


Willys 1-ton Truck



Jeep Trailer

PSMM-29C/58



Coil winding for the manufacture of radio components

valve holders, transformers, coils, variable condensers, vibrators, volume controls, resistances, chokes, paper capacitors are already being made in the country. In addition, a large number of metalwares and components, hitherto imported, are now made in a factory recently started in Poona. The ceramic condenser section of this factory, which is to produce tubular ceramic capacitors on a large scale, went into production towards the end of 1958.

Radio Valve Manufacture

The biggest hurdle of the radio industry so far has been the absence of locally-made valves, the most difficult item to manufacture. The recent agreement between Bharat Electronics Ltd, Bangalore, and N. V. Philips Gloeilampenfabrieken, Holland, will remove this hurdle. The agreement covers the manufacture of all types of receiving valves required not only for the broadcast receiver industry but also for special requirements of the communications services. The main purpose of the agreement is to attain self-sufficiency in valves. At the beginning, a range of standardised valves for domestic radio receivers will be made. These are expected to be available from 1961. It will, however, be some time before the industry can expect to receive the whole supply of components, parts and valves from domestic sources. It will, therefore, have to depend on foreign imports for some of them for a while yet. Apart from what is required by the factories, the general requirements for servicing and replacements will have to be met by a supply of spare parts, many of which are not yet made in this country. When locally-made valves are available in the near future, the percentage of indigenous contents in a radio receiver will be considerably higher. The relationship between the manufacturers and the customers needs to be kept cordial, and radio dealers must always be in a position to give the consumers the service that is due to them. But more often than not, radio servicing becomes a rather impossible task due to lack of spares and components. Under the circumstances, some imports would seem to be called for.

Need for a Joint Programme

Perhaps it is not generally known that the prices of imported components, even after making allowance for an import duty of approximately 50 percent, remain cheaper than the prices of the corresponding items made locally. This is due to the fact that the imported components are made on a large scale, and thereby the economy of mass production is achieved with a corresponding advantage in prices. A joint programme of action by the Indian industry, therefore, seems to be needed. The different manufacturing units should not lose time in launching a common programme of manufacturing standard components. This alone can effectively meet the challenge offered by the imported components, and eventually help the radio industry make sets within the buying capacity of people in lower income groups. The other factors which will tend to lower the prices of radio sets are the introduction of newer techniques in manufacture like printed wiring, advanced circuit designs, and economic management. It should be borne in mind that the broadcast coverage by medium-wave stations is also a very important factor in lowering the prices of radio sets. In the U.S.A., Japan and other countries, it is the medium-wave sets that are usually low-cost. But the producers cannot take the risk of initiating the manufacture of medium-wave sets on a large scale unless the medium-wave broadcast coverage in the country warrants it. The buyers will go in for more and more low-cost medium-wave sets once they are assured of more stations in medium-wave coverage.

Transistor Radios

The introduction of transistors in place of valves in the manufacture of domestic radio receivers is a great landmark, and during the recent times, there has been a phenomenal rise in the production of transistor radios practically all over the world. India's record in this particular field has not, however, been in line with the progress recorded in other countries. Only recently, the Government has sanctioned the production of a rather limited quantity of transistor radios. It should be noted here that the manufacture of transistor sets does not call for the use of extra parts and components other than transistors. The same standard components used in valve sets also go into the production of transistor sets. The case for making the latter in India is very strong indeed, especially because of the fact that vast areas still remain unelectrified. Transistor battery receivers will meet the requirements of the people living in these areas.

Lower Power Consumption

Compared with vacuum tubes, transistors last much longer, and being small, have a positive advantage over valves. What, however, is of great importance to the users of transistor radios is the lower power consumption and the consequent saving in running cost. The running cost of a valve battery radio receiver is approximately four times that of a transistor battery radio. It will thus be seen that due to this lower running cost, transistor radios are very suitable for users in the lower income groups. A substantial reduction in the price of transistors will also follow as a result of higher production series and, eventually, this will also be reflected in the overall price of a radio receiver. The limitations imposed by the Government on the manufacture of transistor radios may, therefore, be reviewed and revised to suit the requirements of the country. As far as the manufacture of transistors in India is concerned, negotiations are now in progress between Bharat Electronics Ltd, Bangalore, and N. V. Philips Gloeilampenfabrieken, Holland, for technical assistance in the manufacturing process.

Following the first demonstration of broadcast television from the Philips pavilion in the Indian Industries Fair in 1955, an experimental television service was inaugurated in Delhi on 15th September last year, with the help of Philips transmitters, camera and receivers acquired by the Government after the Fair. The main purpose of this experiment is to evaluate the usefulness of this medium as a means of mass communication and to train A.I.R. technical staff in the technique of operating television. Programmes are mainly educative and cultural. Since it has more important problems on its hands, the Government does not propose to install television services on a national scale in a hurry, a point of view which is well appreciated.

Audio Visual Equipment

For a country like India which is rapidly progressing in every sphere, the rôle of audio visual equipment like amplifiers, cinema projectors and tape recorders in development work is very great. Substantial progress has already been made in the manufacture of amplifiers, microphones and loudspeakers. Thirty-five m.m. cinema projectors are being made locally. Approximately 60 percent of the contents in a unit are indigenous. The annual demand for such projectors is about 400 pieces. An humble beginning has also been made in the manufacture of 16 m.m. projectors.

The production of telephones of various types, automatic exchanges and long-distance transmission equipment in the country constitutes an important landmark in India's electronic industry. The Indian Telephone Industries, started originally by the Government in 1948 in Bangalore to manufacture such equipment, was eventually converted into a limited company in 1959 under the overall supervision of the Central Ministry of Transport and Communications. The bulk of the production is supplied to the Posts and Telegraphs Department. Practically all parts and components, running into thousands, required for telephone and automatic exchanges are made in this factory. In the manufacture of long-distance transmission equipment, however, approximately 50 percent of the equipment is made, and it is expected that the other equipment will be taken up gradually. According to Press reports, compared with the target of 92,000 telephones for the year ended 31st March, 1960, the Indian Telephone Industries produced over 96,000 before the year was out. For 1960-61, a target of 120,000 telephones and 71,500 lines of exchange equipment has been fixed. These figures, it is planned, will rise further under the third five year plan.

With rapid industrialisation, the importance of electronic process and quality control is being increasingly realised. Measuring instruments for normal electronic servicing purposes are already being made in the country, and the Indian Standards Institution is at the moment busy laying down standards for these instruments and test equipment. There is no doubt that the coming years will witness further progress in the local manufacture of a wider range of electronic instruments.

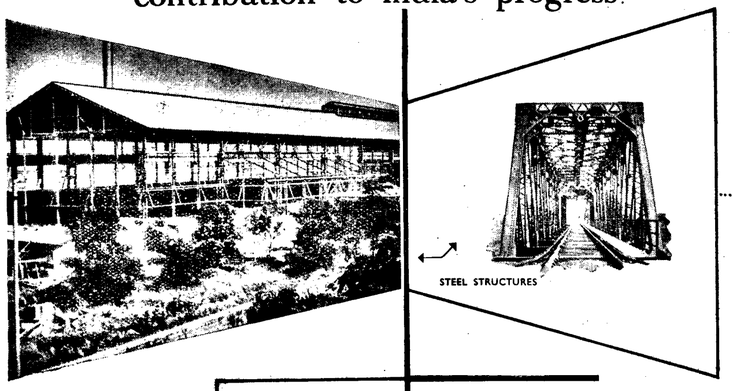
Bharat Electronics

A major landmark in the history of the electronic industry in India was reached with the establishment in 1954 of Bharat Electronics Ltd, Bangalore, in the public sector to make the country self-sufficient in electronic equipment in the shortest possible time. The list of products already made include the H. F. communication receiver for the Indian railway and civil aviation, fractional watt transmitters for the Meteorological Department, trans-receivers for the police, crystals used in transmitters, receivers and telephone equipment, V. H. F. sets for mobile communications for the police and fire services, trans-receivers for the I. A. F., "Belhailer", an electronic megaphone for the police, fire brigade, and defence establishments, "Belwin" transmitters for upper air observation, and a number of other items. The manufacture of high-power transmitters and communication equipment will also be undertaken in collaboration with foreign technical know-how. Radio valves will be produced in collaboration with Philips of Holland.

The contribution of the Indian Atomic Energy Commission to the development of the Indian electronic industry has been growing. The electronics division of the Atomic Energy Establishment in Trombay has already fabricated 20 types of instruments in which India-made components have been used. An expansion of this division is now being undertaken. When completed, it will produce electronic equipment of the value of Rs. 7 crores.

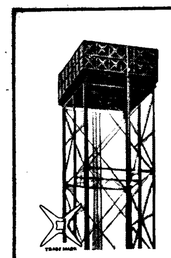
Braithwaite's

contribution to India's progress

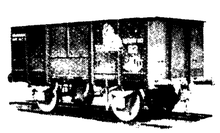


STEEL STRUCTURES

PRESSED STEEL TANKS →



STEEL WAGONS



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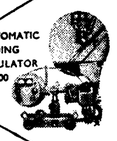

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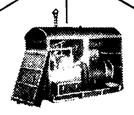

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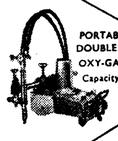

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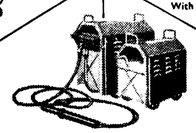

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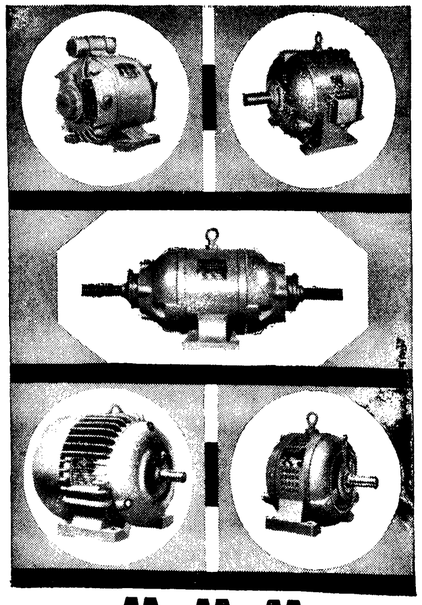

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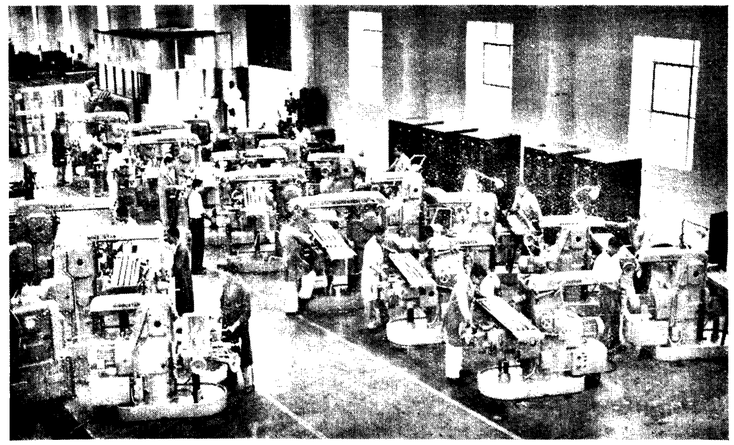
THE DIVERSIFICATION OF MACHINE TOOL MANUFACTURE

DEMAND INCREASING FASTER THAN DOMESTIC OUTPUT

THE machine tool industry in India did not develop in an organised manner until the second World War, although the country had been manufacturing machine tools since 1890. The production of simple machines such as lathes, scrapers and hacksaws by a few indigenous units which continued well into the early part of the twentieth century, was on a small scale and the products were of poor quality. They were not suited to heavy industries like the ordnance factories and the railways. In the absence of definite encouragement from the State, the industry was unable to make any headway. But the picture changed with the outbreak of the second World War. The demand for good quality machine tools went up phenomenally on account of the increase in defence needs, while imports became very difficult to get. Moreover, the warfare having spread to many parts of the British empire, India became an effective supply base. The authorities had, therefore, no alternative but to create conditions by which they could acquire machine tools for war industries. This resulted in many an indigenous unit switching over to the manufacture of specialised machine tools. A beginning was thus made in organising this industry in a systematic manner. Plans were drawn up by the Government Machine Tool Controller by supplying the balancing plant and equipment to selected units. Technical experts were brought from the U.K. to help train Indian workmen in the techniques of manufacture. The Government

By

A SPECIAL CORRESPONDENT



A row of milling machines undergoing their first test before despatch

also pooled its own requirements with those of private industries engaged in the production of wartime needs, and placed bulk orders on the domestic machine tool firms. A considerable fillip was thus given to the industry and the output of machine tools in 1946 rose to about Rs. 1.2 crores, from a value in 1942 which was not even one-twentieth of that sum.

Postwar Years

In spite of the progress, the industry had to go through a bad period in the immediate postwar years. This was mainly due to the fact that its development was based on wartime needs, and the moment that demand ceased, it found no other support. Moreover, the manufacturers did not possess adequate equipment or the requisite know-how. As a result, during the immediate postwar period when Government orders were withdrawn, the Indian machine tool industry faced a crisis largely because of the competition from imported machine tools which were of a much superior quality and combined in themselves the requisite features for accuracy and good performance. Meanwhile, with the attainment of independence, the Government had to think in terms of planned economic growth with emphasis on the development of industries. With the rapid pace of industrialisation, the need for plant and equipment has grown correspondingly, but as the domestic machine tool industry is not fully equipped to cope with it, much has to be acquired from foreign sources. The table in the first column on this page shows the position concerning the demand and supply of machine tools between the years 1950 and 1958.

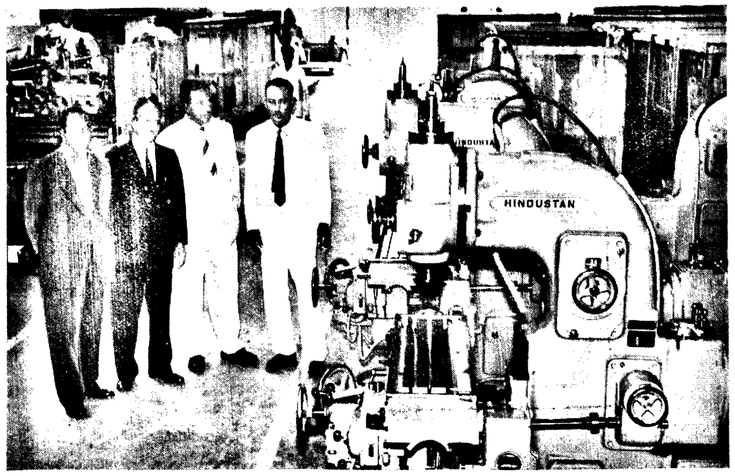
Calendar year	Annual production (in lakhs of Rs.)	Annual imports (in lakhs of Rs.)	Total supply (in lakhs of Rs.)
1950	26.50	249.00	275.50
1951	47.31	250.00	297.31
1952	44.37	221.00	265.37
1953	44.07	312.00	356.07
1954	50.02	385.00	435.02
1955	74.40	528.00	602.40
1956	120.22	837.00	865.80
1957	250.84	1,464.00	1,714.84
1958	376.00	1,531.00	1,907.00

As the table shows, the gap between production capacity and demand is so large that almost 80 percent of the country's machine tool requirements are currently met through imports. This also shows how the dependence on foreign sources contributes to the foreign exchange difficulties. Before plant and machinery for all industries can be manufactured in the country, it is necessary to produce machine tools which are the basis of an industrial development programme. This makes the machine tool industry, in the context of planning, one of the most vital and basic industries in the country.

The Government set up in 1949 the Hindustan Machine Tools factory in collaboration with a Swiss firm for the manufacture of precision lathes. To the production lines were later added milling machines, radial drills, grinding machines, non-precision turret lathes, etcetera. The progress made by Hindustan Machine Tools during the past four years, since 1956, is quite satisfactory. From only two types of machine tools with which it started, it has today diversified production to include 90 types. Further, the factory now accounts for almost 60 percent of the country's total output.

Present Capacity

Coming to the present structure of the industry and its capacity, there are 23 organised, graded machine tool factories. Six of them are principal manufacturers—three in the public sector (including Hindustan Machine Tools) and three in the private sector. The six factories among themselves account for nearly 80 percent (in terms of value) of the total production of India's organised machine tool industry. Their manufacture includes lathes in various sizes, milling machines, pillar and radial drilling machines and shaping machines. Some of these are manufactured



The assembly hangar at a machine tool factory

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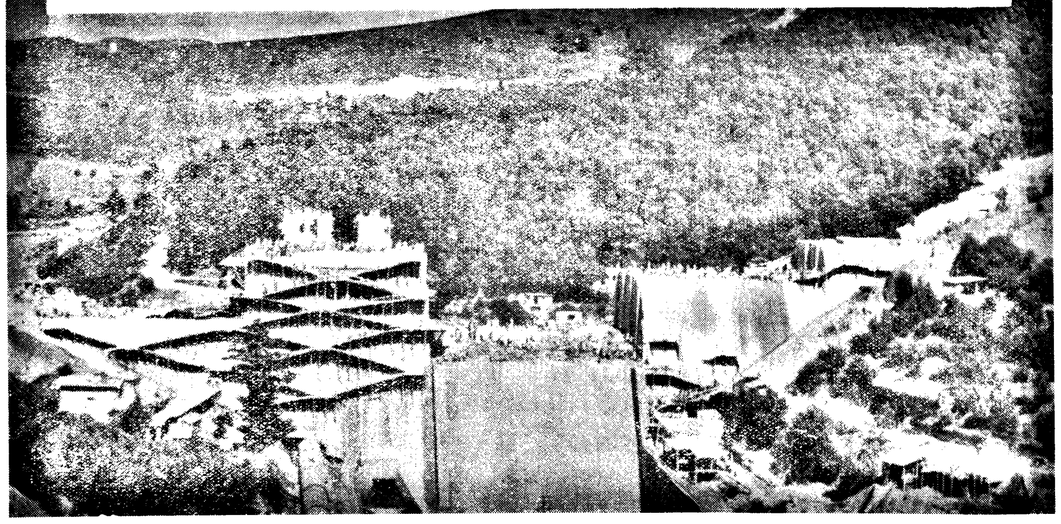

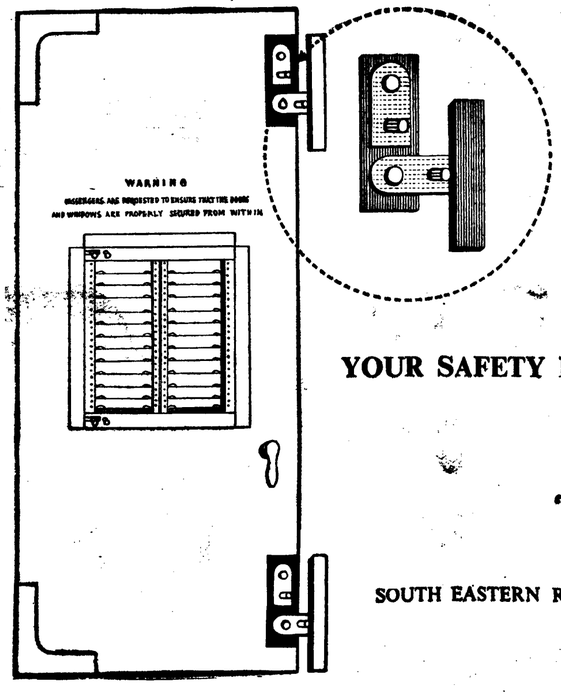

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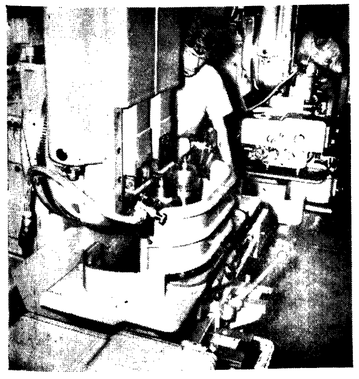


A gear-cutting machine

according to well-known foreign designs in collaboration with machine tool manufacturers abroad, mostly from Europe.

The unorganised small sector of the machine tool industry comprises about 350 units, concentrated mostly in Punjab, in centres like Batala, Ludhiana, Amritsar and Jullundar. A few are in Bombay, Delhi and Calcutta. These units produce ungraded machine tools, mostly lathes, drill presses, shapers, hacksaws, pedestal grinders, simple mechanical presses, hammers, wood-working machinery and even short stroke planers and simple type milling machines. They were the nucleus of the Indian machine tool industry until the second World War. Their annual production today is worth about Rs. 2 crores. They are not equipped with modern plant and machinery and many of them do not have basic inspection tools. But in spite of their limitations, they bring out fairly good machines, thanks to the skill of the workmen employed. Given proper technical know-how and guidance, plant and machinery, these workers could develop into first-rate precision machine tool makers like those in developed countries such as Japan and Switzerland.

Plans for Development

Any plan for the development of the machine tool industry has to be conceived against the background of a steadily rising demand. Although production has been increasing, imports have been increasing too. Excluding the metal-forming and wood-working machines, imports in 1958 were of the order of Rs. 11.63 crores. Including metal-forming machines, the total came to Rs. 26.5 crores. Almost all the machine tool manufacturing units have drawn up expansion programmes. For example, the Hindustan Machine Tools factory is increasing its output by working multiple shifts. It has plans to double its production from 1,000 machines a year to 2,000 machines a year. Its present production lines are to be expanded to include the manufacture of cylindrical and universal grinding machines according to the designs of a reputed Italian firm.

A private firm in Mysore State has made arrangements with leading firms in the U.K. and the U.S.A. for the manufacture of capstan and turret lathes of British designs and vertical boring mills to the designs of a U.S. firm. Another engineering firm has signed a manufacturing licence agreement with a British firm for producing planing machines, and with a Czech firm for the manufacture of slotting machines. Others in the organised sector are also contemplating development along these lines to increase their capacity and improve their products. It is expected that certain units in the unorganised sector will also produce quality machine tools. As a result, the annual production of the industry may rise to about Rs. 11 crores by 1961, including the output of ungraded machine tools which are estimated to be Rs. 3 crores to Rs. 3½ crores a year. The demand by the end of the second plan period, on the other hand, is expected to reach an annual rate of about Rs. 37 crores worth of machine tools and metal-forming machinery (of which the estimated demand for machine tools alone is expected to be of the order of Rs. 20 crores). Thus even with the expansion programmes, the industry will not be able to satisfy the internal demand fully, so imports will have to continue.

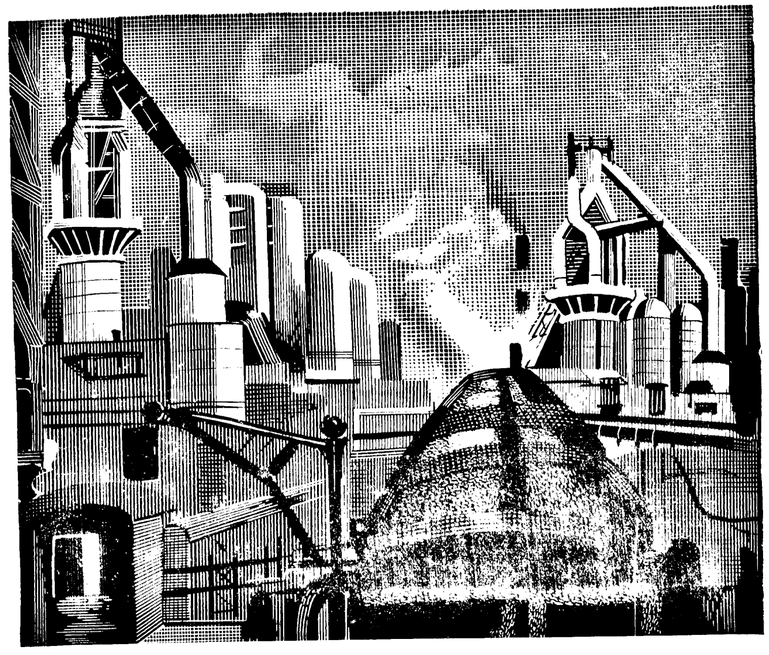
Market Survey Needed

Although a detailed market survey of the demand for machine tools during the third five year plan has yet to be made, the tempo of industrial activities planned and foreseen in the years to come is likely to be so great that there is bound to be an even higher rate of demand for machine tools, which the existing industry will be unable to meet. It is roughly estimated that the rate of demand for machine tools and metal-forming machinery at the end of the third plan period will be of the order of about Rs. 70 crores to Rs. 75 crores a year, of which the demand for machine tools alone will be about Rs. 40 crores to Rs. 45 crores a year. Even if the existing machine tool makers expand their capacity to the maximum, they cannot satisfy the entire demand. In addition to the increase in the demand for general-purpose machine tools such as lathes, radial and pillar drills, milling machines, grinding machines, planers, and shapers, there are trends which show that the demand for single and special purpose machines, automatic machines and unit head machines will also rise to a great extent. Hence, there will be a need for new and larger factories, capable of manufacturing complicated single and special-purpose machines. The present unorganised sector, which has a great potentiality for rapid growth, needs to be helped in modernising and increasing its contribution. It is understood that the Government has already taken steps in this direction.

In the manufacture of metal-forming machinery, India has not made much progress, even though imports have increased enormously; they were about Rs. 14 crores during 1958. This is mainly due to the import of steel plants, rolling mills, etcetera. Well-known firms in India have started the manufacture of sheet metal machines. The Government heavy machinery manufacturing project is to produce rolling mills and other allied heavy metal-forming machines. It is expected that the demand for such machines will continue to increase rapidly during the third plan period and will have to be met mostly by imports.

Many Problems

The machine tool industry has many problems which hamper its rapid growth. Some of these are the shortage of quality pig iron and coke for foundries producing machine tool castings, lack of foundry capacity, dearth of skilled and experienced designers and trained and experienced shop supervisory staff such as foremen and managers, lack of technical knowledge and, most important of all, the shortage of skilled workers. Foreign exchange for the purchase of plant and machinery for balancing and replacement purposes in the existing units, and for additional plant and machinery needed for the new units, is another problem. Labour relations require attention. The country is already making efforts to overcome the numerous difficulties, but it has still a long way to go. The Government can assist in the procurement of technical know-how, and the development of ancillary feeder units. The growth of the industry will, however, largely depend on the private entrepreneur. In view of the urgent need to develop the industry to make the country self-sufficient in machine tools, the various industries should change their pattern of thinking from the established use of general-purpose machines which can only be imported, to the newer methods of using such special-purpose machines as can be designed and manufactured in the country.



Bessemer Converter and new Blast Furnaces at the Burnpur works of The Indian Iron & Steel Company Limited

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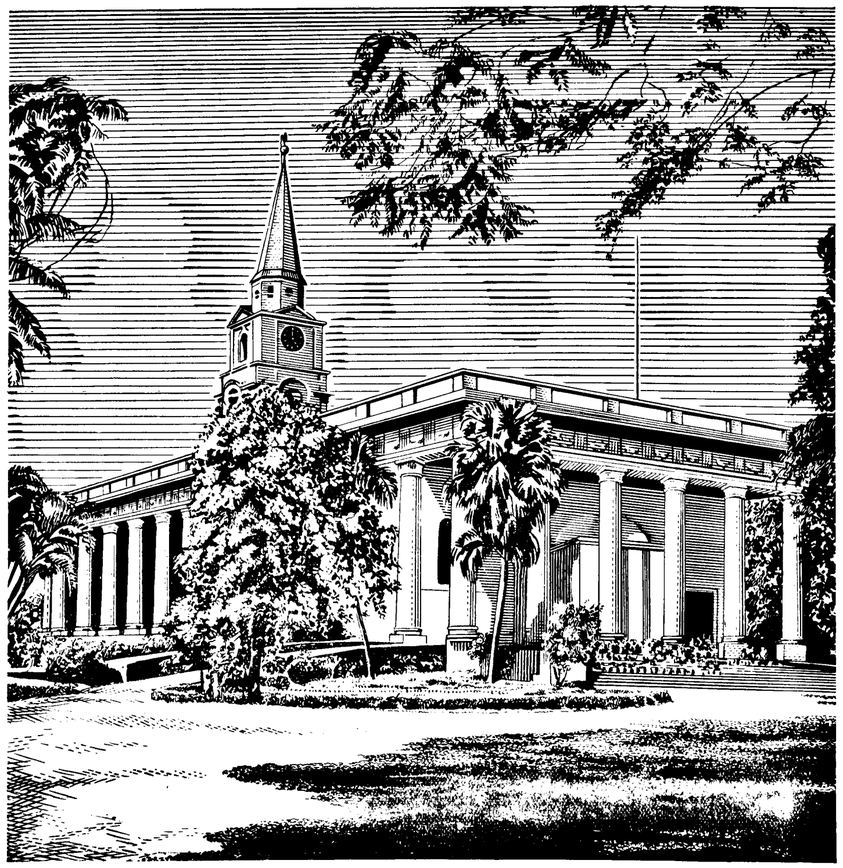
IIC-72

prestressed concrete for clear space construction



St. John's Church, Calcutta, is 190 years old. To preserve the character of this historic building, it was necessary to replace the old roof with a light weight roof of similar design which could be supported by the old walls. Prestressed concrete provided the answer.

The old 1 ft. 6 in. thick, heavy roof (dead load 225 lbs./sq. ft.) of tiles and lime terracing on timber burghas was replaced by a precast prestressed concrete light roof (dead load of 40 lbs./sq. ft.).

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TSTP 57

Rapid Development of Textile Machinery Industry in Postwar Years

High Steel Prices and Low Productivity Impede Progress

THE engineering industries in this country have made rapid progress in recent years. Before the second World War, there were very few concerns manufacturing engineering goods. Most of them provided the requirements of the railways, such as wagons and cast iron sleepers. Even so, their production was very low. For example, the annual production of wagons in the prewar years was 2,500 to 3,000, against 16,000 to 17,000 at present. Apart from the companies engaged in the production of wagons and other railway equipment, there were some concerns making consumer goods. Thus, fans and electric motors were being produced in small quantities. But the manufacture of bicycles had not commenced. No motor-cars were produced in those days. The Tata Locomotive and Engineering Company, the biggest engineering concern, was not yet born. The total annual

By

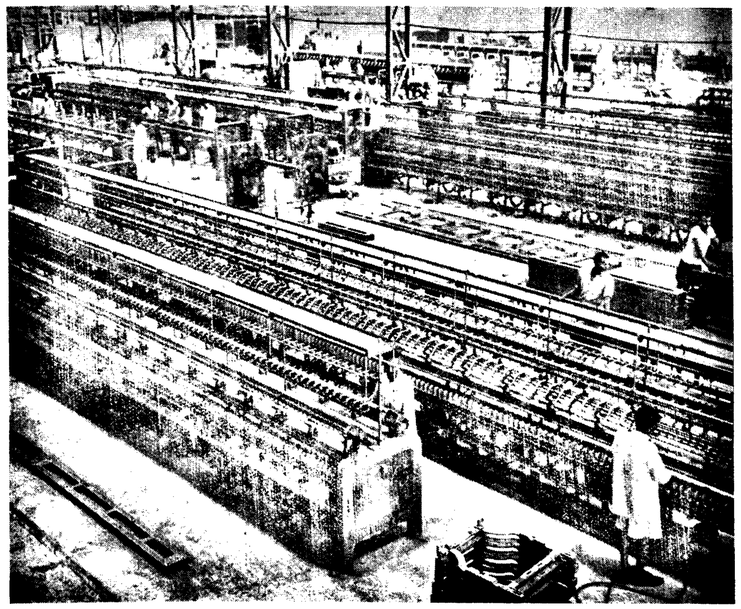
K. K. BIRLA

Chairman, Textile Machinery Corporation

value of engineering goods produced in the country was a few crores of rupees, compared with the present figure of Rs. 350 crores to Rs. 400 crores. Some idea of the smallness of the engineering industries at that time can be gained by comparing the sale figures of some of the prominent concerns before the war and in recent years. The figures for 1939 and 1958 are as given below:

Name of Companies	Sales (Rs. lakhs) 1939	1958
Jessop and Co. Ltd	35.79	650.73
Burn and Co. Ltd	170.72	1,060.60
Bridge and Roof Co. Ltd	6.00	228.00
Braithwaite and Co. Ltd	25.98	334.84
Indian Standard Wagon Co. Ltd	51.06	611.26
Bhartia Electric Steel Co. Ltd	21.99	192.46
Indian Cable Co. Ltd	18.33	730.12
Britannia Engineering Co. Ltd	12.58	157.94
Jay Engineering Works	0.78	633.24

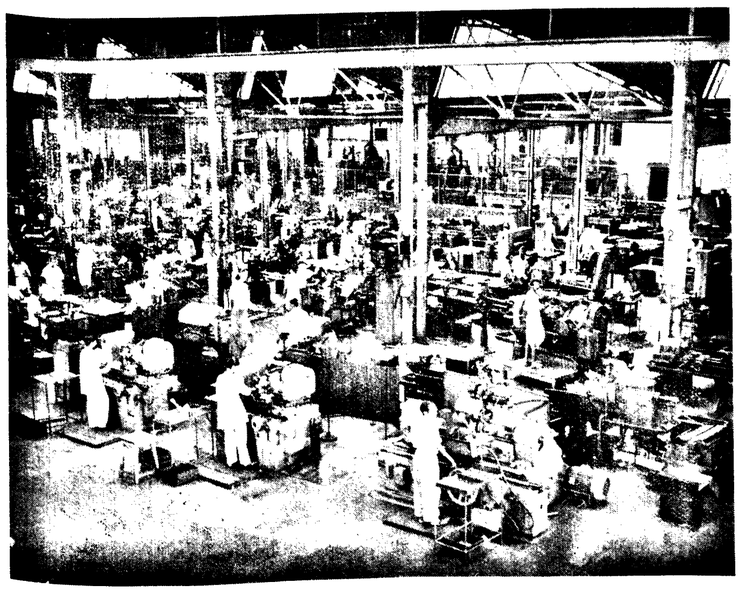
The production of capital goods was extremely small in the prewar years. Only in 1937 and



A ring spring frame assembly line

1938 did certain entrepreneurs resolve to manufacture these goods. The textile industry at that time was, and still is, the premier industry in India. The entrepreneurs, therefore, considered it advisable to make a beginning with the production of textile machinery. The actual production of textile machinery started some time in 1939. But progress was interrupted by the outbreak of the war. The industry suffered a serious setback as the various engineering shops had to switch their capacity to the manufacture of war products. The production of looms, however, was permitted on a limited scale by the Government of India in order to meet the growing cloth requirements, both civilian and military. But the output was very meagre and did not exceed about 2,000 looms a year, representing only about 1 percent of the installed capacity.

After the war, the various textile machinery manufacturing units reverted to the production of machinery for the textile industry. Since then, they have developed rapidly, and more and more firms have come into existence, with the result that at present the indigenous textile machinery manufacturers can provide 60 percent of the requirements of the textile industry. Schemes for the manufacture of new items are being implemented. When they are completed, the textile machinery industry will be in a position to meet about 75 percent or 80 percent of the requirements.



The machine shop in a textile machinery factory

Prewar Level of Production

The production of textile machinery, which was negligible before the war, has risen to about Rs. 8 crores annually now. It is estimated that by the end of the third five year plan, the figure will rise to about Rs. 25 crores. It is a tribute to the initiative of the textile machinery manufacturers that they have developed production to such an extent in such a short time. Most of them in the earlier years functioned without any collaboration with foreign manufacturers. Efforts were made by some to seek collaboration, but they failed. The foreign manufacturers were anxious to retain their hold on the expanding Indian market. However, the Indian manufacturers succeeded in evolving designs which were commended and which compared favourably with the imported items.

The prospects of the textile machinery manufacturing industry depend on the progress and prosperity of the textile industry. Related to that is the question of the demand for cloth in this country. The demand for cloth will depend on the growth of population, the prosperity which

Another view of the machine shop

the five year plans generate and the export possibilities. The requirements of textile machinery also depend on the normal life of machines, and on the technological improvements in designs, etcetera. To some extent, the taxation policy of the Government has a bearing on the requirements of textile machinery. If taxes are low, the textile industry will be encouraged to modernise quicker.

In order to assess the likely requirements of textile machinery in the future, it is necessary to make an estimate of the demand for cloth, both for internal consumption and for export. At the time the second plan was formulated, it was expected that the *per capita* consumption of cloth would rise to 18.5 yards by the end of the period. In fact, with the conditions prevailing at the end of 1956, it was felt that the domestic demand might even rise to 20 yards a head. Subsequently, however, there was a recession which was marked by a large accumulation of cloth stocks, and the closure of a number of mills. This, along with a fall in exports, presented a gloomy picture. The Government of India appointed an enquiry committee to study the industry's difficulties and to suggest remedies. In its report, which was submitted in 1958, the committee expressed the view that, considering the rate of economic development, the *per capita* consumption is not likely to exceed 17.5 yards at the end of the plan. This view is confirmed by the trend in the offtake of cloth during the past two decades or so, the figures for which are given below :

Year		Per capita availability of cloth in yards
1939-40	Undivided India	15.8
1940-41	Undivided India	15.8
1945-46	Undivided India	12.2
1948		15.1
1952		14.4
1953		15.1
1954		15.0
1955		16.0
1956		16.4
1957		16.2
1958		16.2
1959		16.2

The assumption of the enquiry committee that the *per capita* consumption would not exceed 17.5 yards at the end of the second plan period, appears, therefore, to be sound. It has, in fact, been accepted by the Government.

Cloth Consumption during Third Plan

As for the *per capita* consumption of cloth during the third plan period, several factors have to be considered, the first of which is the *per capita* income. A consideration of only this factor, according to third plan estimates, suggests that the consumption of cloth a head should rise to 21 yards by 1965-66. But India being a warm country and clothing being a secondary item in the list of necessities, this assumption may not be wholly valid. Moreover, as the standard of living improves, the trend will be towards the use of finer fabrics so that the extra money spent on clothing will not be fully reflected in the quantitative increase in consumption. Certain changes which are taking place in the clothing habits of the people also point to this conclusion. For instance, a large number of people used to wear turbans or *pugrees*, which head-dresses are rapidly going out of fashion. They required a good deal of cloth and to the extent that they have been discarded, the offtake has fallen. Likewise, a large section of the population, who used to wear *dhotis*, are now changing over to the western mode of dress. The consumption of cloth for suiting will be much less than for *dhotis*. The latter, apart from requiring bigger yardage, also wear out much more quickly. These are only some of the factors which are going against a quantitative increase in the offtake of cloth a head. So it is not unreasonable to place the estimate at 19 yards for the end of the third plan.

As for exports, the target assumed in the second plan is 1,000 million yards. In recent years, competition in international markets has been increasing. Certain countries in Asia and Africa, which have been India's traditional export markets, have started their own textile manufacture. Pakistan is a notable example. In view of these developments, and considering the actual figures for the past years, it would be more realistic to fix the target at 800 million yards.

On the above estimates for *per capita* consumption and exports, and on the assumption that the population will reach 400 million at the end of the current plan, and 440 million at the end of the next one, cloth requirements work out as follows :

	Second Plan	Third Plan
1. Anticipated population (millions) ...	400	440
2 *Per capita* consumption (yards) ...	17.5	19.0
3. Requirements for internal consumption (million yards) ...	7,000	8,360
4. Annual export target (million yards) ...	800	800
5. Total annual requirements (million yards)	7,800	9,160

On this basis, the number of additional spindles that will have to be installed has been worked out as 500,000 during the last two years of the second plan and 750,000 during the third plan. Taking an overall picture, the total requirements of textile machinery, spare parts and stores will be about Rs. 25 crores annually during the third plan period.

Dearth of Good Designers

While judging the progress of the textile machinery manufacturing industry, a few problems which it has been facing have to be borne in mind. The first and foremost arises from the ever-changing design. Although the design, as copied, evolved or adopted by the various manufacturers, is quite good and is suited to Indian conditions, the industry has to keep pace with developments in other countries. For some time to come, that is to say, as long as the Indian manufacturers work in collaboration with well-known foreign firms, the difficulty may not arise. But afterwards, when India will have to stand on her own feet, the problem will have to be faced. Unfortunately, there is a great shortage of good engineers in this country. The engineering colleges are at present turning out about 5,000 graduates a year, but even then, they cannot cope with the growing demand. The young graduates are also raw, and cannot fill the gap which the dearth of skilled and experienced designers has created. Another difficulty is the high price of steel. It has been increased several times since 1952. The effect of the increases on the selling price of the more common categories of steel can be seen from the following table :

Category of Steel	Price in 1952 (Rs. a ton)	Increase from 1952 onwards (Rs. a ton)	Present price (Rs. a ton)	Percentage increase
Bars and Rods	336	309	645	92
Plates	424	309	733	73
Structurals	346	309	655	89

High Steel Prices

In order to give an idea of how steel prices in India compare with those in the other steel producing countries, a comparative table for a common category of steel is given below :

Price of steel plates (Rs. a ton as on 31st March, 1959)

U.K.	561
U.S.A.	565
Australia	602
Belgium	590
India	733

It will thus be seen that steel, which was cheapest in India compared with the other countries previously, has now become costlier in this country. The high prices of steel naturally raise production costs, and place the textile machinery industry in an unfavourable position, compared with foreign suppliers. It has, however, to be pointed out that the difference between the selling price of steel and the retention price paid to the producers is great; it is at present kept by the Government in the equalisation fund in order to subsidise imports. The retention price for Tatas, for example, is Rs. 477 a ton for bars and rods, Rs. 483 a ton for plates and Rs. 490 a ton for structurals. It is hoped that after the Rourkela, Bhilai and Durgapur plants go into full production, the price of steel will be suitably revised.

Export Prospects

With the improvement in India's textile machinery production, there is sufficient scope for exporting the products to neighbouring countries. But there are three main difficulties which have to be faced. Firstly, high steel prices raise the cost of production. Secondly, the output a man in India is very low, and that too raises manufacturing costs. To illustrate how low the productivity in India is, the example of the textile industry may be given. In Japan, a girl worker in a textile mill looks after 4,000 spindles, whereas in India a man looks after 400 to 600 spindles only. Similarly, a girl worker attends to 50 automatic looms in Japan, whereas in India a man looks after only 16 automatic looms. These two factors alone make the prices of Indian products uncompetitive. The last factor, which is no less important, is that India has yet to acquire a reputation abroad as a producer of capital goods, and there is a prejudice against the Indian industry. If these difficulties can be overcome, Indian textile machinery can be exported.

The Indian textile industry is the biggest manufacturing enterprise of this country; it is second only to the U.S. industry in size in the world. The textile machinery industry, which caters to the textile industry, has, therefore, a great future ahead. At present, the industry depends on foreign collaboration, technical know-how, and to some extent, on imports. But given the proper assistance and encouragement, it is capable of making rapid progress, to become, in course of time, not only a leading enterprise in India, but also a sizeable exporter of the capital goods it produces.

Steady Progress of Air-conditioner and Refrigerator Production

The Problem of Making Cheaper Machines

TEMPERATURE and humidity have a close relationship to human efficiency and comfort. In some places, they put a heavy stagnating hand over man's life; in others, they help him acquire the energy and drive which are essential for his material progress. Without favourable temperature and humidity, it is hard for an individual or a nation to develop potentialities to the full. Human intelligence usually strives to find an answer to many challenges posed by nature, and in this case, it has invented air-conditioning.

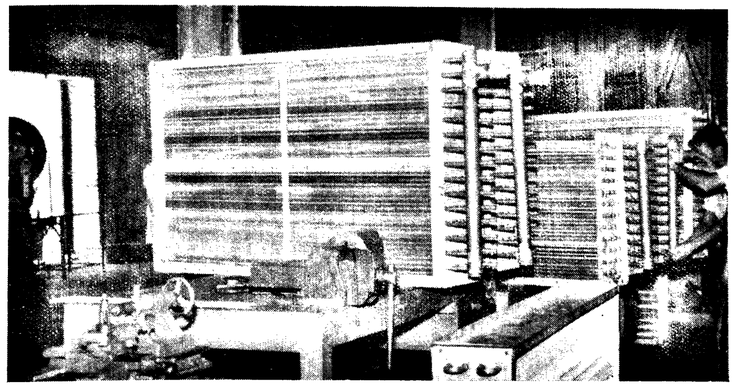
Air-conditioning is the control of humidity, temperature and dust. India is well endowed with natural resources, but not so fortunate in the climate in which her people have to work. Throughout the country, the humidity, heat and dust experienced for almost three quarters of the year are enough to sap one's energy. There is a growing awareness of the substantial benefits

By

S. K. MADAN

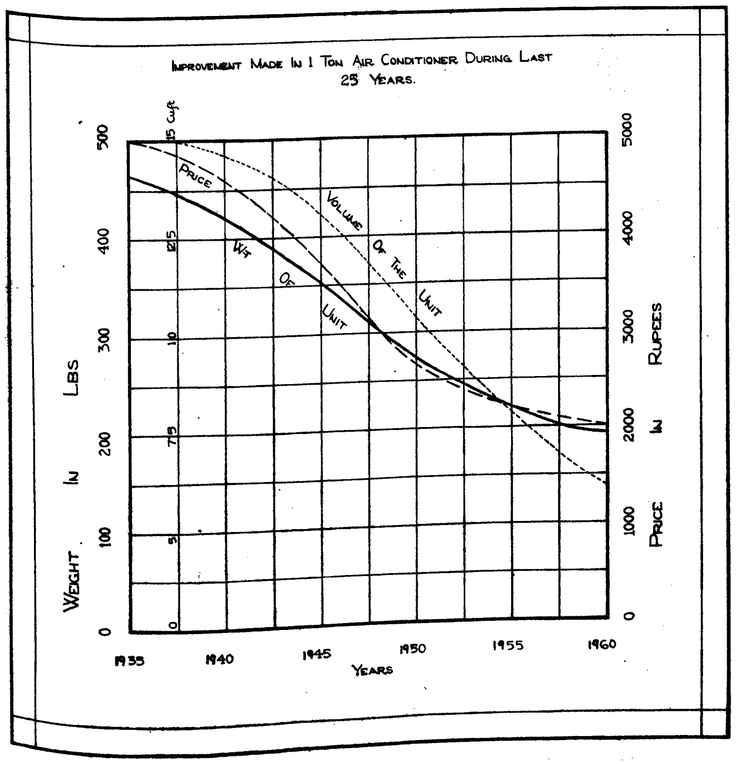
Production Manager, American Refrigerator Co. Private Ltd

which can be obtained by providing better working conditions. Huge quantities of foodstuffs are being wasted for want of proper storage conditions. The country might have been able to increase its domestic food supplies, if economic considerations had not prevented a wider application of refrigeration. Recent studies have shown that air-conditioning increases output by about 10 percent or 12 percent and reduces absenteeism. It is useful not only for human comfort, but also has many other advantages. Submarines and jet aircraft have air-conditioning equipment. Even in building various dams, the concrete is pre-cooled before it is poured into the foundations. The pre-cooling increases its longevity and strength, and reduces porosity.



Assembly lines for air-cooled evaporators and condensers

Little was known about refrigeration and air-conditioning in India during the first 40 years of this century. Most of the experiments and research were conducted only in advanced countries like the United States and Germany. Even in the early 'thirties, it was in its infancy in America, but during the past two to three decades, there have been tremendous changes which have increased its importance. All the engineering advances were translated into marketable goods, which have been produced, sold and serviced in millions. One way to measure achievements is to review the hundreds of improvements, each minor in an individual sense, which have combined to produce the vastly superior product available today. Only 20 years ago, air-conditioning was a novelty, but now it has become almost a commonplace feature of modern life, the advantages of which are widely appreciated. The consumer is breathing cleaner air. His indoor environment is almost completely free of drafts.



The Air-cooled Model

The air-cooled model, which is the successor to the water-cooled one, has been welcomed because its use and mass production are easier. Taking into account the economic factor, especially the price factor, the air-conditioner can be classed as a major household appliance. During the last few years, many improvements have been effected, prices have been brought down by using the high-speed direct-driven sealed compressor, capillary tube and copper aluminium heat transfer components.

About five years ago, almost all the refrigeration and air-conditioning firms in India were only trading concerns. There was no restriction on imports. The margin of profit was quite good in imported equipment, so not a single organisation had thought of manufacturing refrigeration components in India. With the introduction of import restrictions, the organisations had to look for an alternative source to keep them going. It was difficult for them to start research on the main items they wished to, or could, manufacture. For the basic research on these specialised items, they had to depend upon their associates in foreign countries. A few leading concerns had the finance and were able to obtain foreign collaboration, mostly in the form of know-how. The manufacture of many components by the Indian industry was started only in 1956. Targets were fixed in India's second five year plan.

The production of domestic refrigerators, window air-conditioners and water coolers was taken up first, as not much capital was needed for the manufacturing equipment. During the last four years, the industry has been able to make substantial progress. Now about 80 percent of the components in the domestic field, which form approximately 70 percent of the value of the machine, are being manufactured in India. Only specialised items like sealed compressors and controls are being imported. Some efforts to manufacture sealed compressors have been made, but due to the high cost not much progress has been achieved. Four to five schemes to manufacture compressors on a bigger scale have already been approved by the Government. When they will be implemented remains to be seen. Two other schemes to manufacture controls, one in the private sector and the other in the public sector, have also been

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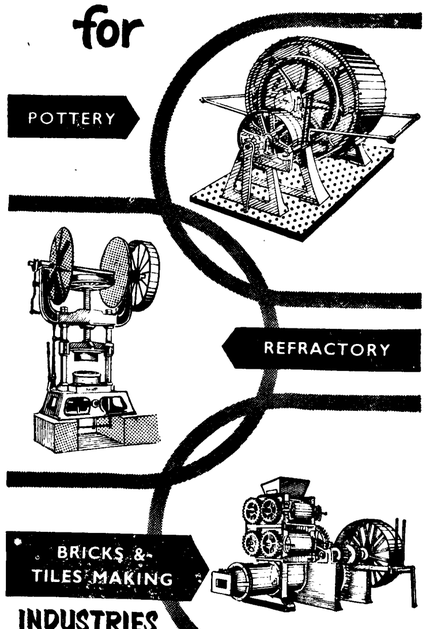

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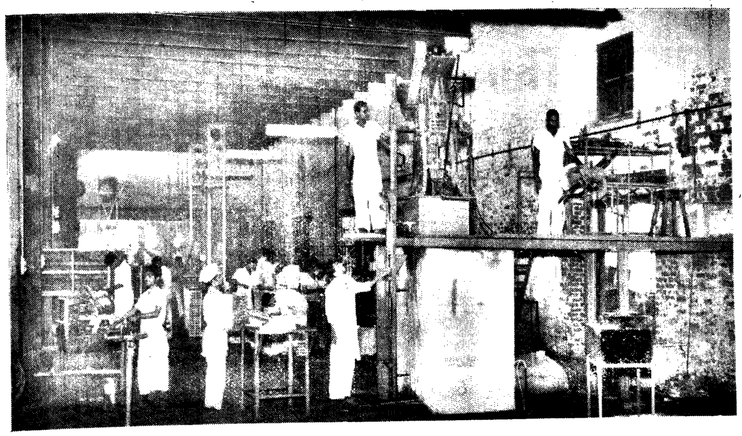
approved. When the schemes have been implemented, the industry will be largely self-sufficient. Table I on this page gives the production figures which show the progress made by the refrigeration and air-conditioning industry in India until last year.

The targets set by the Development Council for the years 1959-60 and 1965-66 are :

Products	Targets for 1960-61	Targets for 1965-66
Domestic refrigerators	25,000 units	50,000 units
Window air-conditioners	25,000 units	50,000 units
Water coolers	3,000 units	20,000 units

It appears that the targets set for the coming years are rather high, considering the production levels of the past few years. But they can be achieved and even surpassed if the indigenous industry is able to produce sealed compressors and controls to the full extent of the requirements. The Government is helping a good deal, and has licensed another 12 new manufacturers to produce refrigeration equipment in collaboration with foreign interests, which would provide an additional output of Rs. 10 crores to 12 crores a year. The total turnover of the industry after five or six years can, therefore, be expected to reach Rs. 25 crores or Rs. 30 crores.

One of the existing concerns, American Refrigerator Company, in collaboration with Dunham Bush of the U.S.A., is manufacturing (and meeting all the needs of) two important components of the refrigeration machine—evaporators and condensers. Expansion is being undertaken on a large scale, and the organisation hopes to increase its present capacity fourfold in order to manufacture commercial equipment like chillers, driers, filters and heat exchangers within next 18 months. Another concern, the Blue Star Engineering Company, is manufacturing self-contained air-conditioning units of 5-ton and 7½-ton capacity in collaboration with Worthington of the U.S.A. Many firms are manufacturing refrigerators. Kalinga Industries, in collaboration with Electrolux of Sweden, has announced that its absorption model will be in the market within the next few months. To meet the requirements of refrigerators in unelectrified areas, the production of kerosene-operated ones has been undertaken. It is expected that the absorption unit required for the purpose will be produced within one year.



The lay-out of a refrigeration equipment manufacturing plant

Producing Cheaper Machines

Perhaps the customer is not so much interested in the technical problems of the refrigeration and air-conditioning industry as in certain other questions. When will an average man in India be able to afford a refrigerator and an air-conditioner? Is it possible to manufacture a refrigerator and an air-conditioner within a price of Rs. 500 each? If the U.S.A., Germany and other countries can produce low-priced machines, why cannot India do it? If these are to become part of the average Indian's everyday living, prices must be fixed accordingly. But, unfortunately, the Indian manufacturer is not in a position to do that just yet. He has to face more problems than his counterpart in foreign countries does. The biggest headache is the getting of raw materials. Most of the basic raw materials like copper tubing, aluminium strips and even steel sheets are imported. The Customs duty on all these items is approximately 35 percent. The quantity available again depends upon the import licence, which usually allows far less than what is needed. Sheet metal which plays a big part in refrigeration equipment is being rolled in a limited quantity by Tatas, which cannot meet the demand of the country. Manufacturers have to buy these sheets in the black market, for which they pay more than double the controlled price. The position may be better when the rolling mills in Rourkela are commissioned. Capital investment is another problem for Indian manufacturers. They are not in a position to buy electronic equipment or equipment for mass-scale production by which they can reduce costs, the reasons being the shortages of foreign exchange, of raw material and of technical personnel.

As stated above, it is very difficult for the Indian manufacturer to set up modern plants for mass production. He has followed the safer route of manufacturing in batches. This method is more expensive than the mass production one, and increases the selling price of the product. High quality is possible only when there is standardisation of the products, an improved technique of production, more competition and a sufficiency of raw materials. So it is difficult to see how the prices of refrigeration equipment can be brought down as long as these handicaps persist. Some manufacturers have already plans to manufacture small 2.5 cubic feet to 3 cubic feet refrigerators, ideal for a small family. It is expected that these will not cost more than Rs. 600.

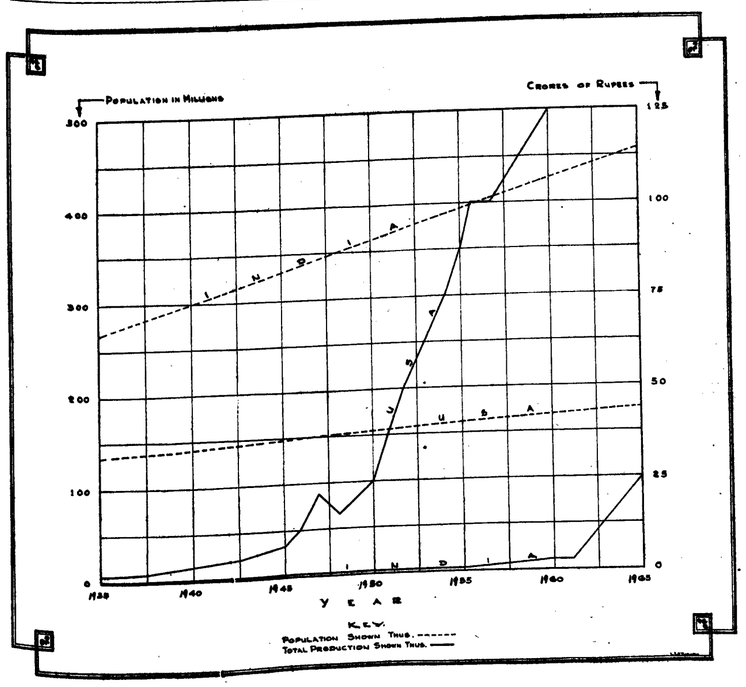
Research and New Developments

Research is going on at many places to develop new systems. The Valance heating and cooling system, which works hydronically, is being developed at the U.S. University of Illinois. Probably after a few years, a refrigeration machine may be operated with solar energy, and it would obviously be the right machine for India. Thermo-electric refrigerators are being developed by many nations. In this, the difference in temperature is created by joining dissimilar metal wires at their ends. By reversing the current, the effect is also reversed. The effect has been known for nearly 100 years, and one wonders why no refrigerator was developed on these lines before. A laboratory model of the thermo-electric refrigerator was developed in 1954 by the Leningrad Institute of the Refrigeration Industry. It was claimed to have economically approximated the performance of the existing absorption machine. But no further progress has been made to manufacture it commercially.

The refrigeration industry in India is in its infancy. To come to the level of the more advanced counterparts elsewhere will take many more years. Foreign collaboration helps initially, but to go on depending on it will mean the indefinite payment of heavy royalties. The industry must set up its own research institutes to develop machines suited to the country's needs. The co-operation of existing engineering institutes with the industry is essential but that co-operation, unfortunately, has not been forthcoming so far.

Table I

Product	Number of firms licensed	Licensed capacity	Further extension	Production figures 1956	1957	1958	Oct., 1959	Value of 1959 Production
Domestic refrigerators	4	13,600	6,000	750	940	2,900	3,963	Rs. 55 lakhs
Window air-conditioners	10	20,470	480	5,800	6,963	10,800	8,467	169
Water coolers	4	3,900	180	967	1,390	2,146	1,918	38
								Rs. 2.62 lakhs



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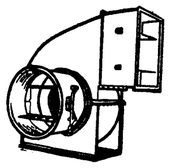

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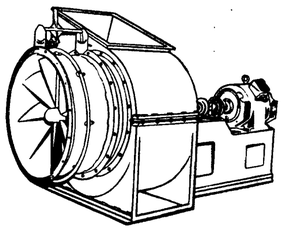

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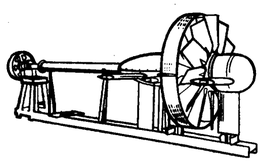

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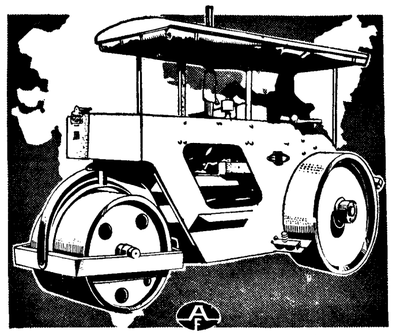

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INDIA BEGINS TO EXPORT BICYCLES

STRUCTURE OF INDUSTRY BECOMING MORE RATIONAL

With over one million bicycles produced by Indian factories in 1959, it may be said that this country has now stepped into the bicycle age. What will be the duration of this age depends upon how soon this country, following the pattern of the West, moves on to the age of motorised personal transport in the shape of mopeds or scooters. That, in turn, will depend on the rate of national and the *per capita* income growth. Today, a good bicycle with all the equipment costs between 75 percent and 80 percent of the average annual *per capita* income. Quite clearly, before the Indian cyclist can aspire to become even a moped-propelled individual, he will need a saving four to five times as much as his investment on a bicycle. And it will take many plans for him to reach this stage. On present indications, it seems that the bicycle age is going to be with the Indian people for some considerable time to come. In recognition of this fact, it is most likely that the third plan target for bicycles may be fixed at 2.5 million units a year, in which case the industry will have to more than double its present rate of production.

In considering the target which may be set for the next plan, it may be worth while reviewing the progress of the industry in the first two plans. Historically, the development of bicycle manufacture has taken place in definite stages falling into two distinct periods. The first coincided with the first plan, when bicycle manufacture was confined to a few units, which opposed the entrance of newcomers into the line. The second period coincided with the second plan and during the best part of this period, small-scale manufacturers lived in

By

ABHIJIT SEN

Chairman, Sen-Raleigh Industries of India Ltd

no great harmony with their larger counterparts. In the first period, the reason, as explained by the existing units for opposing the entrance of newcomers, was that the collaboration arrangements of the latter would affect the existing units adversely; the fact, however, was that the newer elements had been in the bicycle trade for decades and the older units feared that new makers had something more to offer in the way of techniques and quality which the Indian consumer wanted. Because of the continued demand for quality bicycles, the new units, after a few years' struggle, could establish themselves by 1949-50, and within the short period of five years, they, together with the existing units, exceeded the first plan targets.

Flying Start

By the beginning of the second plan, the bicycle industry had thus got off to a flying start. It could be confidently expected that its record would be even better. This is just what has happened, in spite of a serious foreign exchange crisis which not only affected all expansion schemes but also the supply of raw materials. The bicycle producers rose to the occasion, and all differences between the older and newer concerns as well as bigger and smaller undertakings, were set aside.

All the elements in the industry are now reconciled to the fact that they have their individual rôles to play in their respective spheres. The larger factories are gradually settling down to bicycle and component manufacture. The smaller ones are accepting the rôle of either bicycle assemblers (when they buy the more important friction parts from the larger factories) or are becoming specialised component manufacturers (when they supply other bicycle assemblers and the spares replacement market with such components). Perhaps it was necessary for the bicycle industry to go through these successive stages of internal strife to realise that there is scope for development for both old and new, for the large as well as the small, and only a co-ordinated approach to the problem of meeting the growing demand for bicycles was needed.

If, in the second plan period, the bicycle industry can exceed the set targets, it will be in a much better position to tackle the third plan targets—with less and less dependence on imports, with the increasing steel production within the country and with a far more rational and unified approach. The challenge in the third plan will lie not so much in achieving a target of production, but in being able to develop an export market for the products. Already in the second plan period, exports have begun, and against a target of 10,000 bicycles in 1959, actual exports were about 8,000 units. As exports began late in the past year, it is not unlikely that the figures will be considerably better in 1960, which has opened with more numerous export enquiries. So far, the export development has consisted mostly of supplies against trade treaties, and as yet a correct assessment of export possibilities has not been made. General indications are that it is difficult to push the Indian product in markets where western brands have been established over decades, unless a considerable sales effort is put in and favourable price differentials established. Indian bicycles tend to be outpriced in most markets, so exporters have so far had to depend heavily on assistance from an export pool set up by the Cycle Manufacturers Association of India, which helps subsidise exports. Much as one would wish to be optimistic about bicycle export prospects, it would be only wise to take a cautious view of the situation. Foreign markets, even for the major bicycle exporting countries, are shrinking for a number of reasons. It is indeed fortunate that India can still obtain export facilities for her bicycles through trade treaties whereas such exporting countries as the U.K., West Germany and France have had to curtail bicycle production by 30 per cent or 40 percent over the past few years.

Dwindling Imports

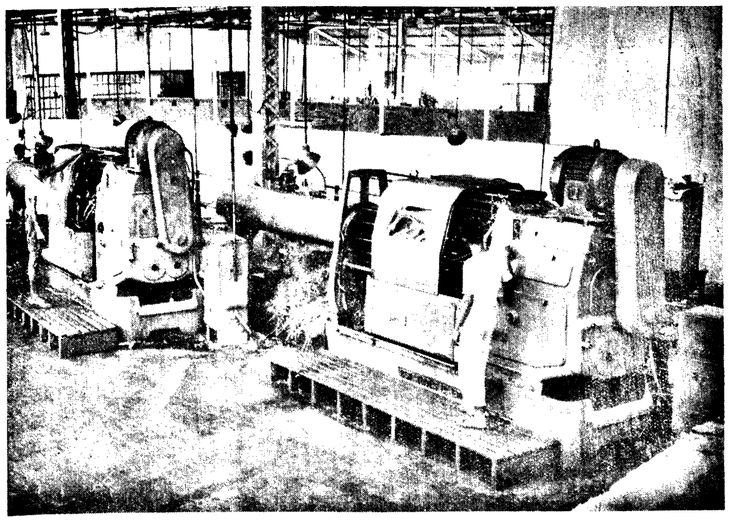
With the setting up of bicycle assembly units, imports of complete bicycles dwindle. As production of bicycles increases, imports cease altogether. This has been the pattern in India, and it is being closely followed now in other developing countries like Burma, Pakistan, Egypt and Indonesia—all major importers of bicycles in the past. Obviously, the pace of industrial development in these countries varies, and their bicycle needs cannot be met overnight by indigenous manufacture. This is the period, of perhaps two to three years, during which the trade treaties with these countries could help Indian bicycle exports to some degree. Beyond this stage, however, current thinking on exports will have to be readjusted to new developments. Exports then may well consist of tubing, components and accessories to the assemblers in these countries.

While this applies largely to the bigger developing countries, there will still remain a limited export market in many smaller countries of the Middle East and Africa. Here the Indian exporter faces the twin problems of having to push his wares against a firmly entrenched brand market and having to cut prices considerably to make headway in sales. A consistent sales effort can in the long run take care of the first hurdle, but there seems little chance of overcoming the second one, that of price, either in the near future or even in the long term. The price of the bicycle depends mainly on the price of materials, and chances of material prices coming down to the levels in the U.K., West Germany or Japan appear extremely slim at the moment.

Export Possibilities

Happily, the plan targets, which include a figure for exports, as a means for earning foreign exchange, do not lean too heavily on exports. The internal demand in the country can reasonably be expected easily to take care of any difference between actual exports and the target figures. As far as the internal demand is concerned, the pattern in this country will perhaps follow more closely that in Russia and China. In these countries, the bicycle industry is still an expanding one and the internal demand for the vehicle is well in excess of the supply. In both countries, the step next to the bicycle has been the motorcycle rather than the moped or the scooter, and the pace of change from pedal-assisted transport to motor-assisted transport is slower than in the western countries. The bicycle in Russia and China is predominantly a means of personal transport rather than a week-end hobby as it is slowly becoming in the countries of the West.

The duration of the bicycle age, therefore, appears to depend on the length of the time during which the bicycle remains a transport necessity and not a secondary transport facility. In underdeveloped economies, the bicycle usually starts as a luxury, which one can afford when the crop is good or the bonus large. As incomes grow, education spreads and the benefits of inter-communication become more obvious, the vehicle steps out of the luxury class and becomes a necessity. As the country develops further and the pace of development quickens, it outgrows the bicycle stage and moves on to the motorised stage. In India, the stage has been reached when the bicycle is a necessity rather than a luxury. But it will be a long time before the stage of motorised transport arrives.



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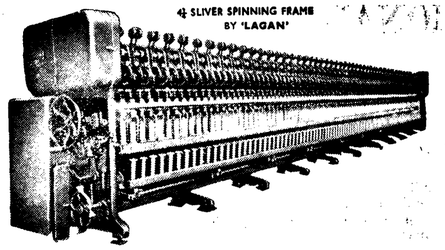

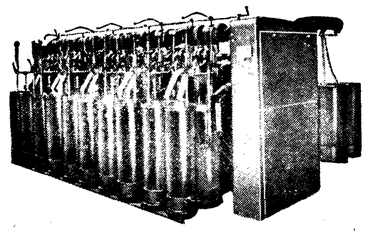

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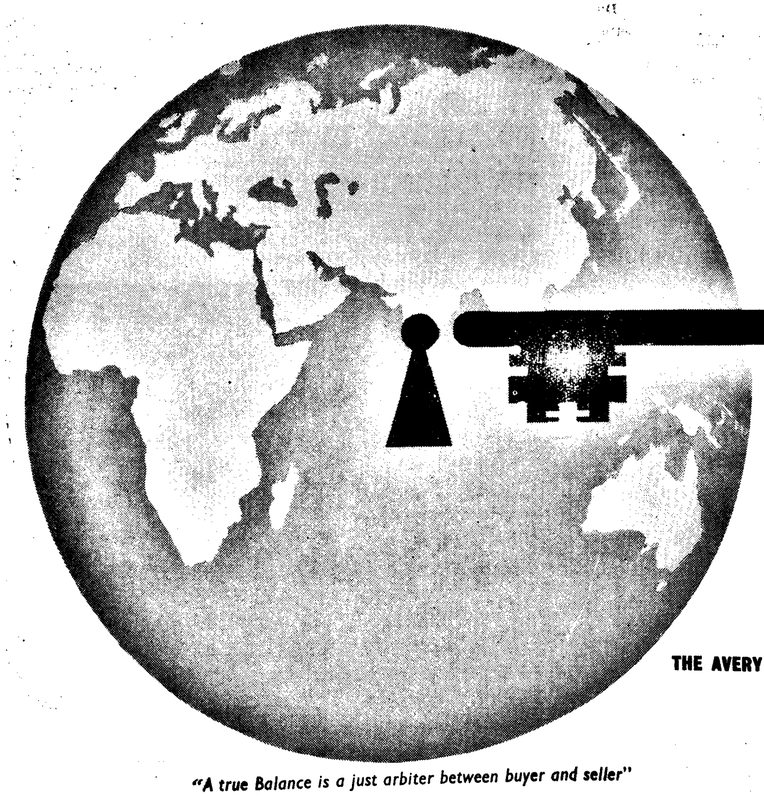

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"A true Balance is a just arbiter between buyer and seller"

Production of Toilet Preparations Increasing

Import Restrictions Create Shortage of Essential Raw Materials

By

A SPECIAL CORRESPONDENT

HISTORY shows that from ancient times, Indian men and women have been using various types of cosmetics to beautify and improve their appearance. The use of cosmetics did not stop with the application of beautifying aids on the face, hands and body, but was carried to the more aesthetic extent of wearing clothes in colours. Cosmetic care extended literally from head to toe. The primary concept in the use of all these beautifying aids was to make the individual more presentable and socially acceptable. Today, although the use of cosmetics is still considerable, and continues to grow, many of the ancient products have given way to new formulations, derived mainly from the West. This is because of new technological discoveries, and mass production techniques. If sources of basic essential oils look like becoming scarce, they are soon replaced by synthetics made in the laboratory; and the pestle and mortar needed for pounding, grinding and mixing has been replaced by high-speed, shining, stainless steel mixing vessels.

A study of the current stage of development of the toilet preparations industry in India and its future prospects has to consider its present size and rate of growth. Unfortunately, comprehensive and reliable data are not available. The production statistics published annually by the Central Ministry of Commerce and Industry are useful indicators of the trends in the sectors which supply these returns. Unfortunately, only organised manufacturers submit returns, and official production statistics are restricted to the fields of face cream and snow, face powder, toilet powder, tooth paste and tooth powder. Many important sectors, particularly hair preparations, are not required to furnish their production figures. Even in the sectors for which official production figures are available, it must be noted that only a few organised manufacturers regularly report their production to the Government. For example, the manufacturing units on whose production official statistics are based number only 11 in the case of face cream and snow and only 12 in the case of toilet and face powders. In fact, there are probably a larger number of manufacturers in these fields in the city of Calcutta alone. The published results of the several rounds of National Sample Survey give a picture of the volume and pattern of consumption from which conclusions about the industry can be drawn. The annual reports of those units in the industry, which are public limited companies, also yield valuable information. Unfortunately, only a handful of manufacturers in the toilet preparations industry are public limited companies. The above sources of information can, therefore, at best be regarded as indicators of the trends in the industry but ultimate reliance for preparing an estimate of its size and distribution between types of products has to be placed on market observations and surveys.

The Cottage Sector

The major difficulty in preparing such an estimate is presented by the cottage sector. The toilet preparations industry has an enterprising and aggressive cottage sector about which precise data are not available but whose strength and vigour is evident in the market. In fact, it has appropriated the major share of the market in most fields. This is particularly applicable to dental preparations—the largest single sector of the industry. Every town of respectable size has a number of local entrepreneurs marketing branded and packaged tooth powders at economical prices to cater to the national habit of daily cleaning the teeth, which is by no means as universal a compulsion elsewhere as it is in India. On the basis of the various sources of information mentioned above and market surveys, a guess can be hazarded on the present size of the toilet preparations industry. Its sales can be estimated to have totalled about Rs. 18.2 crores in 1959. The estimate of the distribution of this volume of sales between the various sectors of the industry is as follows:

Sector of toilet preparations industry	Turnover in 1959 Rs. lakhs
Dental preparations	550
Shaving and other men's preparations ...	160
Hair preparations	490
Skin preparations	490
Perfumery	130
Total	1,820

It must be emphasised that the above assessment is only an estimate. Furthermore, in gathering the data for the estimate and collating the information obtained from various sources, a deliberate attempt has been made to be conservative in the interests of accuracy. However, after finishing the exercise, one may have a strong feeling that the present size of the industry has been under-estimated, particularly in the fields of hair preparations and perfumes.

It might be useful at this stage to estimate the industry's rate of growth in recent years. There can be no doubt that it has been expanding rapidly. An indication of its pace of expansion since the base year of 1953 can be gathered from the following indices of production for 1959 for representative sectors derived from the official statistics of the Central Ministry of Commerce and Industry:

Face cream and snow	194
Face powder	165
Toilet powder	330
Tooth paste	168
Tooth powder	198

In comparison, the general index of industrial production stood at 151 in 1959 (base year: 1951).

As stated previously, the indices of production relate only to a limited number of organised manufacturers. There is every reason to believe that the cottage sector in these fields has expanded even more rapidly in recent years. The indices can only be regarded as indicators in view of their limited applicability. Therefore, the rate of expansion of the industry has to be estimated in the same fashion as its size through market surveys and observations. In gathering data for this article, an attempt has been made to get comparable information for earlier years as well as to assess its expansion. The earliest year for which comparable data could be obtained is 1955 and the estimate of the industry's turnover in that year is Rs. 12.25 crores. This represents an expansion of nearly 50 percent in the five-year period from 1955 to 1959. Compared with this rate of growth, the organised soap industry expanded by approximately 30 percent during the same period and the general index of industrial production rose by 24 percent. It is clear from these estimates that the toilet preparations industry has attained a respectable size. Furthermore, its encouraging pace of progress and the emergence of a healthy cottage sector indicates that it has established organic roots in the economy, so vigorous development can be confidently expected in the future.

The Organised Soap Industry

Before discussing the various sectors of the industry in detail, it might be useful to place the estimate in perspective by comparing its size with other industries. A comparison with the organised soap industry will be relevant for the purpose. The turnover of laundry soaps of the organised sector is estimated to have totalled Rs. 17.67 crores in 1959. The turnover of toilet soaps is estimated to have been Rs. 10.65 crores. Compared with the turnover of these sectors of the soap industry, each of which is several times the size of the toilet preparations industry according to popular belief, the latter's sales were Rs. 18.2 crores in 1959. It must be remembered that while the data on the organised soap industry is reasonably accurate, the figures about the toilet preparations industry are probably an under-estimate.

Among the individual sectors of the toilet preparations industry, the biggest is the one engaged in making dental preparations. This is only to be expected in a society in which daily cleaning of teeth is a universal ritual among all social classes. A habit which had to be created elsewhere through advertising inventions such as halitosis and the like has existed here from time immemorial. The bulk of the demand for dental preparations is met by natural products like neem twigs or domestically prepared compounds of various sorts. Nevertheless, the volume of sales to the comparatively small section of consumers, who require dental preparations in branded and packaged forms, totalled an estimated Rs. 5.5 crores in 1959. Tooth powders contributed Rs. 3.6 crores and the balance of Rs. 1.9 crores came from tooth pastes. The bulk of the existing market is thus in the form of tooth powders. Although they are branded and packaged, they are retailed at very cheap prices. This is illustrated by the fact that while tooth powders only account for 65 percent of the market in value, they constitute over 80 percent of the amount in terms of weight.

The market for tooth pastes has been expanding rapidly in recent years. This is the only sector in the toilet preparations industry on which reliable data are available. All manufacturers are in the organised sector and presumably report their production regularly and accurately to the Central Ministry of Commerce and Industry. Production has risen by 42 percent to a total of 2.7 million lbs in the five-year period from 1955 to 1959, and there is every reason to believe that sales have kept pace. In fact, the limits of expansion have been set by supply rather than demand. Leading brands of tooth pastes have been chronically in short supply in recent years because manufacturers have been unable to increase production due to import restrictions on raw materials. In spite of the satisfactory progress, tooth paste consumption is still very low. On the assumption that existing consumers have one brushing a day, the current volume of production indicates that the number of persons using

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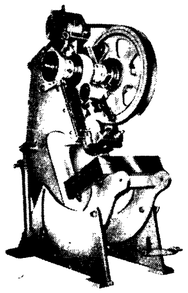

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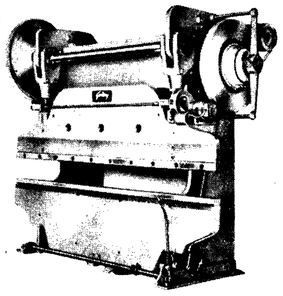

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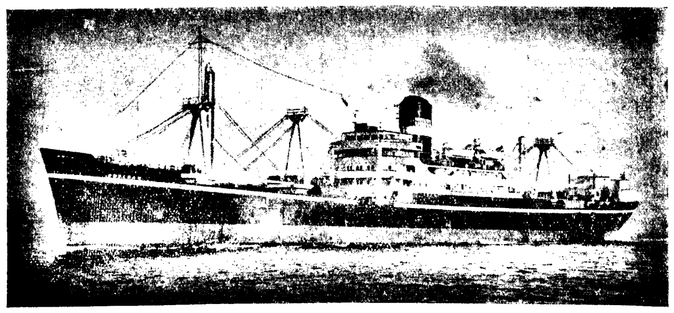

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tooth pastes in India totals about 2.4 million. Even if the rural masses are excluded, the urban population alone is estimated to have reached 90 million in 1959. Within the urban sector, professional classes and other groups, which could legitimately be expected to be prospective tooth paste consumers, total nearly 23 million, compared with the actual number of users of 2.4 million. It appears that even the existing potential for tooth pastes has not been fully tapped.

Hair Oils

After dental preparations, the sector of the toilet preparations industry which comes next in importance in terms of present size and future potential is hair preparations. The estimated volume of sales of branded hair preparations totalled Rs. 4.9 crores in 1959. The bulk of this turnover is contributed by hair dressings, with shampoos and hair colourants contributing most of the balance. As for hair dressings proper, the important components are coconut hair oils, castor hair oils and various medicated brands made from vegetable oils with ayurvedic ingredients. Hair preparations made from mineral oils and synthetic products are a negligible element at present, unlike the situation abroad. In many ways, the medicated hair oils are the most interesting sector of the market. They are completely indigenous in origin as they have largely been formulated by ayurvedic institutions. The enormous consumer loyalty obtained by such brands is indicated by the fact that sales of medicated varieties probably equal those of coconut and castor hair oils together. The strength of their appeal is indicated also by the premiums that these brands command. Their prices are substantially higher than those of other hair preparations.

There is a cottage sector in the medicated hair oil field and many local brands flourish as in the case of tooth powders. What is interesting is that, although these medicated hair oils are entirely indigenous in origin and appeal, the leading brands use modern marketing methods with conspicuous success. The former are probably the only sector in the toilet preparations industry which has attempted to draw on India's traditional body of knowledge and custom to formulate and market cosmetics. The obvious success of the endeavour indicates the possibilities of tapping the country's ancient lore in other fields of toilet preparations as well. As in the case of dental preparations, branded hair oils are only patronised by a small percentage of existing consumers. The National Sample Survey showed that the total value of consumer expenditure on oil for application to the hair and other cosmetic purposes amounts to more than Rs. 4 crores a year. This is only to be expected in a society where the daily bath is a national custom requiring frequent annointing of the hair. The aesthetic bias in favour of women having long and lustrous hair further reinforces the demand for hair preparations for cosmetic purposes. But branded hair oils account for only about 10 percent of total consumer expenditure for such purposes. It will be unrealistic to expect a total conversion to branded hair oils quickly but a greater rate of conversion among existing consumers can certainly be within the scope of the industry if a determined attempt is made.

Shampoos ought to be another fertile field for expansion. Modern shampoos are certainly a more efficient and convenient means of cleaning the hair than the natural products and domestic preparations used by Indian ladies, especially because of their long hair. In spite of this, sales of modern shampoos are negligible at present. This poses the question whether the dormant state of demand is the fault of the consumer or the manufacturer. The consumer has shown his need for hair preparations for cosmetic purposes and the willingness to pay for them on an enormous scale. It is up to manufacturers to convert consumers from the natural products currently being used to the more efficient and attractively packaged products that they are able to offer.

Skin Preparations

Skin preparations form a sector of the toilet preparations industry which rivals dental and hair preparations in size and potential. Sales totalled an estimated Rs. 4.9 crores in 1959. The sector is much more diversified in character than either dental or hair preparations, as will be evident from Table I in the previous column.

Table I

Product groups	Sales in Rs. lakhs
1. Face, all-purpose and other creams	180
2. Face powder	30
3. Talcum and toilet powders	230
4. Lipsticks	11
5. Others	
depilatories, nail preparations, etcetera	39
	490

Skin preparations are distinct from other sectors of the toilet preparations industry in that virtually all the products in the field are occidental in origin. Even the habit of their use is a comparatively recent import from abroad. In spite of this late beginning, they have developed rapidly to a size comparable with other sectors which had a more favourable environment due to tradition and custom.

Toilet and Talcum Powders

According to official statistics, the production of toilet and talcum powders trebled during the four years from 1953 to 1958. It is probable that 1959 has been the best year so far. An enquiry in the Bombay market showed that 30 new brands of toilet, talcum and baby powders appeared during the year without any perceptible effect on the progress of established lines. As this section of the industry has a lively cottage sector in all parts of the country, the number of new brands appearing in Bombay is probably illustrative, rather than exhaustive, and the actual figure may be even greater. Face powders have enjoyed an equally remarkable progress. The Central Ministry of Commerce and Industry has reported that production has risen from 400,000 lbs in 1958 to 1.5 million lbs in 1959, a four-fold expansion in one year. The production of snows and creams of the organised sector doubled during the five-year period from 1955 to 1959. There is every reason to believe that the cottage sector, which has the largest share of the market, expanded at a greater rate. Progress in other fields of skin preparations such as lipsticks, nail preparations, pancake make-up and the like has not been equally spectacular. In fact, the gaps in the market left by the stoppage of imports do not appear to have been filled as yet by the indigenous industry. The imports of such products totalled Rs. 57 lakhs during 1957, the last year when reasonably free entry of such articles was permitted. Local brands have not replaced the products that were being imported, with the result that a lacuna has been left.

Shaving Preparations

The next sector of the toilet preparations industry is shaving and other men's preparations. Sales are estimated to have totalled about Rs. 1.6 crores in 1959, and the market is almost entirely composed of purely shaving preparations, with a marginal contribution by pre- and after-shave lotions. Indigenous toiletries for men, which are a fertile and profitable field abroad, have not yet appeared in this country. In spite of the industry having built up the sales of shaving preparations to a sizeable turnover, there is ample evidence that even this limited sector of the market for male toiletries has not been fully exploited. Confining the exercise to the urban sector which is accessible to the distribution and advertising activities of the industry, the potential market for shaving preparations may be estimated to amount to 30 million consumers, representing all males over 15 years of age. Of this number, a recent survey indicated that only about 50 percent, that is, 15 million consumers, shave at home. The rest confined their shaving to occasional visits to the barber. Of the home shavers, more than 30 percent, that is, about 5 million potential consumers do not use any shaving preparations at all but use washing or toilet soaps or just plain water for the purpose. The existing market is, therefore, limited to about 10 million consumers out of the total potential of 30 million.

The frequency of shaving of the home-shavers also indicates the limited extent to which the industry has exploited the potential market. The number of existing home-shavers who shave daily amount to less than 15 percent, that is, approximately 2 million consumers. Another 40 percent of the existing consumers shave every alternate day and the balance of 45 percent shave only twice a week or less often. The possibilities for expansion of the industry indicated by the findings of the survey are encouraging. It should be possible to induce more men to shave at home at a daily frequency with powerful advertising. Male cosmetics—after-shave lotions and powders, deodorants, etcetera—have developed very rapidly abroad in recent years. This field has remained virtually untouched in this country, although a few products have started appearing now. But total turnover of such products in 1959 has not touched anywhere near the amount imported from abroad in 1957, when free entry was permitted.

Sales of perfumery have been estimated at about Rs. 1.3 crores in 1959. But this is probably a gross under-estimate. The bulk of the market is catered to by the *attar* trade, which is entirely in the cottage sector and, therefore, virtually no reliable information is available.

The prospects of the toilet preparations industry are excellent, as can be gathered from the rate at which it has been expanding in recent years. As India's five year plans raise incomes and standards of living, the industry will prosper in future years. The factors which are inhibiting its progress are import restrictions on essential raw materials and chemicals which are not indigenously available. An industry which contributes so much to a higher standard of living which is the objective of planning ought to be treated more liberally in being permitted to import required raw materials till such time as they are available locally. Furthermore, it has an extremely large and enterprising cottage sector and its general expansion will create increasing employment opportunities on a scale which is not possible in other capital-intensive industries.

Expenditure on Advertising

The industry is not doing enough to expand the demand for its products: the expenditure on advertising only amounted to an estimated Rs. 82 lakhs in 1959, that is, less than 5 percent of total turnover. This is inadequate for the purpose of creating more demand for branded toilet preparations. As has been pointed out previously, there is considerable toilet preparations usage in the country in the sense that various products are being used for distinct cosmetic purposes. There is no need to educate the consumer in the use of toilet preparations. Unfortunately, the bulk of the existing demand is being met by natural products or domestically prepared cosmetics. It is the responsibility of the industry to convert consumers to branded toilet preparations. This can only be done if powerful influences are brought to bear on the consumer through advertising. Furthermore, advertising should be consciously oriented to expanding the market by converting consumers from natural or domestically prepared products to branded toilet preparations and by intensifying the frequency of use by existing consumers. The current pattern of advertising of the industry is mostly oriented towards a straight fight for brand shares within the existing market.

An effort of the nature required cannot be effective unless the industry is willing to spend more than 5 percent of its turnover on advertising. In highly developed markets for toilet preparations, such as the United States and the United Kingdom, the toilet preparations industry spends upwards of 20 percent of its turnover on advertising. As a matter of fact, the advertising budget of the industry touches the size of such giants as the motor-car, food and tobacco industries, although the revenue of the latter is many times that of the former. It is possible that the timidity of the industry about advertising is due to the fact that an adequate margin for this purpose is not available at current prices. Higher prices to pay for more advertising need not, however, be a deterrent to the industry. Branded toilet preparations can never hope to compete with natural or domestically prepared products in the matter of costs, and consumers do not expect it of them. What consumers do expect is that they be functionally more efficient because of superior quality, and they have shown their willingness to pay handsomely if their requirements are met.

Branded Products

There can be no doubt that branded toilet preparations are far superior in every sense to natural or domestically prepared products. They are developed and refined through scientific research not only in purely technical matters, such as chemicals and other ingredients which go into their composition and process of manufacture, but also to meet the actual needs of consumers in terms of end-uses. Furthermore, special requirements are met from special ingredients created through research for specific purposes which is not possible in the case of natural or domestically prepared products. In addition to superior quality, consumers need aesthetically attractive packaging in branded toilet preparations. By and large, the branded toilet preparations in the market meet the demands of the consumer. But their superiority in terms of quality and packaging has to be impressed on consumers through advertising. Experience in other countries where the industry is more highly developed shows that consumers are willing to pay for attractive packaging and superior quality if they are influenced by adequate advertising. In conclusion, it must be stressed that the estimates of the turnover of the industry and its various sectors and their respective rates of growth are guesses in the final analysis. It will be in the general interest of the industry to possess greater and more accurate knowledge about itself.

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Mechanised Match Factories Hope for Permission to Expand

Cottage Units May Not be Able to Cope with Rising Demand

The manufacture of inner boxes

IN the early years of this century, India's match requirements were mostly met by Sweden and Japan and stood at about 15 million gross. But the foundations of the indigenous industry were laid when a Customs duty of 12 annas a gross, which was later doubled to Rs. 1-8, was levied. The early assembly plants gradually developed into complete manufacturing units, the first of which was established in 1924. The Tariff Board in 1926 decided to protect the industry and by 1928 its production capacity was about 18 million gross a year. It rose to 29 million gross by 1951, when India might be said to have become self-sufficient in matches. Production has since risen steadily and reached 39 million gross in 1958.

The demand for matches continues to rise with the increase in population and purchasing power. The annual rise is roughly estimated at 5 percent. According to the Government's present policy, the increased demand is reserved for the cottage sector of the industry, while large-scale mechanised units are being told to use their present installed capacity. There are indications that the cottage sector may not be able to cater for a rapidly expanding market, but it has certainly been given every opportunity for enlarging its activities and for providing employment to casual labour, particularly in south India where agriculture is seasonal. The statistics indicate that consumption

By

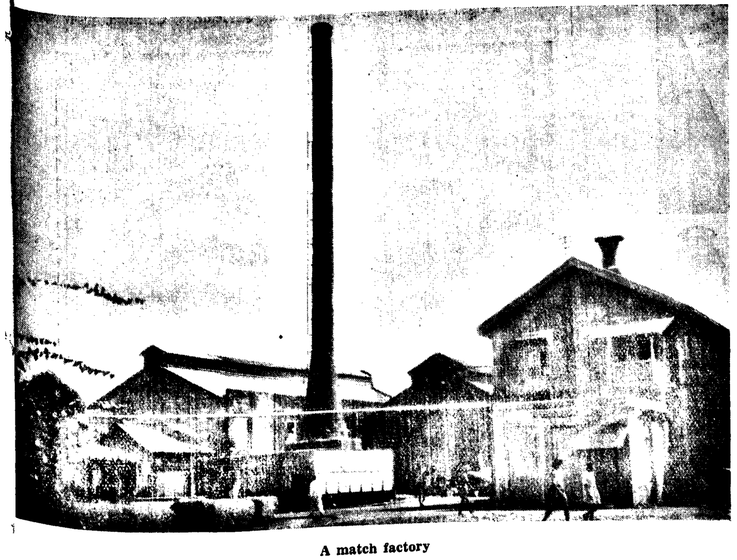
A SPECIAL CORRESPONDENT

of sticks a head a day has increased from 1.90 in 1950 to 2.33 in 1958. Consumption in the urban areas is a good deal above that in the rural areas and the figures for the major centres of Calcutta, Bombay, Delhi and Madras are 5.55, 9.40, 9.30 and 5.30 sticks a head a day, respectively.

Changing Operations

The operations of the industry have changed from time to time along with fiscal adjustments, market requirements and the policy for encouraging the cottage sector of the industry. Standards have, on the whole, been the 60's and 40's execution. But from 1st April, 1958, to 30th November, 1959, the Government sanctioned the production of 30's and 50's as an experiment to ascertain whether these counts would be more suitable in view of the change-over to decimal currency in April 1957 and the revision of the excise tariff in May that year. The change came at the request of small-scale producers. The experiment did not succeed largely because boxes could not usually be retailed at 3nP and 5nP, respectively, as was the Government's desire. Price-marking is an anomaly created by the authorities, the abolition of which both sectors of the industry have repeatedly urged. Besides, State and municipal bodies have power to add local imposts to an already high Central excise duty, making it impossible for producers to sell match-boxes in some areas at the unofficially controlled prices. As production is at present sufficient to meet demand, the wisest course is to let competition fix a fair retail price.

There is a considerable gap between the manufacturing costs of factory and cottage-made matches, and the wholesale prices of the latter are sometimes up to 20 percent lower. It cannot be said, therefore, that there is any real threat to the cottage sector from the mechanised units if the former tries to obtain a fair price, and avails itself of the facilities and funds offered from time to time by the authorities to improve production techniques. Several brands of cottage matches from the south are of a high standard and could be improved further if proprietors give less to the middleman and retain more money for development. The main impediment to the progress of the smaller cottage units—some of them established with Government aid—is the poor quality of their products. They sometimes use bamboo, in place of wood, for producing boxes and sticks. This makes it hard for them to compete, particularly against the better-grade output of the south Indian cottage units at equally low prices. The only way for the mechanised sector to retain its share of the market is to produce quality goods, and provide good service and distribution.



A match factory

Major Raw Material

Following the exhaustion of suitable species of timber and the need to resort to inferior substitutes, there has, in recent years, been a setback in the serviceability and appearance of Indian matches. Timber is the major raw material and, for a long time, the industry has depended exclusively on supplies from the Indian mainland and the Andaman Islands. No timber in India can compare with, say, European Aspen for match manufacture, but various acceptable softwoods are available, notably, *Bombax Malabaricum*, which is popularly known as Sawar. There is, in fact, no more serious problem before the industry than to ensure adequate supplies of such softwoods.

Insufficient reafforestation has brought about an unfortunate situation, which has been aggravated by plywood and packing-case manufacturers who have used huge quantities of softwoods suitable for matches. Repeated efforts have been made, with partial success, to ensure that the industry can reserve for itself the species of softwoods suitable for its requirements. It has been urged that caseboard and plywood users should use only the species not required by match manufacturers. Fortunately, some form of rational allocation is gradually developing, and the forest authorities seem to be aware of the need for organising, on a scientific basis, sustained timber supplies for the match industry.

Reserves in Andamans

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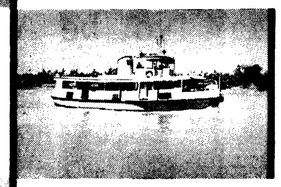

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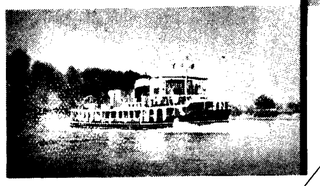

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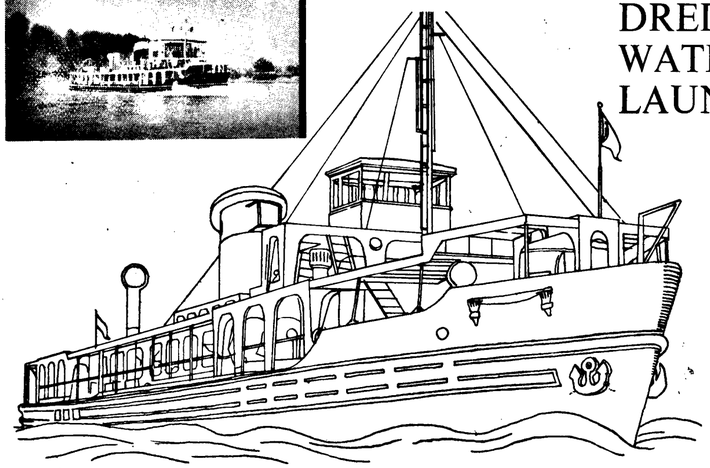

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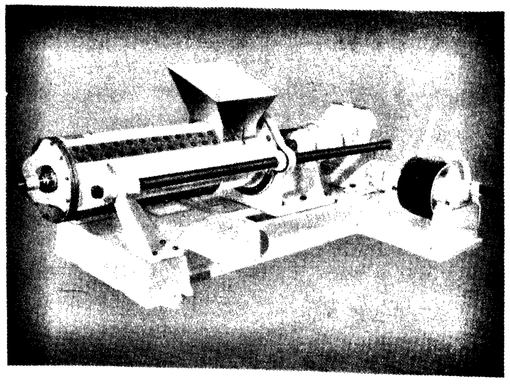

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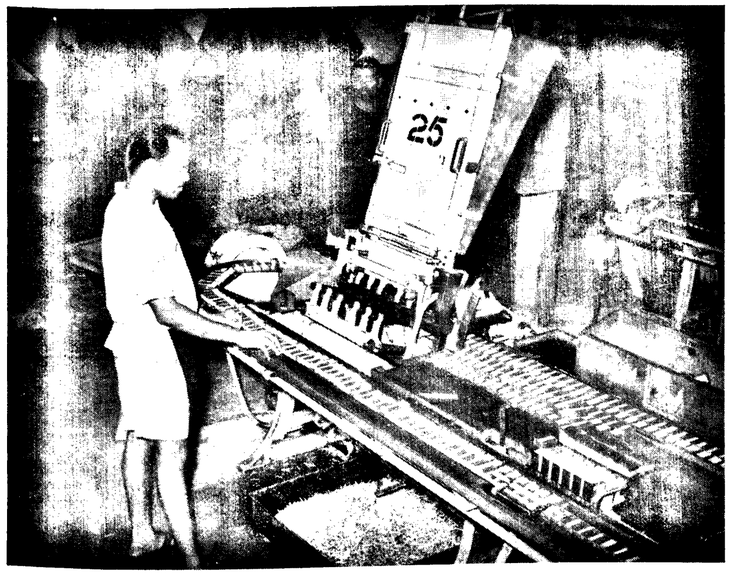

Filling of boxes with match sticks

are regenerated. The former offer large reserves of suitable softwoods, but the authorities there face some financial and practical difficulties which they are striving to overcome. Sixty thousand tons of matchwood a year was fixed as the production target for the Andamans by 1956, but the industry has not received more than 13,000 tons a year to date. A further complication is the reluctance of shipping companies to carry this bulky cargo to the mainland. The Government, which is anxious to increase the exports from the Islands, should purchase or charter a suitably equipped ship for this purpose.

The transport aspect is intimately linked with the procurement of timber for matches, since this raw material should arrive fresh for veneering and should not be exposed to deterioration during long delays in transit. The railway authorities are aware of the urgency to co-operate in this matter, but they are short of rolling stock and, until capacities are increased, the industry must continue to face heavy losses from the wastage of timber. Each ton of timber lost costs the industry some Rs. 200 and the Exchequer six times that amount in excise duty. A driage of only 15 percent from delayed transport costs the manufacturer about Rs. 30 a ton, so there is a good case for a higher rail priority for transporting timber, pleas for which have not yielded results so far.

Rising Royalties and Extraction Charges

Royalties and extraction charges on timber have been steadily rising, and the cost a ton which was Rs. 120 ten years ago has now reached Rs. 200. The industry at present consumes 120,000 tons (the quarter-girth formula) a year, and a major revolution may be necessary for substituting wooden boxes by cardboard ones if prices continue to rise in this manner and an acute wood shortage develops. Since the paper-making capacity is growing steadily in India, it may be possible to achieve the objective and replace a substantial part of the timber used in the industry with cardboards. An obstacle is the excise on the latter, the remission of which should be sympathetically considered by the Central Board of Revenue. Wooden match sticks or splints, however, cannot be replaced by any other material except waxed paper, which is too costly for India. More attention should, therefore, be given to the reafforestation of good splint wood species such as *Ailanthus Malabarica* (White Mutti), *Ailanthus Excelsa* (Yellow Mutti), *Alstonia Scholaris* (Pala) and *Evodia Roxburghiana* (Malabar Aspen).

Of the other raw materials, paper is the most important and here a great stride forward was taken last year when the Western India Match Company's new paper mill, now in full commission, abolished the need for any imports of match papers. Chlorate of potash, a major chemical ingredient, is being manufactured to meet the country's total requirements, although its basic raw material has still to be imported, together with one or two other items such as phosphorus and sulphur.

Increased Excise Duty

Matches have been a favourite target for taxation ever since an excise duty was levied in 1934. The duty has been progressively increased from the original Rs. 1-8 a gross of 60's to Rs. 3 a gross in 1941 and to Rs. 4.90 in 1957. The latest Budget indicates that excisable commodities might expect even more attention. It is hoped, however, that matches will be spared further levies considering that a wholesale price of, say, Rs. 8 a gross includes not less than Rs. 4.90 or 61 percent in the form of Central excise for "A" class manufacturers. Added to this, there are often sales taxes and octrois levied on invoice prices, which raise the price of a match-box further. A cheap match-box is certainly an ideal when one considers that it is a necessity even for the poorest consumer, but it is hardly attainable with the weight of the existing taxes. The aim for the future should be to adjust the fiscal levies in such a way as to make match-boxes available to everyone at an insignificant price. To achieve this objective, manufacturers are willing to co-operate with the Government. They should be permitted to explain their difficulties and the requirements of the trade. After a satisfactory settlement is reached, there should be no modification of excises for a reasonable period of time. The industry can then consolidate itself and not have its production and marketing schedules upset by frequent and sudden changes like the abolition of 30's and 50's at the end of last year.

Acute Competition

Competition between the mechanised and cottage sectors was acute in the past, but they have now settled down to tolerant co-existence, with the future reserved for the cottage sector. This is a challenge which the latter may or may not be able to accept in full. It is apparently the aim of the Government to provide more employment opportunities, so it has offered incentives to the cottage match industry. There is a restriction on the capacity of the mechanised sector (Category A), and a succession of excise rebates have been granted to others as shown in Table I.

The results of these measures have not always been what was intended or in the best interests of the cottage sector. The benefit of a guaranteed market is understandable if the cottage industry can rise to the challenge and meet the increased consumer demand with high quality products. But if it cannot, the mechanised sector should be permitted to increase its capacity. As for rebates, these have not served the purpose of developing the cottage manufacturing techniques and have not added much to the wages or welfare of the workers. They have usually been frittered away in price-cutting bouts to the benefit of the bazaar dealer. Furthermore, while measures to sustain the old-established and experienced operatives of the organised cottage match industry in the south are quite understandable, it is questionable whether match manufacture is an appropriate field of activity in which to use displaced persons, indigent womenfolk, and the like. Since dangerous substances are involved, one might wonder whether it would be desirable to employ them in some other cottage industry. Several small units, sponsored by the Government and designated as "D" class factories, found it almost impossible to market their products and have closed down, so much public money has been wasted.

While the total output of the industry has steadily risen with the growth of demand, the cottage sector has developed a good deal faster than the mechanised one. The latter has increased its production in terms of 50 gross cases of 60's from 408,000 cases in 1949 to 448,000 cases in 1958, while the former has, during the same period, increased from just under 100,000 cases to well over 300,000 cases. The development of the cottage sector in the later years has not been so rapid, as a limit may be approaching to the number of operatives available in the areas which lend themselves best to cottage match manufacture, namely, the very dry regions around Madura, Sattur and Sivakasi. If that is true, the cottage sector sould consolidate its gains and organise itself so as to avoid wasteful price-wars, with a view to reaping the benefits of its low overheads and other advantages. The mechanised industry, while striving to protect its hard-won traditional markets, is well content to see the other sector thrive. It hopes, however, that it will be given an opportunity to share the expanding demand of the future if the cottage sector is unable to meet it.

Mutual Co-operation

There are various instances of mutual aid from one sector to the other: chlorate of potash is freely supplied by the large industry to the cottage sector, and ready-made splints manufactured by small operators close to forest areas are readily bought by the mechanised producer. There are indications that this collaboration will grow; and that the two wings of an important utility industry will indulge less and less in mutual recrimination, and will progress, each in its own way, in the national interest. The 10,000 employees of the large-scale industry are among the best paid in the country and many hundreds of its shareholders of modest means look to its prosperity for a steady investment return. The cottage industry, on its part, provides work to supplement the earnings of about 50,000 rural workers, and both wings yield more than Rs. 16 crores a year to the Central exchequer.

Table I

Excise duty rebates for B, C and D categories of match manufacturing units (Category A pays the full duty).

	Stick contents 40's Rs. a. p.	60's Rs. a. p.
From 1st April, 1934:		
For all factories manufacturing not more than 100 gross boxes a day: ...	0 0 10	0 1 3
From 1st March, 1949:		
Category B: ...	0 0 6	0 0 9
Category C: ...	0 1 0	0 2 0
From 1st October, 1954:		
Category B: ...	0 1 0	0 1 6
Category C: ...	0 2 0	0 3 0
Category D: ...	0 4 0	0 6 0
From 1st March, 1955:		
Category B: ...	0 2 0	0 3 0
Category C: ...	0 4 0	0 6 0
Category D: ...	0 6 0	0 9 0
From 12th June, 1957:	**Rs. nP**	**Rs. nP**
Category B: ...	0.10	0.15
Category C: ...	0.30	0.40
Category D: ...	0.45	0.60
From 15th October, 1959:		
Category B: ...	0.12	0.18
Category C: ...	0.34	0.46
Category D: ...	0.51	0.69

Note: Definitions of categories A, B, C and D referred to above are as follows:

"A": Factories producing more than 500,000 gross boxes a year (which receive no rebate).

"B": Factories whose production does not exceed 500,000 gross boxes a year, but exceeds 100 gross boxes a day.

"C": Factories whose production does not exceed 100 gross boxes a day but exceeds 25 gross boxes a day.

"D": Factories whose production does not exceed 25 gross boxes a day.

Rebates from 1934 to 1949 were granted only for category C factories. Rebates for category B commenced in 1949, while category D was not instituted till 1954.

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PAINT INDUSTRY PREPARES FOR THE CHANGE TO THE METRIC SYSTEM

PRODUCTS BEING DIVERSIFIED TO MEET GROWING DEMAND

IN New Delhi recently, at a Press conference on the introduction of the metric system under the Standards of Weights and Measures Act, 1956, Mr. Satish Chandra, Central Deputy Minister for Commerce and Industry, suggested that 1960 will be the crucial year for the implementation of the metric reforms. Thus, as with industry generally, it will also be a crucial year for the paint industry, which has to switch over completely to the metric system by April 1961, the change having started in April 1960. The implications of the switch for the paint industry are perhaps rather more far-reaching than for most other industries, since in implementing it radical reforms will be introduced in the selling of paint. Under the present system, liquid paint is sold by volume in two ranges of containers: the imperial and the old-measure gallon ranges (the old-measure gallon is four-fifths of an imperial gallon) and it is also sold by weight. Under the metric system, the sale of liquid paint will be in the litre range—one range of containers instead of two. The additional important point of possible reform is that it is hoped State legislation will be introduced to prohibit the sale of liquid paint by weight altogether. The Central Government is sympathetically inclined to the recommendation by the industry, and has suggested to all co-ordinating officers of the Standing Metric Committee in the States and Union Territories that they advise State Governments, with whom the power rests, that a notification be issued under Section 8 of the State Weights and Measures Enforcement Act to require liquid paints to be sold by volume only "so as to prevent malpractices". The matter now rests with individual State Governments. As far back as 1953, the Paints and Allied Products Sectional Committee of the Indian Standards Institution had recommended that Government purchasing agencies buy liquid paints only by volume. It is hoped that this far-reaching reform will take place, for it will benefit all, the Government included, through increased excise revenue. It will also benefit the uninformed buyer who can be easily deceived by the apparently low liquid paint sold to him by weight. The kilogram range will then be used by the industry only for the sale of paste paints, putty, pigments, etcetera.

Many Anomalies

There is no doubt that when these changes become accepted practice, they will prove beneficial to the industry and to the purchaser. There are too many anomalies in paint selling at present which, apart from being inconvenient and expensive, cause a great deal of money to be tied up in stocks of several ranges of containers. They are also, as Authority has agreed, conducive to malpractices. The metric reform, therefore, offers an excellent opportunity for rationalisation. The industry and users are concerned with the metric approach to measurements in that a usage and selling feature of paint is its covering capacity; at present, "x" square feet a gallon is to be expressed as "x" square metres a litre—a different set of ratios. It is thus obvious that in the next few months, the paint industry will be extremely busy readjusting itself to the new system and in educating paint users to the new standards. In so far as the excise authorities are concerned, paint will be assessed according to the metric system from August this year.

Another change in the set-up of the industry, which will make 1960 a significant year, is that from 1st July the two leading associations of the industry—the Paint Federation and the Indian Paint Manufacturers Association—will be amalgamated into one new association to be known as the Indian Paint Association. This will help realise the objective of several years of negotiation between the two bodies, and is a move which has received the Government's blessing. The Government has indicated all along that it feels the need for only one representative body to negotiate with. The new Indian Paint Association will be a more representative cross-section of the industry, more so than either of the two present associations. For example, the governing body will consist of ten members, which is more than the total membership of one of the present associations. It will have regional offices in Calcutta, Bombay, Kanpur and Madras. Its registered office will be in Calcutta, the main manufacturing centre of the industry. It is gratifying that the amalgamation has taken place in time for a united approach for implementing the metric reforms. One hopes the approach will be unanimous.

Installed Capacity

Whereas the acknowledged installed capacity of the major units of the industry is not at present being fully used (the installed capacity was 71,160 tons but the estimated output in 1959 was only 55,000 tons), there is no doubt that the demand for paint will continue to expand with industrial development. A significant move over the past few years has been the expansion of many paint companies which were previously doing business in a relatively small way. Over 52 units are now registered with the Government for statistical purposes, whereas 15 years ago, the number would have been no more than 20. There are 200 smaller units of varying capacity whose figures are not included. Competition is intense, but stimulating, for the domestic and industrial markets will

By

G. H. GATES-REED

increasingly realise the great protective and decorative value of paints. Demand must expand as industrial projects are implemented. A general estimating basis is that for the protection and decoration of every additional million tons of steel and cement, 15,000 tons and 3,000 tons of paint, respectively, will be required. India is planning to produce an additional 2.5 million tons of steel and 10 million tons of cement by 1966. The paint industry will thus have to produce 67,500 additional tons of paint, which is a formidable figure.

Here, it is interesting to note that the Government recently announced that it will permit the setting up of new units, up to a total capacity of 20,000 tons, for the manufacture of paints and varnishes. A survey carried out by the Central Commerce and Industry Ministry and the Planning Commission and the estimates made by the Development Council indicated that, in view of the increasing requirements during the third plan period, there is scope for this increased capacity. It is proposed to sanction the new tonnage in northern and southern India so as to provide for easier distribution. At present, the main paint manufacturing units are concentrated in eastern India and around Bombay. The private sector is being invited to apply for permission to develop these new units.

Basic Material Requirements

Within the major producing units, considerable investment has been made not only to develop capacity for the production of standard items but also for the manufacture of the basic materials needed for the production of modern, quick-drying paints, varnishes and other specialised industrial finishes. Until the rapid expansion of the Indian industry, what small need there was for such finishes was met mainly from imports. To import such finishes, in the quantities required today, would cost the country crores of rupees annually in foreign exchange. For instance, in 1949, only about 16,000 gallons of nitrocellulose lacquers were produced in India. (In the interwar period, virtually all requirements were imported.) The present production is around 270,000 gallons, the installed capacity of the industry being around 800,000 gallons. A very wide range of "custom formulated" industrial finishes are nitrocellulose based and pigmented; it is the "finish" for the motor-car industry.

The paint industry's requirements of aluminium paste are now met almost entirely from indigenous sources. A wide range of synthetic enamels, for both industrial and domestic purposes, require a type of resin known as alkyds. In 1948, there was only one unit producing alkyds in India. Today there are six units which are now producing phenolics, malic, ureas, resins, organic solvents, plasticisers, etcetera, all of which were previously imported. However, it would be dangerous to paint too rosy a picture; supplies are not yet adequate nor are the ranges comprehensive. The industry still depends on imports to the tune of well over Rs. 1 crore in value but it is reassuring that the Government has been taking a more realistic view in framing and carrying out its import trade policy. In spite of the acute shortage of foreign exchange, it has permitted essential raw materials to be imported. There is, thus, still scope for the development of indigenous production and even for the better use of those products, mostly vegetable oils, of which India has satisfactory supplies. In his address to the All India Paint Manufacturers Conference, Mr. C. H. Choksey said: "I wonder whether it would not be possible for us to make greater use of linseed oil for paints meant for exterior and interior finish, rather than manufacture decorative emulsion finishes in which all the components except water have to be imported. Linseed-oil-based paints might have certain limitations; they cannot, for instance, be used on alkaline surfaces like limed walls. Still, I am not sure if it is quite imaginative to follow blindly the West in making synthetic substitutes for natural material when

RK Lathes

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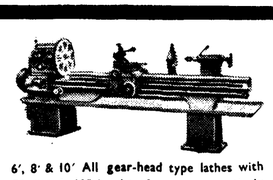

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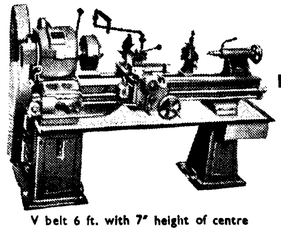

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However, it should be remembered that in the early stages of the industry's development from 1902 onwards, the types of paints being produced in India—marine and domestic finishes—were of formulations that could be manufactured mainly from these indigenous materials, such as linseed and castor oil, rosins and turpentine. In keeping with world trends and in order to give India's new industries finishes for their products equal to those supplied in any other nation, the paint industry has re-equipped itself in order to reformulate. Most of the country's industries have become major producing units only within the last two decades. In every case, a variety of finishes produced by the paint industry, many of them specially formulated, are required to protect their products, and in most cases also to give them "shelf appeal". The bicycle and fan industries are outstanding examples, both having become important producing units within the last 15 years with an export potential of increasing significance. It can be asserted that provided there is no import restriction on essential raw materials, India can produce paint as good and in as wide a range as any country in the world.

Export Markets

Although exports of paints are at present limited, active measures have been taken by the industry to develop them, and in 1959 some manufacturers broke their previous export records. As in the case of bicycles and fans, exported Indian manufactures take with them as a very visible, although to the paint industry an "invisible", export. The finishes of the paint industry help sell those manufactures abroad, since to compete in world markets against international competition, the "shelf appeal" and the durability of the paint finish is an important factor. There is no doubt that when correctly applied, Indian finishes are as good as those produced anywhere. But the former are still at a disadvantage when competing in foreign markets on the score of price, not of quality.

In his report for the year 1959, the chairman of the Paint Federation commented as follows: "The Paint Federation is very much alive to the need for members to export their products in order to earn foreign exchange. The Paint Panel of the Chemical and Allied Products Export Promotion Council has been active and their assistance has been both valuable and timely. Through the Panel's energies, we now have a simplified system of import duty drawback and also a scheme for the grant of import licences in recognition of exports made. Federation members are having considerable difficulty in realising claims for drawback of duty and obtaining import licences against exports done. However, it is only quite recently that the schemes were introduced and it is reasonable to suppose that there will be a speeding up of procedure as time passes—generally speaking, exports can only be secured at the sacrifice of profit: and so the duty drawback and import licence benefits are vital and urgently needed by way of compensation."

The Industry and the Government

The Indian Standards Institution, in consultation with the industry, continues to issue specifications for a wide range of paints and allied materials. These are playing an important part in the standardisation of sizes for the new container ranges which are being introduced for the metric system. It is encouraging that after approaches from the industry, the Institution agreed to accept a four-litre full aperture tin for liquid paints, although the nearest equivalent to the superseded gallon (imperial) in the metric range, would have been 5 litres. Five litres of paint would, however, have placed too much strain on the container. After several years of discussion and with Government interest, the Indian Paint Research Association has been formed jointly by the Indian Paint Manufacturers Association and the Paint Federation and has been registered as a company. The Indian Paint Research Association is actively considering the establishment of a research laboratory in Calcutta, and possibly another in Bombay. It seems that the setting up of more than one laboratory could dissipate effort and finances at this stage. It would not seem to be in the members' interest to allow parochialism to prevail over good sense. In this context, it is to be hoped that the over-worked and under-staffed Government Test House, Alipore, will be able to find more trained personnel, and that the Government will speed up the implementation of the suggestion it accepted from the paint industry to set up a test house in Bombay where the industry has expanded considerably in recent years. At present, testing for the industry throughout India is done in Calcutta.

Reference has already been made to the industry's endeavours to increase paint exports. Co-operation with the Government is through the Paint Panel of the Export Promotion Council. On the other hand, the industry is not happy about the Government's proposal that all manufacturers relinquish 10 percent of their production to the State Trading Corporation for channelling overseas distribution—the percentage is too high and the method must prove unwieldy. It is to be hoped that second thoughts will prevail. It is among the objects of the new Indian Paint Association to represent the interests of the paint industry as a whole in consultation with the Government—in fact, to co-operate with and help the Government to obtain the maximum value from what is undoubtedly one of India's best developed and most progressive industries, an industry which is playing a very much more significant rôle in development than is at first apparent.

I concluded my article in the June 1954 supplement to *Capital* by saying: "It is as well then that the industry has shown itself to be conscious of the important part it has to play in India's industrial development plans." I shall conclude now by saying that the attitude of, and activities within, the industry over the past six years have visibly, positively justified that statement.

THE PAINT INDUSTRY

	1958	1959
Number of units	50	53
Installed capacity	65,000 tons	71,160 tons
Actual production	48,000 tons	not given
Estimated production		55,000 tons

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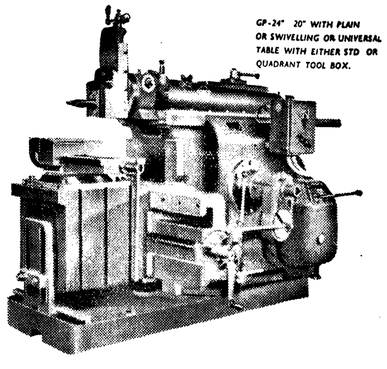

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EVEREST

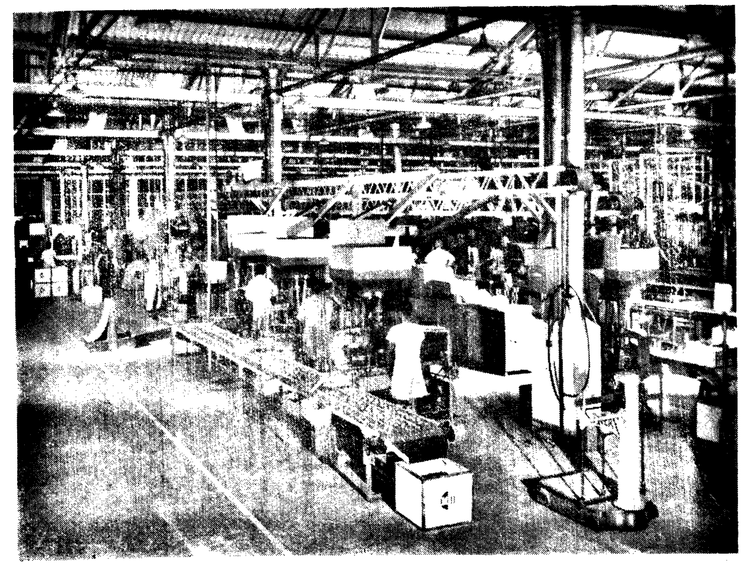
PROSPECTS FOR THE CONSUMER GOODS PACKAGING INDUSTRY

HIGH RAW MATERIAL COSTS HAMPER EXPANSION

INDUSTRIAL packaging is not new to India because most of the goods have always had to be packed in some form or other before they go from the producer to the consumer. Steel drums for heavy chemicals, gunny bags for cement and sugar, paper for all kinds of textiles, these are some of the traditional materials employed for industrial packaging. However, it is the unit package which the customer takes home from the shop, which is becoming increasingly vital to daily existence. In the mature economies of the West, packaged units comprise over 90 percent of all retail sales. Even fresh fruit, vegetables, loaves, pillow cases and bedsheets are being sold increasingly in packaged form. With the development of the economy, the consumer packaging industry in this country, too, is moving forward.

Consumer packaging makes for convenience in the handling of goods. In the distributive trades, it saves on staff and labour costs. The typical supermarkets of the United States and Britain have almost done away with counter selling. Rows and rows of gaily decorated bottles, cartons, tins and bags sell the product direct to the customer who finds it easier and safer to handle neat, handy containers rather than goods in

By
A SPECIAL CORRESPONDENT



Crown corks being manufactured for home and export markets

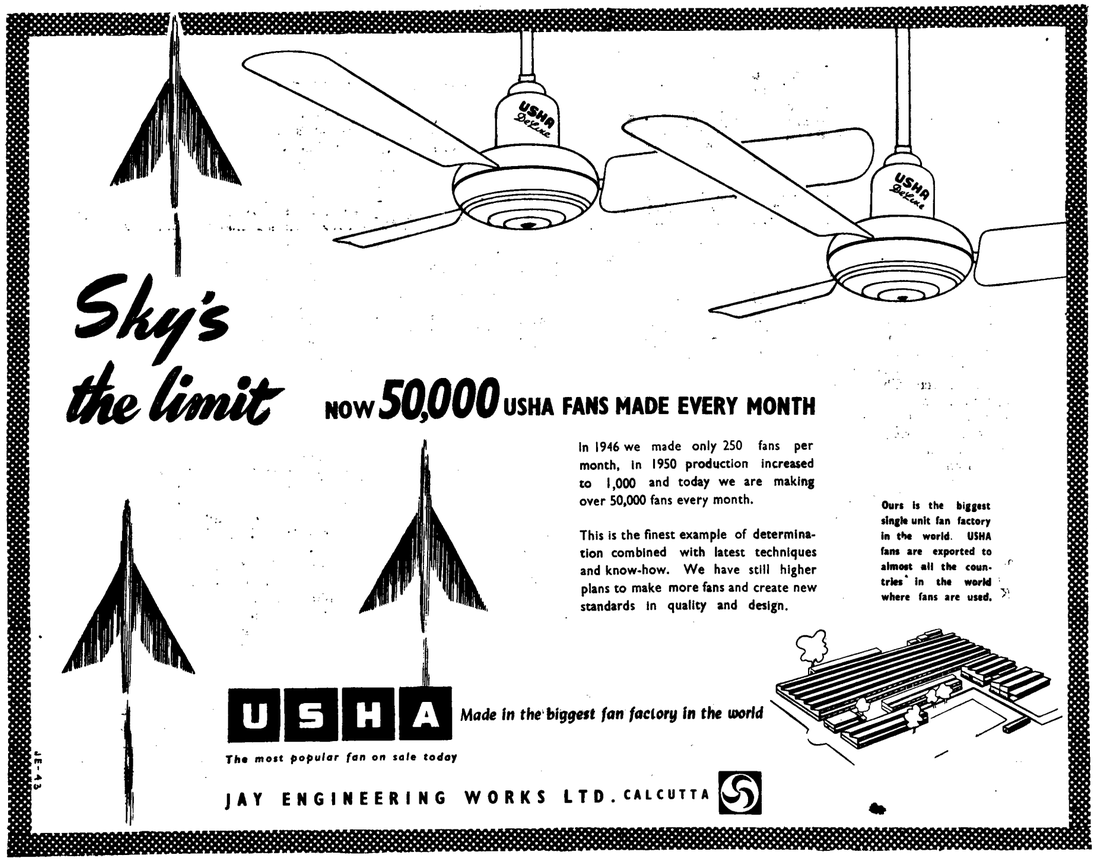
unpackaged form. Consumer packaging also helps in stock-taking. By simply reading the details of size, quality, price, quantity, grade, etcetera, on the label of the outer container, much of the time-consuming process of a physical check can be cut out.

The most widely used materials for consumer packaging are glass, tinplate and thermosetting plastic for rigid containers, and cardboard, paper, foil and thermoplastic materials for flexible containers. The combinations of various materials for a given pack calls for a high degree of technical co-ordination between the suppliers of various materials. A correct package is the successful combination of several basic factors. It must protect the contents against crushing, moisture, temperature, contamination and a host of other hazards on the trip from the manufacturer to the local retailer and then to the consumer. It must prevent any harmful inter-action between the container and its contents. It must identify the contents, *i.e.*, provide the customer instantaneously with all important information concerning the manufacturer and the product. The appearance of the package must be attractive enough to impel an initial sale. A well got-up package induces "impulse buying". Convenience in storage, handling, opening, dispensing and re-use is most important. The package, too, must be uniform in order to aid the packers in efficient filling arrangements and to strengthen customers' confidence in the genuineness of the product. Most important of all, the package must often be pilfer-proof. A properly designed tamper-proof factory-sealed container protects the consumer against adulteration and unhygienic products. This is a vital consideration in a country where adulteration is practised on a large scale and the racket in spurious goods is widespread. Milk, *ghee*, medicines, baby foods, these are some of the products for which a reputable manufacturer relies on the unit package to maintain the good name of his product and win new customers. A scientific package combines all these elements.

The end seaming of general line containers on semi-automatic double seamers

Tinplate Cans

For a combination of strength, versatility, barrier properties, convenience and physical protection, however, there is nothing to match light but strong, attractively lithographed cans or boxes made from tinplate and aluminium. Although they are more expensive than other forms of packaging, they often prove cheaper than bottles because of the elimination of labelling costs and the elaborate packaging required by the latter for outstation despatches. Metal containers take up less storage space, and attractively printed tins often have an after-use value as receptacles for household odds and ends. It is true that humidity and strong acids often attack tinplate and aluminium, produce unsightly stains and even pierce the metal surface through corrosion. However, modern printing and lacquering techniques are rapidly removing these deficiencies and the number of consumer products which cannot be packaged in either of these is steadily diminishing. The total value of tinplate containers (including four-gallon tins and crown corks) in 1958, which was a year of acute tinplate shortage, has been estimated at Rs. 25 crores, compared with Rs. 12 crores for glass and paper of all kinds together. A vital rôle of can manufacture which must not be overlooked is that it extends the market for many perishable products like fish, meat, fruits and vegetables. The open top can used for packaging processed food plays a key rôle in stabilising the prices of these agricultural products. Tinplate and aluminium are also essential for providing the right kind of closure for a wide assortment of glass containers. They are increasingly replacing the conventional glass stoppers, foil capsules, cork bungs and bakelite caps. Tinplate crown corks dominate the aerated soft drinks trade, while aluminium pilfer-proof roll seal closures are now standard for medicinal packs. Another form of aluminium containers is rigid extruded tubes. Flexible



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collapsible tubes and foil laminate pouches provide first-class barrier properties, and make possible the offer of very small sealed units. Strip packaging of individual analgesic tablets (Aspro, Saridon and Anacin), for example, either in foil or in plastic laminates has met with a great success. The cost is relatively high, but the pack sells because the unit the purchaser has to buy is so much smaller.

Since the output of tinplate containers exceeds in value the output of glass bottles and paper cartons combined, it will be interesting to review in some detail the economics of this industry. In the absence of official statistics, all figures quoted are necessarily guesswork, but they will nonetheless help illustrate some of the points made in this article. To begin with the structure of the industry, there were some 150 factories in 1958, of which about one-third were located in the cities of Calcutta and Bombay, accounting for 60 percent of the total annual tinplate consumption capacity of over 140,000 tons. The remaining factories were concentrated largely in Uttar Pradesh, Delhi, Bombay State and Kerala. They included about 50 packer-fabricators, *i.e.*, packers who manufacture their own requirements of tinplate containers. These were largely the *vanaspati* manufacturers in north India and cashewnut packers in the south, fabricating the familiar four-gallon tins for bulk marketing. Of the remaining 100 odd commercial fabricators, about 50 manufactured only four-gallon tins, catering for the *ghee*, coconut oil, *vanaspati*, mustard oil and biscuit trades. Transport costs on the made-up four-gallon tins are high because of the wagon space they occupy. Such units, therefore, tend to be concentrated at packing centres like Hathras, Khurja and Aligarh, while the consuming centres may be a considerable distance away. The open-top and general line container factories, however, have gravitated near the major sea ports since both packers and consumers are concentrated in Calcutta, Bombay and Madras.

Structure of Industry

The majority of commercial fabricators are private limited companies, and only half a dozen concerns employ capital exceeding Rs. 5 lakhs. The rest operate on a small budget, an unhealthy proportion of the fixed assets being financed by borrowing. Living as they do on a hand-to-mouth basis, with their available capital further tied up in astonishingly long-term credits to the market, the small concerns find it hard to face with equanimity the high cost of lithographic, reproduction and manufacturing equipment, or to diversify their activities. For many reasons, the consumer packaging industry is not suitable for operation on a small scale, and a misguided attempt to promote small-scale enterprises in this industry can only lead to wasteful and uneconomic production. Product design, quality control, scientific research, technical development, sales promotion, market intelligence, after-sales service, packaging advice, all these cost money. Unable to attract technical and managerial talent, the small concerns (making allowance for the inevitable exceptions) struggle along chaotically with little co-ordination in such fundamental activities as the buying and storing of raw materials, production planning, package design, cost accounting, consumer studies, advertising and marketing. Poor maintenance of equipment, haphazard factory lay-out and primitive working conditions lead to the inefficient use of capital and labour, and consequently to low productivity and poor quality. Where extremely high precision standards are required, as for example in the case of open-top cans, poor quality can be disastrous. The large-scale sector is much better placed in these matters, although it unavoidably attracts a certain amount of distrust and suspicion in official circles.

Long Delivery Periods

One of the biggest problems confronting the tinplate container industry arises from the fact that the country does not import or produce enough tinplate for its needs. Consumption in 1958 amounted to 106,000 tons, against an availability (*i.e.*, current supplies plus stock liquidation) of only 96,000 tons. Even for current supplies, inordinately long delivery periods give rise to problems. Shipments from Jamshedpur take anything up to 12 weeks from the date of the order for tinplate; shipment from abroad can take up to 12 months. The corresponding period in the U.K. is two days, and compares well with the situation in India, even after allowing for the much shorter hauls in that country. The present stringency, it is expected, will ease by 1962, when Rourkela will have gone into full production, but the need for imports will still be there. In the meantime, the individual concern must meet its excess requirements of primes from the open market or else resort to waste materials. A third course is to rely on some form of rationing to keep customers going. The last alternative may often mean declining new business, but tact on the manufacturers' part and understanding on the customers' side can make the situation easier.

Tinplate must be indented for not only in terms of tonnage, but also in terms of gauge, coating thickness, sheet size, surface quality and composition of the steel base. Since tinplate containers serve a variety of industries, the likely demand over a period from each industry must be assessed in order that the correct specification of tinplate may be available when the delivery instruction materialises. Good quality tinplate costs around Rs. 1,300 a ton and the cost of carrying something like three to four months' stock, on average, can be enormous in terms of interest on bank overdraft. Stocks of each category of tinplate must be constantly reviewed and replacement orders placed well in advance of actual requirements. Material wastage and deterioration in storage have to be carefully controlled, while tinplate turnover needs to be closely watched so that capital is not unnecessarily locked up in slow-moving inventories.

Wide Variety of Specifications

The enormous variety of specifications, not only as between different consuming industries but also as between different units in the same industry, confront container manufacturers with special problems. First, there is a considerable strain on the limited supply of tool steel for making the dies. Secondly, the load on the tool room can be extremely heavy, leading to long delays in the preparation of prototypes and the final dies. Thirdly, a multiplicity of specifications often result in loss of production and under-utilisation of capacity due to frequent line changeovers. Fourthly, a large number of dies means locking up of capital, especially where manufacturers are not in a position to recover tool costs from customers. Fifthly, a wide range of container specifications require a wide variety of tinplate specifications to be maintained in stock and often lead to the uneconomical use of raw material through the use of non-standard gauges, higher trimming waste, and so on. In the interests of economy and operating efficiency, it is essential to standardise on a range of sizes, dimensions and specifications, which provide for a happy blend of manufacturing speed for the supplier and freedom of choice for the buyer. The conversion to the metric system offers a great opportunity for carrying out this delayed rationalisation of container specifications. Whereas, for instance, the paint industry alone required over 30 different sizes of tins under the old measure, the metric system, as visualised by the Indian Standards Institution, will enable that industry to reduce the range to just 11 sizes.

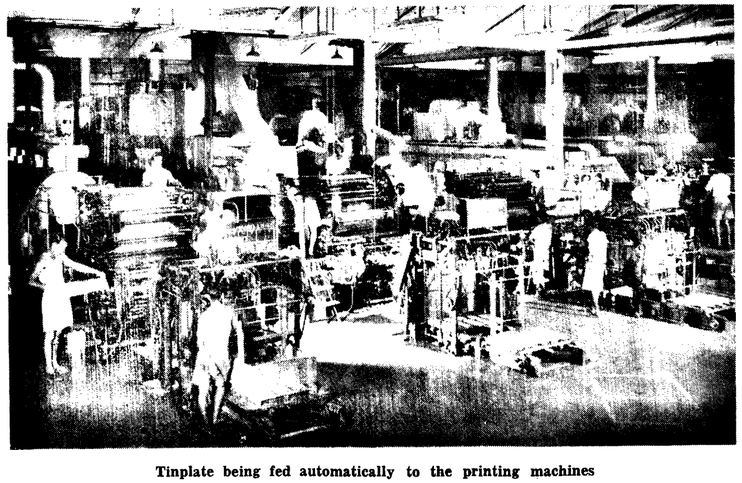
Plain tinplate quickly rusts in humid conditions and great care must be taken in storing it prior to filling. A lacquered or decorated outer surface helps to protect the metal against corrosion. Apart from this, printing of the customers' design directly on the container eliminates the need for paper labels and the extra labour and operations required for affixing labels on the container. Another aspect of container decoration is the importance of striking the right note for the product, and the consumer for whom it is intended. Here a knowledge of consumer preference is essential if the packer is to make the most of his opportunities. What is the favourite colour of the housewife who wants a tin of talcum powder? What is the special quality in a cigarette that a discriminating smoker is looking for? Will a "foreign" design confectionery pack sell well in the Indian market? Such questions as these must be satisfactorily answered before the studio can be expected to do a good job of package designing. The decision to accept or reject a design lies ultimately with the packer, but the container manufacturer must place his experience and suggestions at the customers' disposal. A well-conceived and executed design acts as a salesman, communicating to the customer in a visual medium the nature and quality of the pack. Lithographed containers, therefore, offer the widest scope for commercial art, technical skill and consumer appeal. However, cost considerations have to be carefully borne in mind. It is usually possible to secure a striking design in three or four colours at the most; multicolour half-tone designs need not entail a large number of colours in order to be effective. And where the size of the total order is relatively small, a large number of colours means frequent washing-up and changeover on the printing machines, thereby increasing costs.

Manufacturing Equipment

Equipment may be more or less specific to the product process for which it is designed, but capital, once locked up in fixed assets, cannot easily be replaced by new equipment and plant, unless market conditions have altered materially in relation both to the demand for the end-product and to the supply of the factors of production. Although the demand for tinplate containers is expanding in India, there is already substantial surplus capacity in the industry, so there is no need for further expansion. In many sectors of the industry, the indivisibility of equipment has led to under-utilisation of capacity. Even if by appropriate organisation and selling techniques, a large-scale unit finds itself well covered with orders and delivery instructions, the distribution of the workload on a number of manufacturing lines can still give rise to idle capacity in particular work centres. One solution to this problem is diagonal expansion, *i.e.*, using the same equipment and skills combined with the same or alternative raw materials to produce totally different products. In time, these "strangers" might become the normal *métier* of the container manufacturer. One leading company has been making advertising tablets, toy drums, waste-paper bins, flashlight cases, thermos flask outers, transformer cases for wireless sets, and starter cans for fluorescent tubes in India for several years now. In troubled times, this capacity for diagonal expansion turns out to be a valuable asset, as the second World War proved. As more and more varied forms of consumer packaging gain currency, the tinplate manufacturer may go in for horizontal expansion in order to keep pace with developments, and provide customers with a comprehensive packaging service. Vertical integration on any scale has so far not been found economical, although most fabricators have their own studio and photolitho departments, while the Continental Can Company and the American Can Company in the United States have successfully incorporated a coil processing unit in their plants. In France, the Etablissements J. J. Carnaud et Forges de Basse-Indre makes its own tinplate.

Stable Prices

As the price of tinplate is controlled, that of the tinplate containers is fairly stable. Improved



Tinplate being fed automatically to the printing machines

productivity has led to periodical price reductions, but the most frequent cause of fluctuations is a change in the controlled price of tinplate. Quotations are generally subject to revision since tinplate accounts, on average, for 60 percent of the finished container price, and provision must be made for periodical changes in the officially fixed tinplate rates. Over the past ten years, the controlled price, with various reductions and increases, has gone up by 100 percent. The normal estimating procedure, in common with most other industries, is to take the cost of raw materials plus a margin for profit and depreciation, and add extra for departmental and general overheads. Quite frequently, however, competition forces a manufacturer to forgo the overheads, particularly if the cost of old plant and equipment has been fully recovered through earlier depreciation charges, or if, as in the case of several packer-fabricators, the plant can be charged to the overheads of the enterprise as a whole. This gives an illusion of competitive pricing, but is not a sound practice for general application. Prices may also be held below costs in order to encourage the development of a particular type of product or to secure an export market. Open-top can sales, for example, are dependent on the fortunes of the canning industry, which in turn is dependent on the popularity of canned foods. One way to promote mass consumption of canned foods is to hold down the cost of cans to the canning industry, even if this means making a loss on this particular product.

Long run advantages, obviously, have to be weighed against short-term considerations. The Government is now rendering assistance in the way of a subsidy, but can manufacturers themselves further subsidise the cost of open-top cans. The export market is subject to severe competition from Hongong in south-east Asia and from Continental manufacturers in west Asia. Prices must be cut to the bone if the industry is to make headway in the export field. Here again, the Government assists by way of a tinplate replenishment quota at a concessional rate and drawback of excise duty and import duty on raw materials. This has helped boost exports of tinplate containers and crown corks from Rs. 1.1 lakhs in 1957 to Rs. 11.6 lakhs in 1959. The recent official decision to reduce the concessional rate of replenishment tinplate by Rs. 100 a ton is unfortunate, as it is likely to affect the export trade adversely. In any event, it is clear that the overseas market is not one where a normal return on capital can be expected.

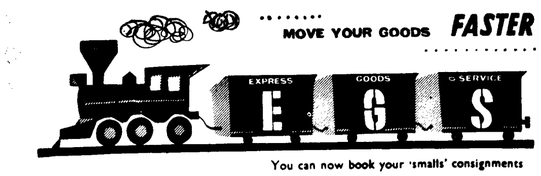
Trends and Developments

Apart from the general expansion of demand for containers, what are the main trends and developments discernible in the industry? What follows is only a sketchy preview of the new vistas which are unfolding, but they will give an idea of the shape of things to come. In the first place, an increasing use of electrolytic plate will enable the industry to cut manufacturing costs because of the thinner tin coating which may be applied to the plate. At present, all indigenous production is hot-dipped plate. Standardisation, too, will help cut costs further. Secondly, greater simplicity in surface decoration will improve shelf appeal where florid and ornate designs fail to attract the consumer. Thirdly, there will be innovations in caps and closures with a view to improving their opening, dispensing and tamper-proof characteristics. New requirements call for adaptations and innovations in construction, and technical know-how is already being brought to bear on them. Research is playing a crucial rôle in developing light-resistant inks, all-purpose lacquers, improved lining compounds, new sealing and soldering techniques. Automation, as symbolised by the batteries of electronic computers, is still several decades away as far as the Indian packaging industry is concerned, but automation in the sense of one operation feeding into another and a control apparatus to correct substandard performance is already making progress. Mass production in Henry Ford style where the aim is to make one or just a few products conforming to one particular standard has its limitations in a buyers' market where the accent is on selectivity. The new-style mass production technique, however, aiming at a greater diversity by the assembly of uniform parts into a large variety of different products has a distinct place in the industry's growth. The size of the market will be the decisive factor in determining the extent to which automation will be economical. Lastly, a new look for familiar products will vitalise the retail market. Toothpaste in aerosol cans, mayonnaise and mustard paste in collapsible tubes, liquid detergents in plastic bottles, dried peas in foil laminate pouches, ether cans for hospital operating theatres, these are just a few of the innovations which have already arrived or are on the way.

A final word of caution needs to be said. If the consumer is to derive the full benefit from the advance of technology, the price of raw materials has to be kept within bounds. The Indian people are still far away from the high mass consumption era; heavy transport costs and excise duties necessarily limit the market for consumer packaging. Fiscal levies on tinplate, aluminium, road and rail transport, etcetera, affect the consumer directly. The impact of such levies is not confined to urban consumers of toothpaste, cigarettes, brake fluid or paint. The levies affect the sick and the young, the office boy and the farmer. Drugs, health foods, *vanaspati*, kerosene oil, the hundreds of products which go into a metal container, are articles of necessity for the masses. Consumers usually assume that the goods they buy are genuine and wholesome. The practice of loose sale of *vanaspati*, for example, is not merely unhygienic. It is a standing invitation to deception in order to make a quick profit at the expense of a little moral scruple and the health of the customer. The vital rôle of sturdy, lithographed, tamper-proof containers in combating contamination, unhygienic bazaar practices, and adulteration cannot be sufficiently stressed, particularly where foodstuffs and medicines are concerned. Consumer packaging can be an effective instrument for fighting these evils, and one would expect that the Government would encourage the consumption of packaged products as a counter-measure against the racket in spurious goods. The fiscal levies, amounting to 25 percent of the current f.o.r. Tatanagar price of tinplate primes, and the excise duty of Rs. 500 a metric ton on aluminium, are harmful in this way.

Bright Prospects

The future of the container manufacturing industry, however, seems bright. New industries are springing up under the impetus of development expenditure, generating demand from new groups of consumers. Government encouragement to fisheries, dairy farming and horticulture offers many opportunities. As far as one can foresee, the only limits to the long-term growth of the industry are those imposed by the rate of increase in real national income and the availability of equipment and raw materials.



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Chairman, Railway Board

THE Indian railway system is a large and complex organisation with over 50,000 miles of track, 10,000 locomotives, 19,000 coaches and over 300,000 units of wagon stock. The capital at charge amounts to over Rs. 1,300 crores. The railways carry about 145 million tons of originating freight traffic and more than 1,400 million passengers a year. To keep such a system in operation requires large quantities of stores annually, consisting of textiles, hardware, rubber and leather goods, in addition to thousands of items of engineering stores ranging from pins to engines. The total purchases made by the railways have been increasing year by year. During 1951-52, the first year of the first plan, the purchases amounted to Rs. 97.66 crores. At the end of that plan, the value was Rs. 126 crores, while in 1958-59 it rose to Rs. 254 crores. Railway purchases, therefore, constitute a substantial percentage of the total output of industries in India.

The Indian railways have for many years now pioneered the development of indigenous industries and the manufacture of railway equipment. As a result, many an industrial concern owes its existence to orders placed by the railways, while others use a large part of their production capacity for manufacturing railway equipment. Nearly 60 percent of the total orders placed by the Government's purchase organisations are accounted for by items required for the railways. The measure of dependence of the engineering industry on the railways can be gauged from such figures. The railways have in recent years accelerated the indigenous development of their requirements by various measures, such as the creation of a Development Cell in the Railway Board's office, which renders technical advice and processes applications of approved firms for undertaking the manufacture of railway equipment, by modifying specifications in such a manner as to enable acceptance of the Indian product, by calling for tenders with emphasis on indigenous participation, and by directly fostering the indigenous manufacture of new items among firms engaged in the production of allied equipment.

Progress in Indigenous Production

In this context, it is appropriate to review broadly the indigenous production of railway equipment during the second five year plan. Although steam locomotives were being produced in the two units which had been set up, they were dependent quite substantially on foreign supplies for specialised and intricate components, as were the railway repair workshops. These included certain pressure castings, lubricators, seamless copper rings, headers, boiler tubes, thermic syphons, and medium and heavy-steel castings. The production capacity for all these items has been sufficiently developed to eliminate the necessity for import. A large number of coaches have been produced in the railway repair workshops for many years, but the manufacture of all-steel integral coaches in production units was in the early stages at the commencement of the second plan, which necessitated the import of a large number of vital components from abroad. The last few years have witnessed a rapid development of manufacturing capacity for these components to achieve complete self-sufficiency.

The wagon and coaching underframe manufacturing industry is a long established one, but the last few years have seen a 100-percent growth in the production capacity, not only with the fulfilment of expansion schemes of established units but also with new units coming into the field. When it is considered that the conventional four-wheeler wagons have been largely superseded by radically new types of bogie wagons, the progress has to be regarded as significant. There was one unit engaged in manufacturing wheels, tyres and axles for the railways, but the capacity was inadequate. The railways have, therefore, fostered the setting up of a large modern wheel plant as an adjunct to one of the new steel plants, which, with the existing plant, will have more than adequate capacity to meet all requirements.

Mechanical Signalling Equipment

The production of mechanical signalling equipment in the first year of the second plan was confined to a few units producing equipment valued at less than Rs. 70 lakhs. From this modest output, the industry has grown to large proportions, in which more than 30 firms are participating to produce equipment valued at Rs. 4 crores a year. The necessity for producing electric signalling equipment is being increasingly felt, and a great deal of attention is now being paid to developing an industry capable of meeting these requirements. A start has been made with a number of items in three workshops and encouraging results have been achieved. During the last four years, there has been a significant increase in the output of train lighting equipment. From an output of 200 dynamos and allied switchgear with a large measure of imported components, the industry is now capable of producing 1,000 dynamos and switchgear with a substantial indigenous content. This development must continue until the entire railway requirements of over 1,800 coach sets a year can be produced fully indigenously.

The structural engineering industry has long been established in the country. But considerable expansion and rationalisation has been achieved during the last few years and new processes, like welding, developed. As for track materials, there has been a substantial increase in the output of cast iron sleepers, tie bars, fish plates, dog spikes, etcetera, and the industry has expanded its production, with new firms coming

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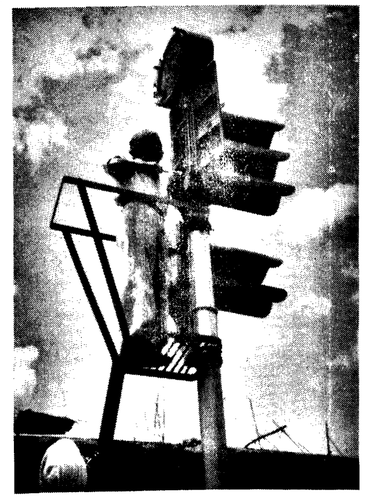
into the field in an endeavour to meet the ever-increasing requirements of the railways.

Increased Traffic during Third Plan

While such have been the achievements of the industry, both in the public and private sectors, during the second plan period, still greater efforts will be needed to meet the future requirements. The third five year plan is still in the making, but a broad perspective of the plan-frame indicates rapid economic growth. The railways may be called upon to increase their capacity to handle an estimated 235 million tons of originating goods traffic—an increase of some 70 million tons during the five years of the third plan, and an increase of 15 percent in passenger traffic. It is clear that to carry this volume of traffic, the railways will require increasing quantities of equipment. The problem is further complicated by the fact that most of the trunk routes of the railways carrying the bulk of the traffic have reached 80 percent or over of the saturation capacity with steam traction, so new ways have to be found to handle the increasing volume of traffic during the third plan.

With the limited resources available, the problem will have to be tackled with new types of equipment and new methods of operation. The anticipated growth in traffic will be handled by increasing the size of trains and running them at faster speeds rather than increasing the line capacity by laying additional track and continuing to use conventional equipment in greater numbers. In framing the final third plan for the Indian railways, considerable attention will, therefore, have to be given to new types of locomotive power, larger capacity wagons, light-weight coaches, more efficient systems of signalling and other equipment. This, in turn, will require industries engaged in the production of such equipment to retool themselves.

A broad picture of the pattern of development of the railways during the third plan can be indicated even now. First, there will be a significant increase in the mileage under electric traction, subject to the availability of electric power and resources. Secondly, the trunk routes, which cannot be electrified but have reached saturation



Electric signals being assembled and installed

with steam locomotives, will have to be turned over to diesel traction. Thirdly, many thousands of miles of track will have to be provided with improved signalling, including power signalling and C.T.C., not only for the electrified sections but also others to increase their throughput. Fourthly, effective communication between central offices and stations, in the marshalling yards and between driver and guard will have to be provided.

As for developing manufacturing capacity, it can be reasonably forecast that as far as locomotives are concerned, all the three types of motive power, namely, steam, diesel and electric, will be produced within the country. During the third plan, there will be increasing emphasis on the requirements of electric and diesel locomotives, which in its wake will generate demand for such specialised equipment as engine auxiliaries, control mechanism, final drives and collector equipment. For coaches, the capacity being developed in production units will be used in full, so that the largest number of all-steel light-weight coaches, including electric multiple unit stock and railcars, will be made available on the Indian railways. This will require new items of equipment such as air brakes, shock absorbers and roller bearings. There will, however, be a tapering down of wooden body coach construction in railway workshops.

Wagon Manufacture

As for wagons, increasing numbers of bogie types for broad, metre and narrow gauges will be required. Many of these will have to be the welded types, ensuring minimum tare weight and provided with fitments such as slack adjusters, roller bearings and centre buffer couplers. To facilitate rapid handling at transhipment points and at terminal stations, there will be increased requirements of fixed and mobile cranes. The extensive rail renewal programme as well as the construction of new lines will call for increasing quantities of rails and track material. New types of equipment for track maintenance will be required so that the track becomes more stable and withstands the impact of heavier vehicles and faster trains. Both types of signalling equipment will be required, with much greater emphasis on electric signalling equipment, including automatic signalling. There will be an increasing demand for the specialised overhead equipment which has to be installed for electrified sections.

Such, then, are the requirements of the Indian railways in the immediate future. While some will be met from the development plans of the Indian railways in public sector factories and railway workshops, the major portion will have to come from private industry. It will pay dividends if industry seriously thinks of plans for gearing itself up to meet the future requirements of the railways, since they will continue to absorb a substantial part of India's output of engineering equipment.

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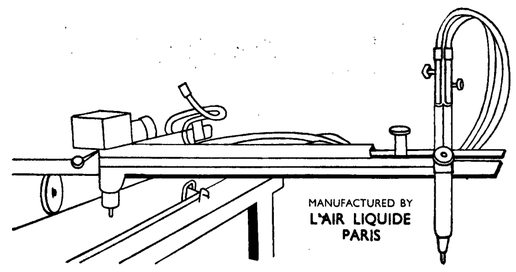

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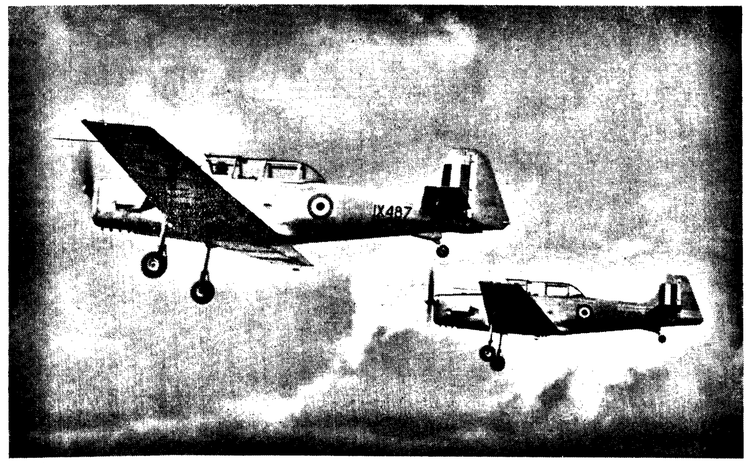
THE PROGRESS OF AIRCRAFT MANUFACTURE

GOVERNMENT FACTORY TO PRODUCE TURBOJET ENGINES

HINDUSTAN Aircraft Ltd is the pioneering aircraft manufacturing organisation in India. It has already earned international recognition as an established aircraft-producing unit. In 1953, H.A.L. manufactured the first indigenously-designed trainer aircraft in India, the *HT-2*. Last year, it designed and manufactured a light two-seater aircraft, the *Pushpak*, which is perhaps one of the lowest priced aircraft in its class, and ideal for initial training. It has lately developed another four-seater aircraft, the *Krishak*, bigger and more powerful than the *Pushpak*, mainly for use in agricultural operations. Another outstanding achievement in recent months is the development of an indigenously-designed piston-type aero-engine, the first ever to be manufactured in India. Since 1950, the factory has been manufacturing jet fighter aircraft for the Indian Air Force and has recently begun the production of the transonic light-weight jet fighter, the *Gnat*, and its power plant, the Bristol Orpheus turbojet engine. The factory has also been serving as the biggest repair and overhaul base in the East for airframes, aero-engines, allied equipment, accessories, instruments and radio.



Two HT-2 aircraft

Hindustan Aircraft Ltd was founded in 1940 in Bangalore, by the Bombay industrialist, Seth Walchand Hirachand, as a private venture for the manufacture of aircraft. Two years later, the factory was bought over completely by the Government of India. It is today a fully nationalised

By

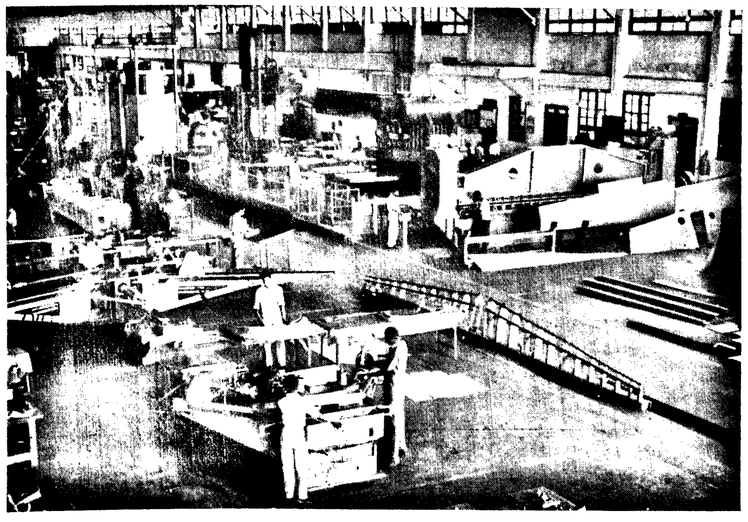
A SPECIAL CORRESPONDENT

undertaking working under the control and direction of the Central Government, with a duly-constituted board of directors. The Government of Mysore holds a few shares jointly with the Centre.

Original Programme

The original programme was to manufacture *Curtiss Hawk* fighters, *Vultee* bombers, *Harlow* trainers and allied equipment. In the first few years, H.A.L. completed the manufacture and assembly of the first *Curtiss Hawks*, *Vultee* bombers and *Harlow* trainers and also produced and designed a troop-carrying glider with ten seats. But in 1943 with the war in south-east Asia at its height, all aircraft manufacturing activity was suspended. Under the control of the U.S. Army Air Force, the factory was converted into a major maintenance base in the Far East and devoted entirely to the repair and overhaul of aircraft employed in this theatre of war. Hundreds of *Liberators*, *Flying Fortresses*, *Mitchell* bombers, *Catalinas*, and particularly *Dakotas* and their power plant, the Pratt and Whitney engines, were overhauled. At the peak period, between 300 and 400 engines were overhauled every month.

This experience stood H.A.L. in very good stead, for immediately after the war, there were plenty of potential operators who were looking for *Dakotas* which could be re-conditioned from war surplus stocks. A great many *Dakotas* had been abandoned after the war in India and it was left to H.A.L. to rehabilitate them and put them back into use. Most of these aircraft were completely overhauled and converted into passenger airliners. Every aspect of *Dakota* conversion was handled by H.A.L. including the manufacture of seats and fittings as well as the overhaul of engines, propellers, radio instruments, etcetera. These aircraft formed the nucleus of the civil air transport companies in India which came into being immediately after the war. Thus in the early days of India's independence, H.A.L. did a fine job in rehabilitating these aircraft and making them airworthy. The overhaul and conversion work has continued to be an important part of H.A.L.'s activity. *Dakotas* are overhauled and converted for many airlines in India as well as in the neighbouring countries in the Middle East and south-east Asia, and for such purposes as navigation and signals training and flying classrooms for the I.A.F.



The sheet metal department of the Hindustan Aircraft factory

Overhaul Work

The overhaul division handles a tremendous amount of overhaul work of all kinds for the Air Force as well as for civil operators. Since the end of the war, various types of civilian aircraft have been overhauled and converted by H.A.L. These included the *Dakota*, *Stinson*, *Aeronca*, *Bonanza*, *Lockheed*, *Hudson*, *Dove*, *Beechcraft*, *Tiger Moth*, *Chipmunk*, *Aero-45*, *Harlow*, *Noordyne*, *Grumman Goose* and *Fairchild Argus*; and, among engines, Pratt and Whitney R.1830-92, de Havilland Gipsy Major and Gipsy Queen, R985, Cyrrus Major and Continental. During this period, over 60 aircraft were converted for internal operators and about 20 for overseas customers. As this phase of H.A.L.'s activities grew, it was found necessary to establish a branch factory as early as 1952 in Barrackpore near Calcutta for the overhaul and repair of aircraft as well as for the sale of spare parts.

H.A.L. has in operation a scheme for the overhaul exchange of aero-engines, accessories, instruments and other components. This is presently applicable to the *Dakota* aircraft. The branch offices in Calcutta and Madras undertake all Customs clearance. For the convenience of overseas operators, overhauled engines can be despatched in advance of a receipt of repairable units. H.A.L. is approved by the American Civil Aeronautics Administration, is a Douglas-authorised service centre and is a repair and service agent for de Havilland. It is also an overseas member of the S.B.A.C.

At the end of the war, the Government of India took over the control of H.A.L. again, and decided that the factory should undertake the manufacture of aircraft in the country. With its future objective thus defined, it resumed its manufacturing activity. A beginning on the production side was made with the assembly and manufacture

of piston-engined aircraft like *Prentice Trainers* for the Indian Air Force under licence. In 1948, the factory took in hand the designing of its own trainer aircraft, designated the *HT-2*. This was the first indigenously-designed aircraft to go into production in India, or for that matter, in all of south-east Asia. The prototype first flew in 1951 and it obtained the type certificate in 1953. Soon afterwards, the *HT-2* went into quantity production. It is now the standard basic trainer for the Indian Air Force and Indian Navy, and is used by the civil aviation training establishments for basic flying training. The *HT-2* is also used by flying clubs in India.

Flights Abroad

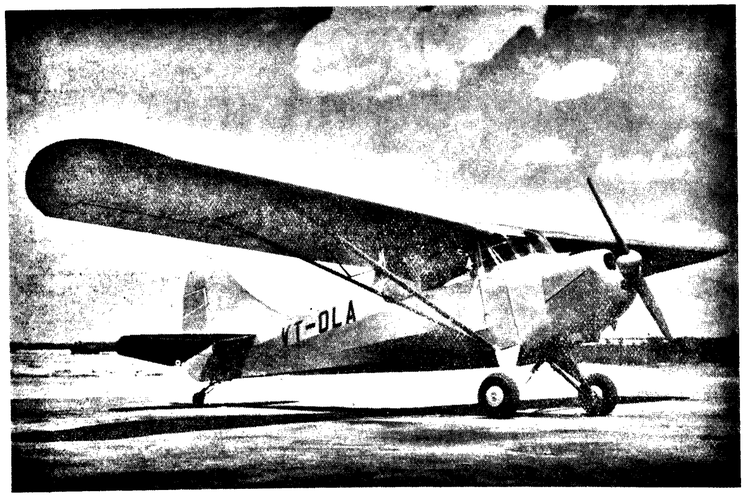
An *HT-2* aircraft went overseas for the first time in 1955-56 to participate in the Ceylon air rally. In November 1955, another from Bangalore covered Burma, Thailand, Cambodia, Singapore and Malaya on a demonstration tour, flying 4,000 miles in 54.8 hours, which included 16 hours for demonstration. An *HT-2* was sent to the Royal Singapore Flying Club in 1957 for a period of one year during which time several Asian students were trained with the assistance of an Indian instructor under the Colombo Plan for eventual airline service. It was also made available to the Royal Singapore Flying Club pilots. The *HT-2* is a two-place, low-wing monoplane of all-metal construction and is unique in its class being stressed to *10-G* for a gross weight of 2,300 lbs. It is sturdy in construction and specially suited for aerobatics.

The next stage in the development of H.A.L.'s production programme was the manufacture from 1951 of subsonic aircraft represented by the *Vampire* jet fighters and *Vampire* dual control trainers for the Indian Air Force. The production of these aircraft in substantial numbers was a big achievement. The successful performance of this project represents another advance in H.A.L.'s progress in aircraft production. Over the last seven or eight years, hundreds of *Vampire* jets have been manufactured and turned over to the Air Force.

H.A.L. has just begun its latest project, the manufacture of the transonic lightweight jet fighter, the *Gnat*. This comes as a climax to years of progressive development, beginning with the production over a decade ago of piston-engined aircraft such as the *Curtiss Hawk* and the *Harlow* in the earlier years and the *Percival Prentice* and the *HT-2* in recent years, followed by the manufacture of the subsonic aircraft like *Vampire* fighters and trainers. The *Gnat*, which has been chosen by the Indian Air Force, is being produced at H.A.L. under licence from Follands of the U.K. Most of the tools and jigs for this project have been manufactured at the factory.

Jet Engine Manufacture

Simultaneously with the beginning of the manufacture of the *Gnat*, H.A.L. is to produce the Orpheus-701 turbojet engine in collaboration with Bristol Siddeley Engines Ltd of the U.K. It is thus manufacturing turbojet engines for the first time in the history of the aviation industry in India. The new factory buildings have been completed, and production has begun. In addition, H.A.L. has also taken in hand the overhaul of *Fairchild Packet* and *Canberra* aircraft for the Indian Air Force.



The ultra-light two-seater "Pushpak" aeroplane

The closing months of 1959 saw a new contribution by the factory in the field of light aircraft manufacture. It developed and produced the *Pushpak*, an ultra-light two-seater aircraft. This project was completed within a record period of six weeks. The *Pushpak* has been awarded the type certificate by the Director-General of Civil Aviation and has gone into commercial production. It has been developed and manufactured to meet the long-felt demand in the country for such a type, and several firm orders have already been received from flying clubs and private owners. Several aircraft have already been delivered.

While the *HT-2* is suitable for training pilots to service and commercial standards, the *Pushpak* will be ideal for the amateur flier for initial training. The ultra-light aircraft seats two in a comfortable cabin and is of sturdy construction. It is a high-wing monoplane powered by a 90 h.p. Continental, four-cylinder, horizontally opposed, air-cooled engine. It can operate off small grass fields, becomes airborne at 40 miles an hour and touches down at 38 miles an hour. It cruises at about 80 miles an hour and is very simple to fly. With standard tankage, its range is 2½ hours, but it can be fitted with an extra fuel tank to give it a longer range. The aircraft is perhaps one of the lowest priced in its class, costing only Rs. 20,000, and has been designed for the flying club member who wants his flying to be as cheap as possible. It is hoped that the aircraft will commend itself to flying enthusiasts in overseas countries also.

Aircraft for Agricultural Work

For more extensive flying, H.A.L. has recently developed a four-seater aircraft which has been specially designed for use in agricultural work for crop-spraying operations. The aircraft can also be used for air observation duties and as a light ambulance aircraft.

Another outstanding development has marked the progress of Hindustan Aircraft in recent months. The first piston-type aero-engine ever produced in India was developed and manufactured at the factory in March 1959. This represented the beginning of a new phase in the development of India's aircraft industry. The absence of a suitable power plant to go into the aircraft made in India has been one of the greatest deficiencies in this industry so far, and H.A.L. decided to develop, as a beginning, a suitable engine to power light aircraft. The choice was a 90 h.p. air-cooled, horizontally opposed, four-cylinder engine, which was developed and built within a period of only four and a half months; 95 percent of the new engine parts have been manufactured indigenously. This engine is now undergoing tests. Future production models of the *Pushpak* will be powered by this indigenously-produced power plant.

Simultaneously with the launching of new projects, there has been an expansion of shop facilities at H.A.L. to cope with the new workload which the factory has taken on hand. A new machine shop equipped with the latest machines was completed and went into operation in the course of last year. Simultaneously, the sheet metal shop has also been equipped with new machines. In the carpentry section, the intricate woodwork required for aircraft is carried out. H.A.L. is probably one of the few factories in the world which manufacture their own plastic canopies as well as batteries and other items of equipment. Normally, such items are produced by sub-contractors.

Well-equipped Foundry

H.A.L. has established a well-equipped foundry with a metallurgical laboratory attached to it. It is engaged in the production of highly stressed light alloy castings required for aircraft construction. The aluminium and magnesium alloys of the required specifications and high-duty bronze required for aircraft components are also being produced here. The ferrous foundry is undertaking the manufacture of high-grade cast iron castings for Hindustan Machine Tools, Bharat Electronics Ltd. and Indian Telephone Industries Ltd. Orders for castings are also executed for commercial firms in the private sector. Another outstanding feature of this unit is the development of facilities for the forging of light alloys.

The progress of the aircraft industry in any country is dependent on several factors, such as the air-mindedness of the people, the expansion of the Air Force and civil aviation, the development of subsidiary industries, research facilities and technical personnel. It is, therefore, creditable that H.A.L., within about a decade after India attained independence, has been able to develop itself in spite of many handicaps, into a comprehensive and efficient unit manufacturing modern aircraft and aero-engines for the use of the Indian Air Force. It is the Government's intention to bring about the maximum amount of self-sufficiency in defence equipment, to which end the aircraft factory has been making an important contribution.

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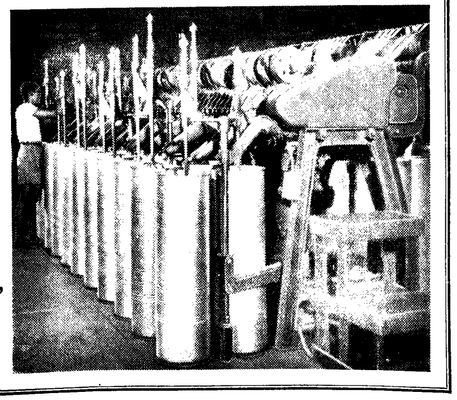

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SLUMP IN FREIGHT MARKETS HAMPERS SHIPPING EXPANSION

MORE LIBERAL ASSISTANCE REQUIRED

INDIAN shipping has been sailing through rough weather for at least three years now. The slump in world freight markets has affected the earnings of almost all companies, although there has been a slight recovery in freight rates since October last year. There is a surplus of tonnage throughout the world. An increase in international trade could reduce the excess; otherwise tonnage will have to be scrapped or the programmes for increasing output will have to be slowed down. The world's major shipbuilding countries will not perhaps resort to these measures unless the weakness of the freight markets looks like being long-term in nature. The cause for anxiety at present is that in spite of the depression in freight rates and the inadequacy of cargoes, world tonnage is steadily increasing. So there has been a scramble for cargoes, and many under-developed countries building their mercantile marine have had to face cut-throat competition.

The Indian shipping companies have been greatly affected by the rise in operational costs occurring at a time when freight earnings have been falling. These two factors have hampered rapid expansion in spite of Government assistance. In fixing the third plan shipping target, it is necessary to bear in mind the aspirations of the developing shipping industry as well as the outlook for world shipping. There has already been a strong controversy over the question. The National Shipping Board recently recommended 1.6 million tons as the target, but this was subsequently reduced to 1,422,000 tons. The Board's chairman, Mr. G. L. Mehta, has emphasised that the latter target is the minimum necessary, and it cannot be cut further without serious detriment to Indian shipping. It was reported that the Planning Commission had allocated only Rs. 55 crores for shipping. The amount, it was pointed out, would not be sufficient for even the modest target recommended by the Board, much less for a higher target the Planning Commission may choose to adopt eventually. It is clear that, in spite of the current slump in world freight markets, it is necessary to consider the third plan shipping target in a broader perspective. India's foreign trade will increase during the next quinquennium. So unless Indian shipping companies are encouraged to increase their tonnage in the next few years, the country will have to spend a large amount of foreign exchange on freights. Mr. Mehta, therefore, urged that expansion be maintained at least at the recent rate, which has been about 100,000 tons a year. Estimated to total 800,000 tons at present, Indian shipping is likely to have a tonnage of 900,000 tons by 1961. But this rate of progress is apparently not considered adequate, for the existing Indian fleet does not carry more than 15 percent of the country's foreign trade and only 50 percent of the trade with adjacent countries.

Third Plan Allocation

To persuade the Planning Commission to revise the third plan allocation for shipping, a deputation on behalf of the National Shipping Board, led by Mr. G. L. Mehta, met Mr. V. T. Krishnamachari, deputy chairman of the Planning Commission. Mr. Mehta, it is reported, pointed out that if the plan allocation is to be Rs. 55 crores, the net addition to shipping during the next quinquennium will be only 180,000 g.r.t., against the 300,000 g.r.t. scheduled under the second plan. Since the third plan is to be bigger than the second, it will be unfortunate if the pace of expansion slows down. It was, therefore, urged that the highest priority be accorded to the expansion of shipping, since at present much foreign exchange is being spent on freights. The Planning Commission assured the deputation that its views would be carefully considered. It has recently been reported that the third plan allocation for shipping has been raised from Rs. 55 crores to Rs. 80 crores. Besides, Rs. 8.70 crores in the form of loans is expected to be offered to the Shipping Development Fund by the Central Government during the current financial year. The Fund was created in March 1959 to provide a permanent source of rupee finance to Indian shipping companies and thus enable them to acquire additional tonnage. It received Rs. 6 crores of loans from the Government during the last two years, so, including this year's allocation, the Fund will be raised to about Rs. 15 crores.

The Shipping Development Fund Committee, which operates the Fund, has already sanctioned loans amounting to about Rs. 2 crores to public and private sector companies. During 1959-60, 25 ships with a total tonnage of 122,633 g.r.t. were acquired, which means that in a single year almost the same tonnage was obtained as was sailing under the Indian flag when the country attained independence in 1947. (The Indian tonnage was about 125,000 g.r.t. at that time). As seven ships with a total tonnage of 20,929 g.r.t. were sold or scrapped in 1959-60, the net addition to the Indian tonnage last year amounted to 101,704 g.r.t. Out of this, the private sector acquired 52,760 tons and the public sector 48,944 tons. The second plan target of 900,000 tons is likely to be achieved by the acquisition of additional tonnage during the current year. Ten ships with a total tonnage of 72,914 are reported to be under construction, four of these (with a third of the total tonnage) in India. It is, therefore, thought that the second plan target may perhaps be exceeded by a few thousand tons. In 1958, Indian ships carried about 2.3 million tons of cargo—1.7 million tons in the overseas trade and the remainder in the adjacent areas. Even so, Indian ships still now carry only 15 percent of the country's foreign trade. A committee,

By
A SPECIAL CORRESPONDENT

known as the Shipping Co-ordination Committee, has been constituted to ensure better liaison between different Ministries on the one hand and the shipping interests on the other.

Second Shipyard Project

In view of the slump in the world freight markets and foreign exchange difficulties, a controversy arose about postponing the second shipyard project. Kerala interests did not welcome the proposal, especially because of the British shipyard mission's strong recommendation that the project should be located in Cochin. The Central Minister for Transport and Communications, Dr. P. Subbaroyan, said in the Lok Sabha in March this year that steps are being taken to acquire the land required and that part provision has already been made in the Central Budget for this purpose. The soil condition of the site has been examined, and no further investigation on the suitability of locating the shipyard in Cochin is necessary because of the detailed examination of the relevant issues by the British shipyard mission. The Minister assured M.P.s from Kerala that the decision to locate the second shipyard in Cochin "is final and there is no going back on it". He added that the Government is anxious to establish it at the earliest possible date. The project has been included in the Ministry's proposals for the third plan, and is being considered by the Planning Commission. But before its execution can be undertaken, it is necessary to prepare a detailed project report, taking into account the available resources, both external and internal.

It is often said that the cost of shipbuilding in India is higher than in the U.K., West Germany and Japan. One source estimates that it is about the same as in France and Italy, but much less than in the U.S.A. Costs in India should decline as the industry achieves self-sufficiency in components. They are high, it is said, because freight, insurance and handling charges on imported equipment are heavy. Besides, construction costs at the Visakhapatnam shipyard are high also because of the large overheads. The latter, it is hoped, will be substantially reduced as output is increased to achieve the economies of large-scale production. In many foreign countries, ancillary industries have been developed to cater to the needs of shipyards. The manufacture and installation of machinery, foundry work, painting, furnishing, etcetera, is carried out by ancillary industries. The establishment of a second shipyard in Cochin and the gradual increase in output may create favourable conditions for the diversification of ancillary supplies during the third plan period.

Self-sufficiency in shipbuilding has two important aspects. First, it will be necessary to develop the capacity to meet the entire demand for ships in the country. Secondly, steps have to be taken to remove the dependence on imported machinery and equipment. To achieve self-sufficiency in the latter will not be an easy task, since the industry is still young and most of the materials and equipment have to be obtained from abroad. It will, therefore, be unpractical to take up self-sufficiency as an absolute target for the near future. Besides, the rapidly advancing techniques will make it impossible to achieve self-sufficiency, for the ships of today may become obsolete tomorrow, especially if atomic power is used for the propulsion of ships. Nor will it be wise to plan for self-sufficiency in all types of vessels. Many countries possessing a developed shipbuilding industry do not have the capacity to produce such craft as dredgers. Before producing these, it is necessary to consider whether there will be an adequate demand.

Imported Equipment

The Government is trying to reduce India's dependence on imported equipment. At present, except for a few items of stores, most of the items required for the construction of a ship have to be imported. Steel is the principal raw material, and its supply will increase. Special quality steel in a variety of sizes is required, and it is expected that much of it will come from indigenous sources from about the middle of the third plan. As for timber, experiments have been made with Indian substitutes, and they are likely to replace imported timber in the foreseeable future. But progress in self-sufficiency can be achieved only if marine engines and the various items of deck and engine-room auxiliaries are manufactured in India. The Government, it is reported, has accepted a proposal for the manufacture of marine diesel engines in principle. But the basic difficulty in establishing a factory of this type will be the limited demand from the shipbuilding industry. The establishment of the second shipyard may solve the problem to some extent, but if limited demand remains the major handicap, it will be necessary to examine whether it is possible to manufacture small diesel engines for general industrial purposes also.

In spite of the current slump in the freight markets, the Government can do much to help the shipping industry acquire additional tonnage. Most of the bulk cargo on the coast consists of salt and coal. There is keen competition between the railways and the shipping companies for getting a larger share of the coastal cargoes. The railways subsidise the carriage of coal through the profit they earn on transporting other commodities. The Rail-Sea Co-ordination Committee recommended that the Government should compel the railways to let the shipping companies carry 1.6 million tons more coal than at present. It is said that this will help raise the total coal cargo to about 2 million tons. The shift of this cargo from the railways to the shipping companies will not mean any significant loss to the former, while the latter will gain immensely. Shipowners

INDIAN SHIPPING TONNAGE DURING THE FIRST AND THE SECOND PLAN

	Before the first plan	By 1955-56	By 1960-61
Coastal and adjacent	217,202	312,202	412,200
Overseas	173,505	283,505	405,507
Tramps	Nil	Nil	60,000
Tankers	Nil	5,000	23,000
Salvage tugs	Nil	Nil	1,000
	390,707	600,707	901,707

Source is *Programmes of Industrial Development*

will be encouraged to acquire additional tonnage, and the railways will be able to use their wagon capacity for transporting more profitable commodities. But the Central Railway Ministry has not accepted the recommendation. On the contrary, it has endeavoured to divert part of the coastal coal cargoes to the railways because of the spare wagon capacity on certain sections.

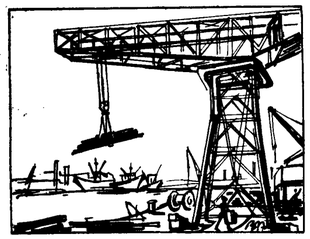
Tanker Trade

Apart from reconsidering the coastal shipping policy, another way in which the Government can help the indigenous shipping industry is to let it acquire oil tankers. The National Shipping Board has recommended reserving the tanker trade for the shipping corporations in the public sector. The restrictive policy deters the expansion of the private companies. There will be a substantial increase in the coastal traffic in oil products when the Gauhati and Barauni oil refineries start production. Meanwhile, the Government has estimated that even for transporting 1.5 million tons of oil products on the coast, the country will require about 12 tankers aggregating about 120,000 to 144,000 d.w.t. Since the two oil refineries in the public sector will go into production in 1962, it may be necessary to acquire more tankers in the earlier part of the third plan. It is said that the Government should also allow more freedom to tramp operators. Recently, there have been indications that it has appreciated the difficulties of tramp shipping; permissions and licences required for time charters have been freely granted.

The expansion of the Indian shipping industry, it seems, will depend mainly on Government policy, especially in such spheres as tramp, tanker and coastal shipping. The increase in the third plan allocation for shipping from Rs. 55 crores to Rs. 80 crores may not help much unless favourable conditions are created for the acquisition of additional tonnage. So a rethinking of policy is required in order to decide the directions in which shipping should develop in the next quinquennium. Both tramp shipping and the tanker trade offer excellent opportunities for expansion. The Government should consider whether it is possible to liberalise the fiscal and statutory obligations.

Foreign Exchange Shortage

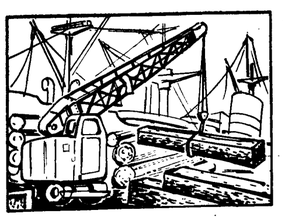
The Indian shipping industry has already suffered much from the foreign exchange shortage. The Government's policy is to grant 20 percent of the purchase price of a vessel, while the remainder is given on a deferred payment basis. But in seeking credit from foreign shipowners for acquiring a vessel, the Indian shipping companies lose much of their bargaining power. It is understandable that the difficulty is due to the acute foreign exchange shortage, at any rate during the last few years of the second plan. But since a vessel can earn or save foreign exchange as soon as it is acquired, many consider it prudent to make a liberal foreign exchange allocation for the acquisition of additional tonnage.



Planning TOWARDS
A BETTER PORT

As the life-line of Eastern India's trade and commerce, the Calcutta Port faces recurring problems every year. The emphasis on industrial progress in the Second Five-Year Plan period has considerably changed the type of cargo to be handled. Steel and mechanical equipment, heavy machinery and huge plant form a considerable bulk of the import. On the export front it is coal or ore.

To-day's well-equipped Port needs be made into a better Port to-morrow. But this is possible not by more equipments alone. The Calcutta Port needs most the whole-hearted co-operaton from all fronts,—from those who use and also from those who serve it.



MEN & MACHINES MAKE
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CALCUTTA
PORT COMMISSIONERS

Issued by the Commissioners for the Port of Calcutta

SHIP REPAIRING FACILITIES IN CALCUTTA

INSUFFICIENT SUPPLY OF MATERIALS, SPARES AND STORES RESTRICTS ACTIVITY

By
A SPECIAL CORRESPONDENT

IN 1958, a Ship Repairs Committee was set up by the Central Ministry of Transport and Communications to enquire into the question of improving the ship repair facilities in Indian ports. In reviewing the recent trends in ship repairs in Calcutta and the future outlook for this industry, it is necessary to fall back on the salient points of that report, which covers almost all the aspects.

The repairing firms in Calcutta are, in the main, dependent on the facilities provided by the Port Commissioners. All the dry docks, five in number, capable of accommodating deep sea vessels, are under their control, and the booking of dry docks is done by shipping agents. The main deficiencies are cranage and electric power. These are definite handicaps as only the larger vessels have derricks sufficiently long to lift heavy items direct from the vessel to the dock side; generally all lifts, not exceeding three tons, are lifted by the derrick, lowered to the dock bottom, and then lifted by the dock crane. Lifts over 10 tons are usually handled by floating cranes which, in some cases, can be quite a difficult procedure. Two items in particular are worthy of mention:

(1) If a new propeller has to be fitted, it is necessary to engage a floating crane to lift it from the hold and place it in a suitable barge. The barge is then taken to the dry dock and a second crane is engaged to lift the propeller and place it in the dry dock bottom. The reverse procedure has to be adopted in dealing with the damaged propeller.

(2) Should it be necessary to repair a propeller shaft, the vessel is dry-docked, the shaft is drawn into the after hold, the stern tube is blanked to allow the vessel to undock and a floating crane is engaged to lift the shaft out. The vessel remains afloat until the repairs to the shaft are completed, and the shaft is put back on board.

Electricity Shortage

In view of the shortage of electric power, the repairing firms generally have to provide portable lighting and welding sets in the dry docks. There are no repair berths as such in Calcutta, although three lay-up berths are available. In addition to the portable equipment, the firms have to supply air compressors and arrange fire-fighting appliances. An additional handicap at these berths is that if vessels are double-banked, longer supply lines have to be arranged for the outer vessel, and all heavy materials have to be transported by barge to the nearest lifting point. Repairs carried out at the buoys necessitate the use of barges for all the above equipment and materials. The firms are used to these handicaps, and being skilled in improvisation, little time is lost.

The import restrictions on materials, spares and stores for ships' use are keenly felt by the industry. Considerable income is lost because many of the items are not available, or the prices of the goods in short supply are exorbitant. It will be a long time before India can produce in sufficient quantity the numerous items which should be stocked for repair work, and the relaxation of these restrictions should be taken up at the highest level. Relaxation of the cumbersome Customs procedure is necessary to cut delays to a minimum. It has been suggested that a new set of rules, especially catering for the industry, should be formulated. If consideration is given to all these points, more repair work can be attracted to the port. The three major firms engaged in the industry are the Garden Reach Workshops, recently taken over by the Government, the Hooghly Docking and Engineering Company and the Shalimar Works. In general, the allocation of repairs to vessels is made from association with the lines, or from shipping interests, and in view of this, there is less competition than could be expected. Good relations are maintained, and the firms help each other when the need arises. Leaving out exceptional circumstances, there is a mutual agreement that only one firm will work on a vessel. The next in order is Ship Repairers (Private) Ltd, with a new workshop established in 1956. This firm is a subsidiary of the Bharat Line and confines its activities to repairs for that Company. Its scope is limited, and where repairs are major, one of the above firms is asked to undertake them. Ching Wah and Company, India Marine Service (Private) Ltd, and Calcutta Docking and Engineering Company follow in that order. On account of low overheads, they derive a steady income by supplying labour and executing small repairs for the deck and the engine room. Their scope is also limited and when heavy repairs have to be undertaken, one of the major firms is called in. Some foreign and Indian lines employ other contractors to assist engine room staff or for carpentry work.

Working Agreement

In recent years, it has been the practice of shipping agents or lines to employ their own contractors for chipping, scaling and painting of hulls and tanks, and for boiler cleaning, etcetera. Paints are either from ships' stores or supplied by stockists. When major repairs are being undertaken, a working agreement is reached between the repair firms and these contractors. Radar, radio and echo sounding equipment are serviced and supervised by Marconi and R. W. Stevens. The firm of Metalock has an agency in Calcutta and full use is made of its services where repairs of a temporary nature have to be carried out. Gladstone Lyall and Company has the agency for Malthoid and also undertakes the laying of linoleum and insulation work. The Garden Reach Workshops undertake the servicing of cargo gear and refrigeration plants.

Due to the recession in 1958 and 1959, activity in ship repairing has been reduced as owners have had to economise wherever possible. Consequently, the earnings in Calcutta have dropped. The position has deteriorated with the improvement in the basic design of new vessels coming into service, and the preventive measures being adopted to arrest corrosion. These improvements include:

(a) cathodic and other protections to hulls and tanks reducing corrosion to a minimum;

(b) use of non-corrosive materials on superstructures;

(c) patent hatches and hatch covers, eliminating running repairs to pine hatch boards, etcetera;

(d) deck compositions in place of wood sheathing, eliminating periodical lifting of sheathing for maintenance and renewal of deck plating; previously steel repairs could be expected after eight years of service;

(e) electrically-operated windlasses and winches giving easy accessibility to hatch coamings for regular maintenance, thereby eliminating the necessity of removing deck steam pipes for testing and repairs at each special survey and repairs to hatch coamings, normally expected after 12 years' service;

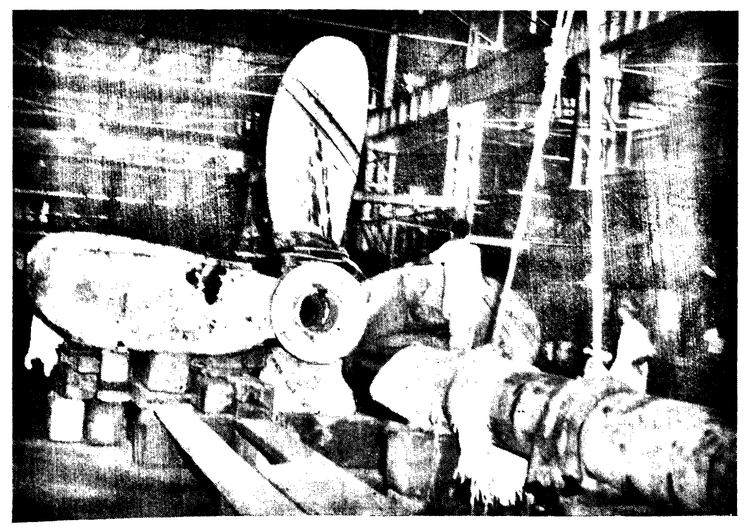
(f) the fitting of aluminium or fibre glass lifeboats, eliminating recurring repairs to wood or galvanised iron hulls. This improvement may extend to the fitting of life rafts with one motor lifeboat to tow the rafts clear should the vessel have to be abandoned;

(g) the manufacture of cargo gear in mild steel, obviating the necessity of annual annealing and testing.

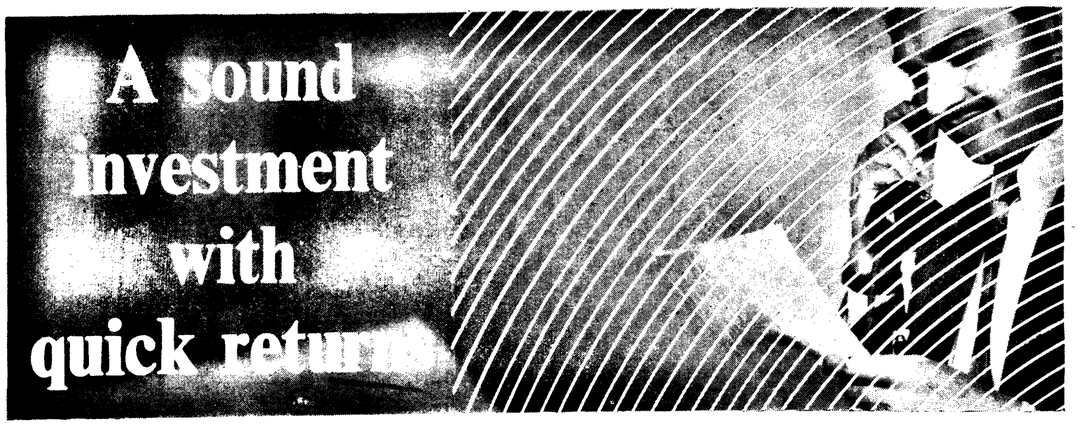
Repair costs will also drop on the engineering side due to the improved design of main engines, mostly diesel, and of diesel and electric driven auxiliaries. Maintenance can be carried out by the ship's staff with the assistance of a few shore fitters and replacements of parts are generally from makers' spares, any items for reconditioning being sent to the makers. Most vessels are now on the continuous survey of machinery schedule. This means that all units have to be opened up within four years. This can be done anywhere, provided a surveyor is available, when conditions are suitable. Previously, this work was carried out, concurrently with the deck special survey every four years, but it can now be phased so that little remains to be done during the special survey. If this policy is carried out, the repairers entrusted with the special survey can expect only a small income from the engine side.

Conditions in Calcutta Port

Due to conditions in the port, a fair share of continuous survey work is lost to the repairers as little time is allowed for immobilisation. During a vessel's stay in the port, an average of three movements can be expected as discharging and



A spare tail shaft being fitted to the propeller in a workshop



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loading seldom take place at the same berth. The vessel has to move from berth to buoys, dock to dock, or dock to river moorings, and in almost all cases, the use of main engines is stipulated by the Port Commissioners. The position is worse for vessels lying at the river moorings or jetties when full power is required during the bore periods, in most cases lasting for six days.

As a result of these factors, earnings from machinery repairs have considerably dropped. This was offset to some extent by earnings from machinery and boiler repairs on second-hand tonnage bought by Indian owners during the recession. Several of these vessels were Calcutta-based, and plying on the coastal trade. The repairs, of an emergency nature, were carried out here. Doubtless, the vessels were bought at that time to meet immediate requirements, but will be dispensed with when new tonnage becomes available. Another fall in earnings in recent years took place when the new dry dock in Karachi was opened. Prior to that, Pakistani vessels drydocked in Calcutta. Because of their age and condition, a steady income was derived from underwater repairs. These vessels occasionally use the dry docks here, if they cannot be accommodated in Karachi, but repairs are not extensive. A recent development is the establishment of a M.A.N. service agency at the Garden Reach Workshops. Permission was obtained to bring out spares under bond and this has been a definite boon to the new Indian tonnage powered by M.A.N. machinery. The repairers are benefiting as labour is supplied for opening up and refitting and, where facilities exist, for repairing certain units. A schedule of the precision machinery required to augment this service has been drawn up, and when the programme is finalised, a steady income should result.

The prospects for the industry are governed by the problems facing it. Apart from the manufacture of very heavy castings and forgings, the three major repairing firms were adequately equipped to deal with any repairs they were called on to undertake before the new postwar tonnage arrived. New machinery has been imported since then, but because of the inadequate facilities in the port, the firms have been unwilling to embark on any large-scale plans of modernisation, on a basis similar to that which took place in Hongkong after the war. Recommendations have been made for the improvement of these facilities and in certain cases, action has been taken by the Port Commissioners. A problem of greater magnitude is the condition of the Hooghly river. Articles have appeared recently on the silting up of the river; in one of these, it was stated that the port would be closed to shipping in two years' time, unless drastic steps were taken immediately. The Port Commissioners are alive to the danger and are concentrating on the affected areas. This, however, is merely a temporary palliative, as the silt moved from these areas is deposited elsewhere, and being in loose condition, is carried up with the flood tides.

Tidal Bores

An interesting little publication, *The Tide Tables for the Hooghly River*, states that bores sometimes occur in the river in the portion between Hooghly Point and Calcutta, and that knowledge has not sufficiently advanced to predict the occurrence of bores exactly, but from general consideration certain days on which bores may occur have been indicated on the Garden Reach tables by means of a bold thick line. A comparison has been made from the tables for 1955 and 1960, and the predictions are appended:

	1955	Number of Days	1960	Number of Days
January	6+5	= 11	3+8+6=	15
February	6+6	= 12	2+8+6=	16
March	7+6	= 13	2+8+8=	18
April	7+6	= 13	7+7	= 14
May	4+7	= 11	8+7	= 15
June	3+6	= 9	8+6	= 14
July	4+7	= 11	8+7	= 15
August	8+8	= 16	9+9	= 18
September	8+8+1=	17	9+9	= 18
October	7+7+2=	16	9+9+1	= 19
November	5+6+3=	14	8+9	= 17
December	4+4+5=	13	7+8	= 15
	Total	156	Total	194

It will be seen that the incidence of bores has increased considerably, and that 194 working days for machinery repairs on vessels lying in the river will be lost to the repairers in 1960. It also appears from the tide tables at Garden Reach that the level of silt has risen by two feet since 1955. This has led to draft restrictions in the port, necessitating partial discharge at Visakhapatnam, or at the new anchorage at Haldia, in either case shortening the stay of vessels in Calcutta and cutting down the repair period.

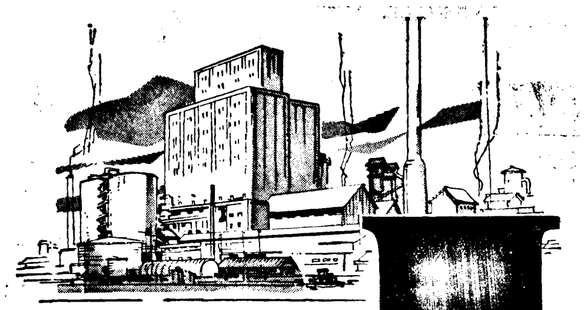
Silting of the Hooghly

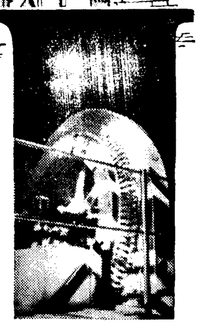
The dam and irrigation authorities maintain that their projects are not responsible for accentuating the silting of the Hooghly river, the contention being that the regulated discharge from the dams also regulates the volume of water flowing down the lower reaches and that an important balancing factor is that this flow is comparatively silt-free and should cause no deterioration in the lower reaches. Since deterioration *has* occurred, it is obvious that it has been caused by the regulated or, to be more precise, restricted flow of the head water. The natural process has been reversed and silt is being carried up and deposited as far as the river is tidal. To dredge a river of this length, even if the dredged materials could be deposited elsewhere, would be a tremendous undertaking. If the port is to be saved, the volume of the flow must be restored. The battle may well be lost now, and in some minds it has been, as an auxiliary port at the mouth of the river, or at Haldia, has been suggested.

How such a port would be worked is a matter of conjecture, but since it is described as an auxiliary port, obviously the intention would be to keep the port of Calcutta, with its present and suggested improved facilities, open to vessels, but at restricted drafts. This would mean in some cases partial discharging at the auxiliary port, final discharging at Calcutta, partial loading there and final loading at the auxiliary port, or in some cases, all handling might be done at the auxiliary port. From the shipowners' point of view, the latter would be more desirable as it would avoid payment of extra dues. From the repairing side, this would mean loss of earnings as no foreign owner would consider bringing a vessel free of cargo up to the port of Calcutta for repairs unless these were of an emergency nature. The partial loading and discharging at both ports would cut down the time in Calcutta, and repairs would be restricted. It has been recommended that the Hindustan Shipyard in Visakhapatnam should extend its activities to cover ship repairs. Since some vessels partially discharge at this port, a considerable volume of work would be lost to Calcutta if this recommendation is adopted.

Life of Calcutta Port

The writer does not agree with the alarming statement made recently that the port will be closed to shipping in two years' time, but considers that at least five years will elapse before a clear picture is obtained. If the former condition of the Hooghly can be restored, and the facilities of the port improved in the interim, steps





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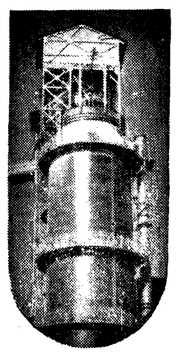

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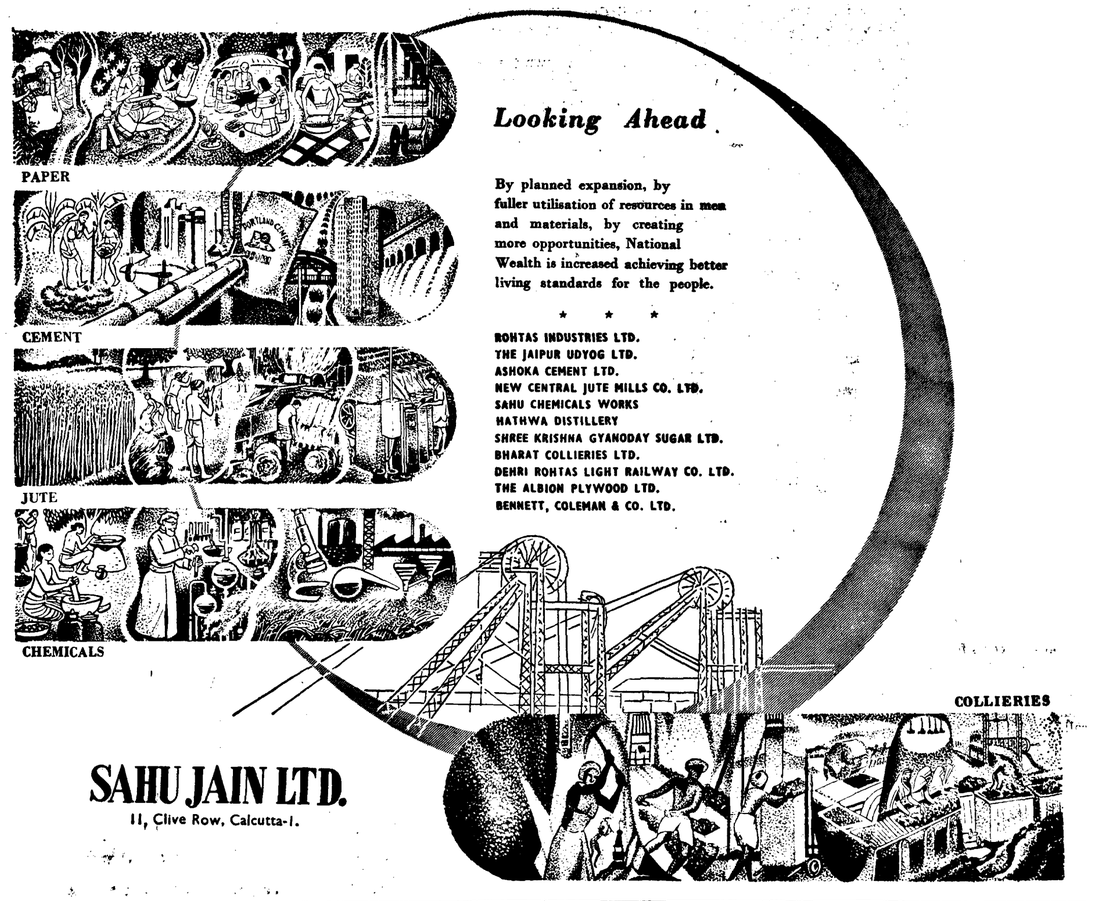

Looking Ahead

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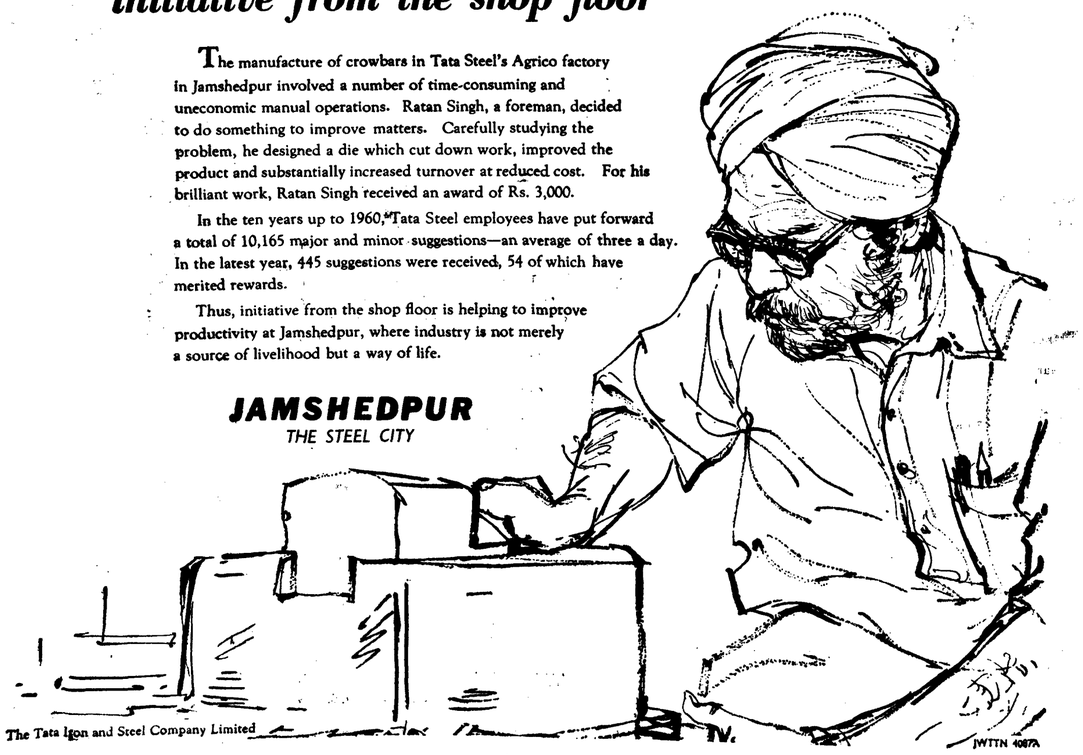
initiative from the shop floor

The manufacture of crowbars in Tata Steel's Agrico factory in Jamshedpur involved a number of time-consuming and uneconomic manual operations. Ratan Singh, a foreman, decided to do something to improve matters. Carefully studying the problem, he designed a die which cut down work, improved the product and substantially increased turnover at reduced cost. For his brilliant work, Ratan Singh received an award of Rs. 3,000.

In the ten years up to 1960, Tata Steel employees have put forward a total of 10,165 major and minor suggestions—an average of three a day. In the latest year, 445 suggestions were received, 54 of which have merited rewards.

Thus, initiative from the shop floor is helping to improve productivity at Jamshedpur, where industry is not merely a source of livelihood but a way of life.



JAMSHEDPUR
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The Tata Iron and Steel Company Limited

JWTTN 1087A

The bottom plating of a vessel being realigned in a dry dock

can be taken to modernise the workshops and enable them to compete in the international field. If deterioration can be arrested, and a subsidiary port has to be constructed at Haldia or nearer the mouth of the river, consideration will have to be given to the establishment of repair facilities at that port. It is doubtful if any of the major firms will embark on this without financial assistance, since it would mean the transfer of plant, stores, staff and skilled labour.

The prospects for the next few years are, therefore, far from encouraging and since foreign shipping cannot be attracted to the port for major repairs, it will devolve on the Indian shipowners to keep the repairing firms in employment. The major firms maintain establishments to deal with any class of work which may be offered, but cannot exist on a share of voyage repairs and annual dockings only. A considerable number of special surveys of Indian tonnage have been carried out at foreign ports. Although a representation was made, resulting in approval having to be obtained from the Director-General of Shipping before such repairs can be carried out, the owners would like this restriction lifted. Three of the reasons they have advanced are: (a) facilities were not readily available in India; (b) surveys were usually completed abroad in half the time taken in Indian ports, and (c) the easier supply of spares and materials.

These are rather surprising statements and if reference is made to the Ship Repairs Committee's report, it will be seen that in three years, two foreign companies carried out repairs at Indian ports at a cost of Rs. 5 crores approximately. A considerable amount of this outlay can be attributed to the special survey work carried out at Calcutta and Bombay. These long-established owners are not philanthropists and would not have placed vessels for special survey here if they had doubts about the availability of spares and materials, or there was such a discrepancy in time.

Repairs for Indian Vessels

For Indian vessels, the spares position should not be a problem when bond facilities exist. On the materials side, the biggest headache has been the supply of steel. The position will ease when the steel plants are in full operation and consideration is given to the needs of the ship repair industry. In the meantime, a relaxation of the import restrictions is called for. About 30 percent of Indian-owned vessels are less than five years old, and major repair work cannot be expected from these for a number of years. A fair income could be obtained from the remainder and the decision now rests with the owners. If special surveys are not allocated to the port, then the structure of the major repair firms will change. Due to the falling off in deep sea repairs, two of the firms have embarked on the construction of small craft, and the manufacture of machinery and boilers for inland vessels. Other ship-repairing trades have been deployed on steel structural and general engineering works. There is a vast market in the latter field, and in the near future, a decision will be made whether to tool for this market or continue to service deep sea vessels.

A problem within the industry having a direct bearing on this is the ever increasing allocation of work to the minor firms. From the owners' point of view, these firms can supply labour and execute certain classes of repairs, requiring little or no supervision, at a much cheaper rate than the major firms which have to maintain establishments to deal with any class of repairs that may arise, and accordingly, have heavier overhead. It is common practice for some owners to have two or three of these firms jobbing on one vessel and then to call in a major firm for heavy repairs or to attend bottom surveys in a dry dock. This situation, which has been allowed to develop, will not be tolerated elsewhere; that it does exist is due to the falling off in the earnings of the major firms in recent years.

The Problem of Allocation

A simple solution would be for the owners to allocate all the repairs on a vessel due to dry docks, or where heavy repairs are visualised, to one of the major firms and allocate voyage repairs on vessels not coming under these categories to the minor firms. Workloads could then be planned accordingly. If agreement is not reached in this matter and assurances cannot be given about the special survey work, it will be uneconomical for the major firms to continue in the industry and the owners responsible for this state of affairs will be the losers. Some foreign owners prefer to dry-dock their vessels here on account of the quick and efficient services rendered by the firms employed on chipping, scaling and painting. It is understood that in Bombay, such firms have now to draw their requirements from a common pool of labour. Reports have been received that this system is proving unsatisfactory as discipline cannot be maintained and the standard of work has fallen off as a result. It is sincerely hoped that a similar system is not adopted here as a lowering of the standard of this type of work may force these owners to dry-dock their vessels elsewhere. There would, therefore, be a corresponding loss in repair work, and it is for the authorities concerned to consider whether this loss to skilled labour is offset by the benefits that may accrue to a small body of semi-skilled workmen.

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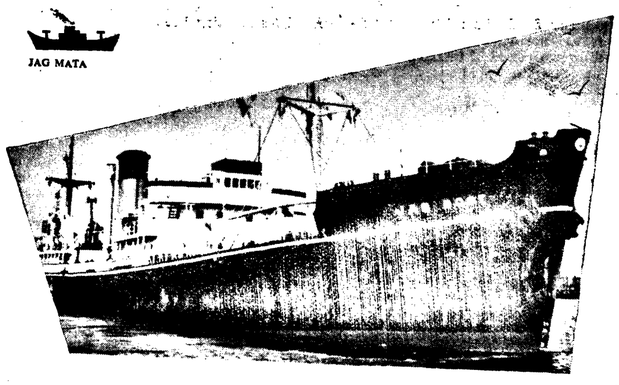

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Shortage of Capital Hampers Growth of Electricity Industry

Permissible Rate of Return Needs to be Raised

By

A SPECIAL CORRESPONDENT

A PUBLIC utility ordinarily has a field of operation where no competitive undertakings function. The generally accepted view is that public utilities are monopolies, but this statement overlooks an important qualification. For instance, an electric utility has to contend with other forms of illumination and motive power and a transport undertaking has to compete with other modes of locomotion. It would, therefore, be more correct to say that public utilities are limited monopolies, a situation which results from the desirability of avoiding duplicate power lines, telephone lines, railway tracks and gas or water mains in the areas served. This limited shielding from competition in the classical sense has led to the need for regulation so as to ensure reasonable rates to the public and a fair return to the undertaking.

The rate of return to be permitted to a public utility is the core of the problem of regulation. A reasonable rate is vital to its health. A brief reference to the U.S. rate regulation practice under which the "fair return" for a public utility is determined, may be appropriate here. Unlike the Indian law, which provides a general yardstick for all units of the electric supply industry, the calculation of rates in the United States is an *ad hoc* process conducted by power commissions (State as well as Federal) with the right of appeal to courts. The process is well suited to that country because of the gigantic size of the undertakings there. It is not a procrustean bed on which the undertaking must be stretched or trimmed to suit any fixed dimension. The procedure is, therefore, one which is based on case laws established over a period of time, and which allows individual cases to be adjudged in their specific circumstances.

U.S. Practice

The traditional procedure in the U.S.A. for regulating the rates charged by public utilities is that regulation commissions first fix the "rate base" (capital base in the Indian law), representing the investment in the business. They reckon the permitted operating expenditure, decide on a percentage figure to be applied to the rate base, and thus determine the return to be allowed. An analogous provision exists in the Indian statute. Many commissions and courts have examined these fundamentals, and the essence of what constitutes a "fair return" was propounded in the famous Hope case (Federal Power Commission *vs* Hope National Gas Company, 1944). There it was laid down that the process of regulation should square up with the "end result," that a utility should be allowed an adequate return to continue its operations successfully, to maintain its financial integrity, to attract capital and to compensate investors for the risks assumed. The language used in the Hope case decision is significant and has underlined that the earning of a reasonable return should be at a level where it will be possible for the undertaking "to raise funds in the market necessary for the proper continuity of its public duties". Identical phraseology has been used in the statement of objects and reasons appended to the Bill which became the Electricity (Supply) Act in 1948. Obviously, the Indian legislature did not contemplate an end result dissimilar to what has been considered the central core of the U.S. rate regulation practice.

Risks of Public Utilities

What, it may be asked, are the risks in a public utility? Those who invest money in the electric supply industry take more or less the same chances as those engaged in any other business. The electric supply industry, too, must satisfy consumers, take its good years with the bad, face labour problems and cope with revolutionary technological changes. Minor developments in the field of technology affect all parts of the undertaking's installation. The fear which always haunts the industry is that the regulatory process, which is usually influenced by political factors, might seriously lag behind the needs of the situation, and thus greatly reduce earnings. A special factor is that the electric supply business, unlike certain others, cannot be abandoned at will. This has led to recognition by the U.S. regulatory bodies that the strong arm of the law cannot be used to reduce charges resulting in loss, and to the evolution of the principle that as "the law is powerless to prevent injury (in cases where the economics of operation impose difficulties), so likewise it should not be instrumental to cause injury." It would be relevant to make a reference to the truisms propounded by some of the regulatory authorities in the U.S.A. Conceding that a public utility has the characteristics of a limited monopoly, one cannot escape the fact that other conditions being equal, capital, being subject to the law of competition, flows to the highest bidder. In other words, one cannot commandeer capital for financing public utility services; so to attract it, the yield must be sufficiently high.

Fundamentals of Indian Law

A public utility by the very nature of its business must, of course, so operate as to render adequate service at reasonable rates to its consumers. But it is equally important that capital invested in construction, development and extension, especially invested for providing service to additional consumers in new areas, should receive sufficiently favourable consideration. When the regulatory process loses sight of these fundamentals, it tends to throttle enterprise. How far have these tests been met by the financial principles affecting licensees and embodied in the Electricity (Supply) Act? The advisory board appointed by the Government of India in 1946 to examine the "financial principles" formulated earlier in 1944 by the organisation of the then Electrical Commissioner, has in its report outlined the objects underlying the principles in the following terms:

> "To safeguard the interest of the consumer by limiting the interest and dividend payable and at the same time to ensure an adequate flow of development capital, and so effect a reduction in the selling price of electricity.
>
> "To safeguard the interests of investors (and in the long run the consumers) by permitting the earning of a 'reasonable' or 'fair' return on investment".

The emerging pattern of regulation has been one of "regulation of profits," and this has been effectively achieved by relating the return to the "capital base". This has meant that, from the investor's point of view, the attractiveness of a company has largely depended on the maintenance of a healthy ratio between the "capital base" and the paid-up share capital. Many an undertaking started with such a healthy ratio at the time the financial principles were first applied. But with more and more capital having to be invested to sustain expansion, the capital base has, with the passage of time, tended to approximate to the paid-up share capital. Any excess of the former over the latter has since been reduced, and where it exists, it is attributed to efficiency in management. That this was part of a conscious policy is evident, as the advisory board in its report had no hesitation in proclaiming that "once the principles are enforced.....this practice (capitalisation of revenues) will automatically cease, and when new development capital is required, instead of employing surplus profits, etcetera.....it will be necessary for such undertakings to raise fresh capital from the public or borrow from other sources". Time has proved that this approach has not helped development, as it has tended to penalise those sections of the industry which have gone in for large-scale expansion.

Formula for Return

The thought process which has influenced the fixing of the "standard rate" has varied from time to time since the "financial principles" as a whole were conceived as a practical approach to control the licensees' finances. At one stage, it was sought to link the return to the yield on long-dated Government securities. Then it was thought "Bank rate" would be a more appropriate basis. However, when the Electricity (Supply) Bill was finally enacted in 1948, the rate was fixed at 5 percent. The insufficiency of the rate became evident before long, and the amending Act of 1956 went back to a formula which linked the standard rate to the Indian Bank rate (plus 2 percent). That this rate of return, too, is proving inadequate has become evident from the steady fall in electricity equity values over the last three years. The process has been accentuated by the change in the tax pattern introduced by the Finance Act, 1959.

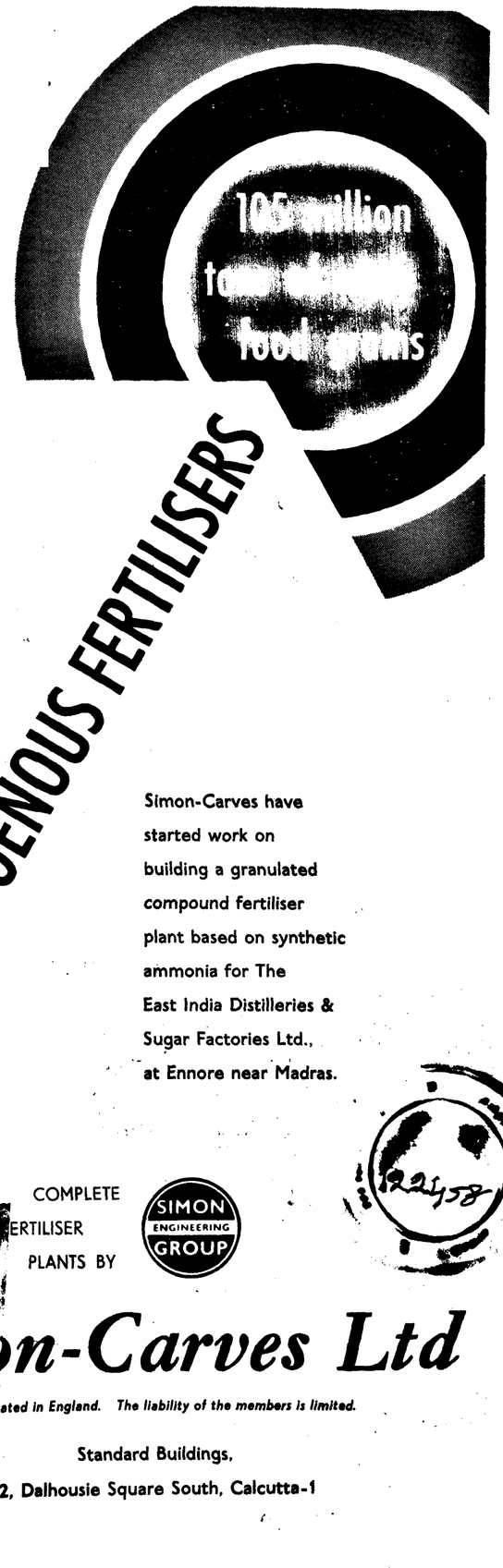
Speaking of the tax pattern, the main difficulty of the electric supply industry arises from the contradictions between the tax laws and the Electricity (Supply) Act primarily in relation to the depreciation provisions. The units of the industry, which have had to contend with accelerated development, are loaded with considerable deferred tax liabilities. In addition, electricity investors have suffered a fall in return by the reason of their not being able to "gross up" dividends (because of nil assessments), when investors in other fields of industry (which could earn depreciation at the full income tax rate) were permitted to avail themselves of that facility under the pre-1956 Finance Act tax pattern. Just as such undertakings were coming out of the tax relief period, which would once again have enabled investors in such undertakings to claim a tax rebate and thus improve their net yield, they have been exposed to an even greater blow by the coming into force of the Finance Act, 1959. Under the new dispensation, the investor in the electric supply industry has lost both ways. When other industries, prior to the application of the Finance Act, 1959, were able to pitch their earnings to include the deferred tax liability and the investor's right to claim the appropriate tax rebate, the electric supply undertakings could only charge the consumer the actual tax payable which has left huge arrears of deferred tax liability. While the earlier scheme of tax collection lasted, shareholders were not entitled to any "grossing up". Now, under the new tax pattern, other tax reliefs applicable to corporate enterprise generally go to the investors in other industries, but in electric supply these are to be passed on to the consumer.

Adequacy of Return

The change in the tax pattern has raised the question: "Has not the level of reasonable return fixed under the law, determined against the background of the concept that all forms of tax should be a charge on the consumer, proved inadequate?" Clearly, the answer can only be in the affirmative. The proof is the considerable discounts placed in the stock markets on electric supply shares and the increasing evidence of these undertakings not being able to raise finance for development at a rate approaching 2 percent over the Bank rate of 4 percent—the ceiling placed on the permissible return to the investor in the electric supply industry. The main considerations which call for a review of the situation in order to promote the development of the industry may now be summarised. They are:

(1) Re-thinking on the fundamentals governing the determination of the return to the investor and fixing it at a level which would, apart from arresting the process of disinvestment in the industry, encourage the flow of capital into it, for expansion.

(2) Simplifying the tax complications inherent in the present conflict in relation to depreciation as between the income tax law and the Electricity (Supply) Act.



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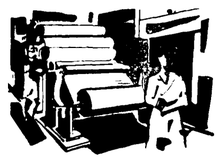

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